Audit of the Affiliated Transactions between Public Service Electric and Gas Company, Public Service Enterprise Group and its Affiliates and Management Audit of Public Service Electric & Gas Company

Submitted to:

New Jersey Board of Public Utilities

Submitted by:

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1. EXECUTIVE SUMMARY AND BACKGROUND

Introduction

The Overland audit was generally supported by Public Service Electric and Gas (PSE&G), providing dedicated personnel to support our discovery, interview, and audit task requirements. We appreciate the cooperation and priority of resources provided to us in the conduct of our review, which allowed the development and thorough consideration of areas of corporate operations included in this report. The joint efforts of PSE&G, the New Jersey Board of Public Utilities (BPU), and our firm were conducted in a collegial and constructive manner, an ideal environment in which to conduct a management audit, culminating in an identification of opportunities for the implementation of recommendations that will lead to improvements in operations benefitting both the Company and its customers.

Project Background and Scope of the Audit

Request for Proposal

On October 16, 2021, the BPU issued a Request for Proposal (RFP) to perform a comprehensive management and operations audit of Public Service Electric and Gas (the Company). Overland submitted its proposal on January 4, 2021 and was ultimately selected to conduct the audit. An agreement to perform the audit was signed in early May 2021. A kick-off meeting with the Company, members of the BPU Staff and Overland was held on May 26, 2021.

Project Scope

The Overland work plan was developed consistent with the RFP released by the BPU. The primary focus of this audit involved two broad areas: a review of the Company's compliance with the competitive services statutes and the New Jersey Administrative Code (Phase 1); and a comprehensive management audit (Phase 2). The specific subject areas of the audit are reflected in this report and are organized as follows:

Chapter 2	Affiliate Relationships and Transactions
Chapter 3	Affiliate Cost Allocation Methodologies
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Chapter 5	Electric Procurement and Supply
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Chapter 17	Cybersecurity
Chapter 18	Gas Delivery
Chapter 19	Contractor Performance
Chapter 20	Human Resources
Chapter 21	Customer Service
Chapter 22	External Relations
Chapter 23	Support Services

Key Findings and Recommendations

Overland has identified a number of key findings and recommendations in the chapter summaries below. Key findings represent what we believe are the most important takeaways from the various subject areas reviewed. Key recommendations represent identified opportunities for improvement in terms of financial materiality, quality of service, or regulatory compliance. A comprehensive listing of all recommendations is included as Attachment 1-1. We believe that all recommendations contained in this report will be beneficial to the Company and its customers, whether specifically identified in this Executive Summary or found in the more detailed discussions in the chapters that follow.

Conduct of Interviews

The audit review was facilitated by the conduct of 84 informal interviews with Company personnel, including subject matter experts and senior management of PSE&G and certain PSE&G affiliates, as well as members of the PSEG Board of Directors. All interviews were conducted virtually.

The interviews were considered “informal,” as they were not taken under oath and there was no transcript taken or recording made. PSEG attorneys were generally present. Aside from the Overland representative(s) and the Company interviewee, the Company generally had one or two other individuals present. The New Jersey Board of Public Utilities Staff also attended all interviews. The primary purpose of the interviews was to gain an understanding of corporate operations and to identify and clarify documents and reports available to support our technical analysis. To the extent possible, Overland did not rely directly on the information gathered in interviews. Written data requests were used as the primary basis for our analysis, findings, and conclusions. A listing of all interviews conducted is included as Attachment 1-2.

Written Discovery

Overland developed written discovery requests as the primary basis for its technical analysis, which is relied upon in the development of this report. Over the course of our audit, Overland issued 1,920 data requests. Many of the documents produced were classified as confidential by the Company. Certain information was further classified as “Restricted” material, which was provided under more limited conditions. Overland believes that the classification and limitations placed on the material produced was

generally justified and that the procedures agreed upon with regard to this material actually facilitated our work by providing reasonable access to highly sensitive material requested during the audit.

Other Sources of Material Relied Upon

Overland also reviewed documents from sources external to the written discovery and interview process described above. We have reviewed: financial material from various sources including investment services and rating agency publications, BPU reports and Orders relevant to the audit, and industry publications in the public domain. To the extent that this information was relied upon in our report, we have identified it in our footnoted references.

Draft Report Review and Comment Process.

Prior to the release of our report, an intense review process was imposed to ensure a complete, balanced, and accurate presentation of our analysis. Aside from the internal review of the work product, Overland solicited and considered the comments of both BPU Staff and PSE&G prior to the release of this final audit report. PSE&G provided a comprehensive set of comments, each of which was given consideration. Overland relied upon and accepted many of the comments provided by the Company. In doing so, there were a number of instances where the information supporting proposed revisions was not available in existing discovery documents. However, PSEG provided a formal representation letter that such information could be relied upon and "is true and correct to the best of PSEG's knowledge and belief." An exit conference with the Company and BPU Staff was held on December 13, 2022 to address any remaining open items. The complete draft report review process occurred over an approximate three-month period.

Overview of Affiliate Relationships and Transactions (Chapter 2)

Overland performed a review of the non-power relationships and transactions between PSE&G and its affiliates within the structure of Public Service Enterprise Group, Inc. (PSEG). We also reviewed competitive appliance services provided by a business unit within PSE&G.

Key Findings

- PSEG's internal control of affiliate transactions is generally adequate to ensure that services and products exchanged between affiliates are recognized and properly compensated and that PSE&G does not cross-subsidize its affiliates.
- PSEG has no reporting or analytical tools to categorize intercompany transactions by type or nature. During our 2018-2020 review period, non-power transactions between PSE&G and its major affiliates included support services provided by one PSEG subsidiary to another, electricity and peak shaving services provided by PSE&G to affiliates, and reimbursements for various payments made by PSE&G on behalf of a subsidiary and vice-versa.
- PSEG does not believe Affiliate Standards regulations, as enumerated in the State of New Jersey's Administrative Code, Title 14, apply as a matter of law to transactions involving its

largest affiliates. PSEG presents these regulations, and its related assumptions, in an annual Affiliate Standards Compliance filing. This is primarily because the affiliates in question are not Competitive Business Segments that "offer competitive services to retail customers in the State of New Jersey."

- PSE&G's Appliance Service Business (ASB) is the only PSEG entity currently offering significant competitive services to PSE&G's retail utility customers. Although it is technically a Utility Business Unit (UbU) rather than an affiliate, and notwithstanding PSEG's stated view about the applicability of Affiliate Standards, PSEG functionally applies most requirements of the standards of conduct applicable to Competitive Business Segments to the relationship between the ASB and the rate-regulated businesses within PSE&G.

Key Recommendations

- We recommend PSEG develop the ability to classify intercompany transactions consistently and accurately by their nature and implement a procedure to review type-classified transactions as part of the monthly cash settlements process. PSEG should develop the accounting enhancements necessary to properly identify and classify affiliate transactions by type, something the Company currently lacks the ability to do. To the extent this may require a reprogramming effort under the current SAP system, we recommend it be done manually on an annual basis, and that the results be reviewed by the Affiliate Transactions Committee. When a new version of SAP is implemented the ability to classify transactions by type for intercompany settlement purposes should be incorporated into the new system's capabilities.
- Develop transaction-type based budgets and budget variance reporting for large, recurring transactions involving fund transfers between affiliates.
- Clarify PSEG's position regarding compliance with New Jersey Affiliate Standards in the Annual Compliance plan and document the controls in place between PSE&G and major affiliates, regardless of the Company's position that certain regulations are inapplicable.

Overview of Affiliate Cost Allocation Methodologies

We reviewed PSE&G's cost allocation processes and procedures and their impact on PSE&G, consisting of centralized services cost distributions from PSEG Services Corporation (PSEG Services) to PSE&G and its affiliates, as well as to Utility Business Units (UbUs) within PSE&G. We also reviewed vendor payments made by PSEG Services on behalf of PSE&G and other affiliates.

Key Findings

- The processes and procedures governing the distribution of approximately $500 million annually in centralized services costs to operating subsidiaries during the 2018-2020 review period were sound and generally consistent with the regulatory objective of preventing PSE&G's cross-subsidization of PSEG's other subsidiaries.

- PSEG actively manages PSEG Services Corp. to minimize growth in the cost of non-revenue producing administrative services.
- Centralization of services in PSEG Services currently produces relatively small economics of scale compared with the centralized service companies in larger, multi-utility holding companies. In part this is because PSEG's largest non-utility affiliate, Power, is smaller than it was a few years ago, having recently sold its Fossil power production business unit. It is also because PSE&G's other large affiliate, PSEG Long Island (PSEG LI), operates largely on its own and consumes less centralized services.
- We have concerns with PSEG's calculation of the three-factor Enterprise Corporate formula used to allocate centralized services costs that cannot be distributed based on cost-causation. Concerns include the omission of PSEG LI's assets from the asset component of the allocator, the use of Plan rather than actual headcount for the headcount component and various adjustments to expense in the O&M expense component. This increased costs allocated to PSE&G and lowered costs allocated to PSEG LI when compared with a more straightforward calculation using all subsidiary assets and without making significant expense adjustments.
- We found problems with and errors in the allocation of some PSEG Services' costs to individual UbUs. This may have been caused in part by an information barrier, referred to by PSEG as a "data wall," between Forecasting Lines of Business costs in the service company and PSE&G's UbUs.
- PSEG LI provides most of its own administrative and management services and receives relatively few services from PSEG Services. During our review period it maintained staffing levels sufficient to provide services without significant assistance from PSEG Services.

Key Recommendations

- Reform the Enterprise Corporate allocator to implement a uniform set of inputs for all PSEG operating subsidiaries and document the calculation methodology in the Cost Allocation Manual (CAM).
- Update and improve centralized services documentation in the service company catalog.
- Update the CAM and add, either as part of the CAM or as a supplemental document, an understandable description of how costs are allocated among UbUs within PSE&G.
- Conduct and document a review of all significant allocations of centralized services costs allocable among UbUs.
- Review and comprehensively update the Service Agreement between PSEG Services and PSE&G so that it reflects all current service and allocation relationships. Periodically review the agreement and update it, as necessary, going forward.

Overview of Market Conditions

The Market Conditions area of the audit covers the relationship between PSE&G and the retail choice environment in New Jersey, as PSE&G plays a role in influencing relevant state policy and supporting retail choice. PSE&G customers' retail choice participation rates are lower than the other Electric

Distribution Companies ("EDCs") in New Jersey, and no substantive issues were found with the approach PSE&G takes to encouraging retail choice in their service area.

PSE&G's general approach to retail choice policy is to accept changes supported by the New Jersey Board of Public Utilities (the "Board" or "BPU"), including initiatives to further grow retail choice in New Jersey. PSE&G recognizes the importance of the ability of Third-Party Suppliers ("TPS") to operate in their service territory by accommodating recommendations made by TPS as intervenors, such as they have in PSE&G's Advanced Metering Infrastructure ("AMI") proceeding. PSE&G regularly interacts with other companies to stay current on supporting retail choice as a member of the EDC/EDI Workgroup run by the Board.

PSEG also participates in the PJM regional market and in matters at the federal level before the Federal Energy Regulatory Commission ("FERC"). In these matters, PSEG crafts a unified position that is determined within the RTO Strategy Group through the combined input of PSE&G and PSEG Power with a focus towards reliability, affordability and safety of service to PSE&G's end-use customers. This message in PJM is combined with that of the other Transmission Owners, which when weighted by sector, contributes to a small proportion of voting power.

Key Findings

- Residential electric Third-Party Supplier ("TPS") participation in New Jersey is lower than the average in PJM States and among deregulated states across the US; commercial and industrial ("C&I") is at or above PJM and national levels.
- PSE&G customers' electric participation rates for both residential and commercial/industrial are slightly lower than the average of the other Electric Distribution Companies ("EDCs") in New Jersey.
- PSE&G supports New Jersey Board of Public Utilities (the "Board" or "BPU") policies to encourage retail choice in New Jersey and actively participates in relevant policy discussions.
- PSE&G supports the TPS by acting as a point of contact when a TPS is entering the New Jersey retail market by providing consolidated billing to customers on behalf of the TPS and covering those costs, and by purchasing TPS receivables.
- PSE&G complies with all Board policies governing retail choice and actively considers TPS needs.
- In PJM and Federal Energy Regulatory Commission ("FERC") matters, PSEG crafts a unified position that is determined within the RTO Strategy Group through the combined input of PSE&G and PSEG Power.
- PSEG maintains a consistent message to continue safe, affordable and reliable service to its customers in its interactions in FERC and PJM matters. Although interests behind PSE&G and PSEG Power affiliates tend to be aligned, their interests may vary based on the differing revenue sources.
- PSEG's input into the PJM decision-making process is heavily diluted by equal sector weighting – PJM's decisions are attributable to a large and diverse pool of members many of which do not own transmission and distribution assets but vote in decisions that affect ratepayers.

Key Recommendations

- Provide a link to the Board's "Shop for Energy Suppliers" webpage on PSE&G's retail choice page to make Supplier browsing easier for customers.
- Provide a link to the Company's Price to Compare directly from its "Electric and Gas Choice Customer Information" page to allow customers to easily see the Price to Compare versus TPS rates.
- Continue to actively participate in supporting retail choice in New Jersey, especially with the roll-out of Advanced Metering Infrastructure.
- PSE&G should initiate discussions with the New Jersey Board of Public Utilities (the "Board" or "BPU") to discuss options and strategies to advocate for new sector weighting in PJM to provide more voting power and influence for members owning significant transmission and distribution assets and that have long-term interests in providing reliable service to end-use customers when voting in transmission-related proceedings, especially regarding New Jersey.

Overview of Electric Procurement and Supply

PSE&G is an EDC in New Jersey whose primary business is distributing gas and electricity to customers, it also supplies electricity to customers not opting for retail choice through its Basic Generation Service ("BGS"). The suppliers, whom PSE&G and the other New Jersey EDCs contract with to procure BGS supply, is done through an auction that has been in place since 2002. In recent years there have been some delays in PJM's capacity market auctions, but the EDCs working with the BPU have been able to maintain competitive bidding and pricing in these auctions. PSE&G's prices cleared through the BGS auctions tend to be higher than the other EDCs in New Jersey due to transmission constraints and other factors that directly affect electricity prices in a geographic region.

PSE&G has a set of controls (including SOX controls) to ensure data is accurately recorded and communicated, including verifying the accuracy of BGS billing. Deferral accounting ensures any over or under collection of revenues from BGS customers versus costs paid to BGS Suppliers is deferred and returned to/collected from customers through a reconciliation charge that assures that BGS revenues only cover BGS costs – and nothing more. PSE&G also ensures there is adequate collateral in place to protect the Company from BGS supplier default.

PSE&G's affiliate PSEG Power owns generation in New Jersey that supplies into the PJM markets. PSEG Power recently sold its non-nuclear generation but continues to operate nuclear plants which are subsidized through New Jersey's Zero Emission Credit ("ZEC") ZEC program. Payments to ZEC generators are collected from ratepayers by the EDCs and paid to the generators. PSEG Power and PSE&G do not interact as affiliates in purchasing and selling electricity and making ZEC payments, but instead interact as any other EDC and generation owner in the state as mandated by the Electric Discount and Energy Competition Act ("EDECA").

PSE&G and PSEG Power interact as affiliates when coordinating communications and voting positions in PJM and FERC matters. This "unified position" is developed within PSEG Services Law Department, under which the Deputy General Counsel and RTO Strategy Officer work with representatives from PSE&G and PSEG Power. When voting in PJM, the two cast one single vote as a Transmission Owner. PSE&G's PJM committee participation tends to focus on protecting end-users and system resiliency, while PSEG Power focuses more on market settlements and activities, especially maintaining robust markets. Past committee voting results show that the transmission owners (PSE&G) and generation owners (PSEG Power) tend to vote the same on most matters.

PSE&G's responsibility for planning and reliability of the electric system is mainly facilitated through PJM. Because supply is acquired through PJM's wholesale markets whether customers choose a TPS or BGS, the responsibility for ensuring adequate and reliable supply rests with PJM, the BGS suppliers and TPS. Decisions related to PSE&G's distribution delivery system are subject to Board approval, while the transmission system is driven by PJM and New Jersey state policy.

Key Findings

- The annual Basic Generation Service ("BGS") Auction Process includes all the Electric Distribution Companies ("EDCs") including PSE&G, has been in place since 2002, and is subject to annual review and approval by the BPU. The EDCs retain an independent consultant to administer the process, NERA, while the Board retains Bates White, an independent consultant, to provide a final report on the outcome and integrity of the process.
- The underlying goal of the BGS procurement process is to obtain reliable supply on behalf of BGS customers at prices consistent with market conditions. The annual BGS Residential Small Commercial Pricing ("RSCP") process provides residential and small commercial customers with stable rates and less volatility through three-year fixed price auctions for multiple tranches with multiple Suppliers.
- The BGS RSCP auction process has historically been successful in providing steady, market-based prices for residential and small commercial customers.
- Delayed PJM capacity market auctions have had the potential to introduce a risk premium in recent years associated with uncertainty in the wholesale electric market capacity prices, but this premium was eliminated with the use of capacity market proxy prices and a true-up mechanism for actual costs incurred.
- While the Electric Procurement and Supply function within PSE&G is run by a dedicated team, there is no formal succession plan and run the risk of being without key personnel should their historically low turnover cease.
- PSE&G contracts a small amount of electricity from legacy PURPA contracts which are paid based on avoided cost rates.
- PSE&G and PSEG Power are adequately separated by the Federal Energy Regulatory Commission ("FERC") and New Jersey affiliate rules and interact as independent entities in the market.
- PSE&G and PSEG Power coordinate one unified corporate position at PJM that represents the best interests of both parties and for PSE&G's ratepayers.

- PSEG crafts a unified position in PJM and Federal Energy Regulatory Commission ("FERC") matters that is determined within the Federal Regulatory/RTO Strategy Group through the combined input of PSE&G and PSEG Power.
- PSEG Power's three nuclear units receive Zero Emission Credit ("ZEC") payments as certified eligible units under New Jersey law.
- PSE&G participates in the ZEC program by collecting Zero Emission Credit Recovery Charge ("ZECRC") Rider revenues from ratepayers, in accordance with New Jersey law, and using these funds to make ZEC payments to eligible nuclear generators annually; these units are wholly or jointly owned by its affiliate PSEG Nuclear.
- PSE&G's planning to maintain reliability is performed in conjunction with PJM's transmission planning process and the Board's BGS auction process.

Key Recommendations

- PSE&G should not implement any changes in current BGS policies and practices until their proposal is approved by the BPU.
- The Electric Procurement and Supply function in PSE&G should adopt a more formal succession planning process for all its manager-level and key analyst roles to maintain secure operations in the future.
- The Board should review the impacts post sale of PSEG Power fossil facilities relative to the financial information provided and justification of ZECs to make sure stranded shared Service Company costs are not included as part of the financial hardship justification included by the nuclear plants in any future ZEC application.
- The Board should conduct a review of PSEG Services allocation methodology to ensure that none of the stranded shared services costs resulting from the sale of PSEG Power's assets will be charged to the PSE&G ratepayers post-closing of the transaction.

Overview of Gas Procurement and Supply

All gas commodity and capacity agreements are held by PSEG Energy Resources and Trade, LLC (ER&T), an unregulated subsidiary of PSEG Power. Basic gas supply service (BGSS) is provided to PSE&G under a requirements contract, subject to Board oversight over the terms and conditions of service. While ER&T manages all aspects of gas acquisition, PSE&G has a separate operating department, Energy Supply Acquisition & Operations, that manages the compliance with the Requirements Contract and other regulatory obligations, validates BGSS invoices, and manages the revenues and expenses associated with gas procurement.

The ER&T organization has recently undergone a transformation due to the recent sale of its entire fossil generation portfolio in the Northeast U.S. The sale, which closed in February 2022, removed 6,750 MW of production from PSEG Power's asset base. The asset sale has resulted in a significant reduction in the size of the ER&T organization.

To accommodate gas demand, ER&T manages a contract portfolio of natural gas transportation and storage capacity on seven different pipelines, in addition to both LNG and propane supplies from facilities on the PSE&G distribution system used for peaking purposes. Approximately 47% of PSE&G's peak daily gas requirement is provided from ER&T's firm gas transportation capacity.

Gas supply prices are determined partially by the ER&T's hedging program, with the remainder purchased at monthly or daily indices. The hedging program accounts for approximately 50% of PSE&G's annual RGS sales and covers approximately 65% of supply when storage volumes are considered.

Key Findings

- ER&T owns all contracts related to the rights to purchase, transport, and store natural gas, while PSE&G manages supply distribution and demand forecasting.
- This arrangement creates inefficiencies associated with two organizations coordinating aspects of this process.
- PSE&G ensures ER&T's compliance with the Requirements Contract through the performance of internal audits of ER&T's operations. These audits have historically covered limited aspects of ER&T's gas procurement processes and have occurred only twice in the past five years.
- ER&T's hedging program is designed with the purpose of stabilizing gas prices to minimize bill impacts to retail customers from large price changes. However, there is no internal evaluation of hedge effectiveness, neither with the cost/benefit of hedged volumes, nor the consideration of changes to the quantity of hedged volumes.

Key Recommendations

- The BPU should consider whether the customer benefits continue to support this arrangement. Management should evaluate whether supply contract ownership and management should be moved to the regulated PSE&G utility, when practical. This would create synergies within the organization and centralize all gas supply processes within the PSE&G organization.
- Since the internal audit function is the primary tool for ensuring ER&T compliance with the Requirements Contract, audits should be scheduled more frequently and explicitly include the contract elements covered under the audit scope.
- ER&T should track the effectiveness of its hedging program to determine the overall impact to customers.

Overview of Remediation Costs

PSE&G is responsible for the costs of remediating environmental contamination of property due to hazardous substances that the Company generated. A primary source of contamination is former manufactured gas plant (MGP) operations. Past BPU orders have established a process by which PSE&G

can recover reasonably incurred costs from customers to remediate such sites. For regulatory purposes, costs are initially deferred; carrying costs are permitted on unamortized balances; and the deferral is relieved by customer charges based on total projected sales (both electric and gas) for the seven-year rolling recovery period. The customer recovery mechanism is known as the Remediation Adjustment Charge (RAC), which is a component of the electric and gas Societal Benefits Charges.

Management of the remediation activities associated with PSE&G's form MGP sites resides within the Environmental Projects group which is a part of PSE&G's Electric Transmission and Distribution organization. Performance is assessed on both the level of spending and timeliness of remediation. In recent years, actual spending on remediation has been less than forecast, principally driven by unexpected delays (e.g., weather) and unanticipated extensions of the award process on a few significant projects. However, despite this, PSE&G has achieved the vast majority of its project milestones during this time period.

Key Findings

- Recent spending has been concentrated on a few of the 38 former MGP sites. In addition, a significant portion of the work has been performed by a limited number of remediation specialty vendors. PSE&G manages its spending through competitive bidding supplemented by a formal change order process.
- The reasonableness and prudency of costs is promoted through two complementary controls – an annual site-level estimate of costs that is reviewed by a senior vice president in Operations and used by Accounting to record associated liabilities and a quarterly evaluation by Accounting and Environmental Projects to identify changes in pricing or scope for use in establishing these same recorded liabilities.
- Total estimated costs to remediate all former MGP sites has increased slightly over the past three years. This is largely due to changes in remediation strategy at some sites that involves higher initial spend but lower expected monitoring and maintenance on a prospective basis.
- Over half the former MGP sites have been completely remediated, and the remainder have mandatory completion dates ranging from 2022 to 2026. PSE&G plans to be meet those specified deadlines or to request extensions as permitted by regulation.

Overview of Deferral of Costs

As a result of the ratemaking process, PSE&G defers the recognition of costs if it is probable that there will be a corresponding recovery of those costs in future rates (regulatory assets). Similarly, the recognition of obligations is deferred if it is probable that a refund to customers in future rates will take place (regulatory liabilities). The most significant new cost deferrals recognized by the Company since its last base rate case involve one associated with recent storm events and another associated with the COVID-19 pandemic. Cumulatively, these two deferrals increased by over $166 million between June 30,

2018 and April 30, 2021 and account for approximately one-third of the net increase in PSE&G's net deferred assets over this time period.

Key Findings

- Deferred storm-related costs are typically triggered by 1) a sustained interruption of electric service outside the control of the utility that affects 10 percent or more of the customers in one of its operating areas or 2) a sustained interruption of electric service outside the control of the utility associated with a declaration of a state of emergency. In this context, "sustained" is defined as non-momentary and in excess of five minutes.
- Given these criteria, PSE&G is averaging nearly two major storm events per year since the BPU first began allowing costs to be segregated for deferral consideration. As applied by PSE&G, once a triggering event has occurred (whether isolated to a specific geographic region or not), qualifying costs incurred for a major storm event are deferred for the Company's entire service territory.
- In the case of declared states of emergency, PSE&G may defer storm-related costs even if its customers are unaffected if the Company incurs costs to prepare for a storm believed to be imminent.
- Costs eligible for deferral are those that would typically be expensed and which are prudently incurred and incremental in nature. Costs which would otherwise be capitalized are not deferred.
- Upon receipt of the BPU Order authorizing deferrals in July 2020, PSE&G has been setting aside prudently incurred incremental costs related to COVID-19, incurred starting in early March 2020, in a regulatory asset account. As of June 30, 2021, these costs total approximately $82 million. In addition, PSE&G has submitted another $34 million to the BPU which the accounting profession does not recognize as eligible for regulatory asset recognition. A third group of potential costs has been identified but not yet been quantified.
- The last audit of PSE&G's regulatory assets and liabilities performed by Internal Auditing Services involved the eleven months from January 1, 2017, to November 30, 2017. In addition, Internal Auditing Services did not include an audit of these assets and liabilities in their 2021 audit plan.

Key Recommendation

- If not already included in its 2022 plan, we recommend that Internal Auditing Services perform audit(s) in the next twelve months of PSE&G's most significant regulatory assets and liabilities as well as those that have been created since 2017, such as the post-2018 base rate case storm-related cost deferrals and the COVID-19 cost deferral. Thereafter, all of PSE&G's regulatory assets and liabilities should undergo internal audit at least once every three years, or the Company should justify why they do not warrant such examination. In addition to determining whether the regulatory assets and liabilities are properly presented and disclosed in the

Company's financial statements, the audits should ensure compliance with regulatory policy, precedent, and rules in addition to confirming that internal controls associated with these regulatory assets and liabilities are appropriate and operating effectively. All related audit reports should be made available to BPU staff or their delegates, upon request.

Overview of Non-Rate Related Revenue

The most significant non-operating gains and other revenues recognized by PSE&G since the last rate case, other than those derived from utility rates, are those associated with the PSE&G appliance service business. Beginning on January 1, 2019, PSE&G began segregating the portion attributed to electric service offerings and recorded 50% of the margins above-the-line and 50% below-the-line in conformance with New Jersey Administrative Code 14:4-3.6(r). Margins related to gas service offerings continued to be recorded 100% above-the-line. In 2019 and 2020, the portion of electric appliance service business revenues recorded below-the-line totaled $36.6 million and $39.8 million, respectively. These were partially offset by a portion of the expenses for these electric competitive service offerings recorded below-the-line as described below.

Key Findings

- As a result of this new treatment of the electric appliance service business, approximately $18 million of annual electric appliance service business margins were allocated equally above- and below-the-line in 2019 and 2020, resulting in a net decrease of customer/ratepayer benefits in each year of approximately $9 million as compared to the methodology employed by the utility in prior years.
- In the past, PSE&G has proposed a 50/50 sharing of gains and losses on the disposition of its property between ratepayers and shareholders. Black box settlements implicitly incorporate this proposal. In 2019 and 2020, dispositions of PSE&G property were minimal.
- PSE&G chose not to share an allocated gain of $3.2 million with ratepayers on the sale of a park adjacent to PSEG's Newark headquarters in the first half of 2018 because the land was not directly owned by the utility. This occurred despite the fact that PSE&G was routinely charged for its share of this land in the years leading up to the sale by the owner, PSEG Service Company. In reviewing this transaction, we also discovered that the allocation bases for annually charging PSE&G for this land and assigning the gain on disposition were different.

Overview of Recommendations and Review of Previous Analysis

While the impact that the rejection of recommendations made by the prior management auditors as well as the implementation of those accepted will be addressed in each separate topical chapter of this report, a summary of the Company's acceptance of these previous recommendations as documented in

2012 and shortly thereafter is provided here. In addition, significant issues identified by the prior auditors as warranting consideration in this audit are highlighted.

Key Findings

- PSE&G accepted in their entirety 42 of 72 recommendations made by the prior auditors which equates to a 58 percent acceptance rate. Of the recommendations that were deemed to be especially important by the prior auditors, the Company accepted 46 percent of them without qualification.
- PSE&G also partially accepted an additional 7 recommendations made by the prior auditors.
- The Company provided the bases for disputing recommendations not accepted in comments publicly filed with the BPU in 2012.
- While the Company has historically communicated its implementation of audit recommendations through informal updates made by the legal department to BPU Staff, verification of the implementation of remedial action has not been performed.
- The prior auditors identified in the 2012 report the following 2011 events for recommended consideration in the next (now current) audit:
    - The LIPA contract
    - PSEG proposed nuclear expansion
    - The Susquehanna-Roseland reliability project
    - Power outages due to Hurricane Irene and other storms

Key Recommendation

- We recommend that implementation plans and/or actions taken by the company to respond to recommendations made in this affiliate transactions and management audit be tested by PSEG's Internal Auditing Services group for comprehensiveness and effectiveness on an annual basis until all accepted recommendations have been implemented. The results of this review should be provided to the BPU in a timely manner upon request.

Overview of Organizational Structure

Public Service Enterprise Group (PSEG) is the holding company for the regulated utility Public Service Electric & Gas Company (PSE&G) and several other operating subsidiaries, including a centralized service organization and power generation company.

PSEG's organization has remained consistent over the audit period. PSEG LI was originally created as a subsidiary of PSEG Energy Holdings but became a direct subsidiary of PSEG Enterprise Group in 2013.

Key Findings

- PSEG subsidiary staffing levels have been constant for the past few years, except for some recent transfers of employees from operating companies to PSEG Services.

- A number of management positions at PSEG LI were reorganized in 2022 in connection with the revised Operating Services Agreement, strengthening the direct reporting relationships within PSEG LI.
- Executive management positions have changed due to corporate reorganizations, leading to the appointment of Kim Hanemann as the Chief Operating Officer and top executive for the PSE&G utility. Ms. Hanemann was internally promoted and has been with the utility for many years.
- PSEG announced the retirement of Ralph Izzo, its Chairman, President and CEO, and the appointment of Ralph LaRossa as his successor, with approval of PSEG's board.
- PSE&G appears to have an appropriate weighting in PSEG Enterprise's balanced scorecard metrics, which are a component of the Company's executive and incentive compensation programs.

Overview of Executive Management and Corporate Governance

Our review of this area addresses a wide range of topics including board member selection and composition, committee and leadership structure, compensation, and training of the parent and/or PSE&G boards of directors; the leadership structure and compensation of executive management; Sarbanes-Oxley and NYSE rule compliance; the status of prior audit recommendations; and a summary of litigation and other contingent liabilities.

A significant event that took place late in the audit was the announcement of the impending retirement of PSEG's Chairman of the Board, President, and CEO Ralph Izzo at the end of 2022.[1] While the knowledge of his retirement would not have substantially changed the approach to our audit, it is noteworthy given his long tenure with the Company and the resulting impacts it has on the remaining executive leadership.

Key Findings

- PSEG's board of directors consists of ten members, an increase of one member from when the last BPU management audit was conducted. Nine members are independent. The average tenure of the board in April 2021 was 7.8 years. Both the size of PSEG's board and its tenure are consistent with peer companies. However, the average tenure will decrease significantly over the next few years with the departure of the chairman, lead director, and one other long-serving member.
- The PSEG board of directors has a diverse set of skills as documented in its proxy statement. Corporate governance trends also indicate that PSEG maintains a percentage of female directors that falls within a range that many companies have recently adopted.

[1] At the time, Mr. Izzo was also PSE&G's Chairman and CEO.

- Rather than impose term limits, the PSEG board has a mandatory retirement age of 75. Based on our analysis, there is no accepted practice as it relates to term limits or mandatory retirement ages. However, PSEG's current approach gives it the flexibility to retain experience while occasionally mixing in a new member with a fresh perspective.
- Currently, PSEG has consolidated the roles and responsibilities of Chairman of the Board, CEO, and President with one person. An independent Lead Director complements this leadership structure. There is no consensus among large companies or utilities as it relates to the consolidation or separation of the duties and responsibilities of chairman of the board and CEO positions.
- The PSEG board of directors has five standing committees: the Audit Committee, the Corporate Governance Committee, the Organization and Compensation Committee, the Finance Committee, and the Industrial Operations Committee. The board also has an Executive Committee that may exercise all authority of the board when the board is not in session. The first three committees are required by New York Stock Exchange rules. The total number of standing committees is consistent with those of other companies we reviewed, and independence requirements established by the NYSE for committee membership have been met by PSEG.
- PSEG has no formal board committee rotation policy, but chairs of committees have an expected term to serve of four years with the possibility of one additional year. We noted several instances of board members serving on one committee for ten or more years.
- PSEG board members receive an annual cash retainer, restricted stock units, and extra compensation for being members of committees and holding leadership positions on the board as well as its committees. Board members are required to accumulate six times their annual retainer amount in PSEG common stock (inclusive of their restricted stock units), which is more than most companies require. A recognized proxy advisor (Glass Lewis) recently found that the non-employee director compensation for PSEG was not significantly higher than a peer group in 2021.
- The PSE&G utility board of directors is a subset of the PSEG board and currently consists of three independent directors and one non-independent director. This board complies with New Jersey requirements concerning residency / location of work as well as separation of responsibilities with affected affiliates. The PSE&G board meets concurrently with the PSEG board, which is a long-standing custom.
- The 13-member Executive Officer Group is the senior leadership team that governs PSEG and its subsidiaries, meeting on a monthly basis.
- PSEG executive compensation is designed to pay the median of peer total direct compensation (base salary + short-term incentive compensation + long-term incentive compensation) adjusted for performance and experience. The most senior executives have the most pay at risk.
- Executive short-term cash and long-term equity incentive compensation is largely contingent on corporate performance associated with financial metrics. Recently, long-term incentive compensation has been modified to include performance associated with environmental, social, and governance matters.

- PSEG is in compliance with Sarbanes Oxley and New York Stock Exchange rules and requirements. However, the transparency of some board documentation related to annual self-evaluation could be improved, and further evaluation would be beneficial.
- PSEG did not adopt some of the prior audit recommendations concerning executive management and corporate governance, but to the extent the matters to be remediated are still relevant, Overland incorporated them into our following recommendations.
- The General Counsel has effective processes in place to identify litigation risk and communicate such risks to executive management and the Board of Directors. Recent years of experience demonstrate that the office of the General Counsel has performed well in monitoring and mitigating PSEG's litigation exposure. Aside from the discussion of the LIPA and Passaic River matters addressed in the litigation section of this chapter, damages payments net of insurance reimbursements over the last few years have been immaterial.

Key Recommendations

- We recommend that actual and targeted performance associated with compensable metrics used in the SMICP, MICP, and LTIP be proactively communicated to all participants throughout the performance year so that informed decisions concerning remedial action can be taken by all in a timely manner. If release of this information cannot be disseminated to the Company employees who have been identified as most crucial to the success of the organization, then different metrics that can be shared should be selected.
- We recommend that the Organization and Compensation Committee require a certain level of accomplishment be achieved with respect to PSE&G safety, reliability, and customer satisfaction in order for pay-outs to be paid to executives under the short-term incentive compensation plans as currently designed. If these threshold levels of safety, reliability, and customer satisfaction are not achieved in a given year, then short-term incentive compensation earned by executives should be capped at 50 percent of target performance achievement irrespective of how the Company performs against other metrics such as financial, ESG, etc.
- The PSEG board of directors should retain a qualified expert on public company board and corporate governance matters to conduct a periodic independent assessment of the board's and its committees' effectiveness. At a minimum, the purpose of this assessment would be to identify areas of improvement, instances in which corporate governance best practices are not being followed by the board or its committees, and non-conformance with regulatory requirements. The third party should be retained by the PSEG board or one of its standing committees. The assessment should be conducted at least once every five years.

Overview of Strategic Planning

The strategic planning function resides within PSEG Services Company and advises senior management on strategic issues and supports the lines of business with respect to strategy execution, market policy

and regulatory policy. This business unit also creates the strategic content included in the 5–10-year business plan.

Strategic planning evaluations and initiative development occur at each of the operating subsidiaries (i.e., PSE&G, PSEG Power, and PSEG-LI), which are coordinated with corporate-level strategic plans. The corporate-level planning process consists of several key offsite meetings of the Executive Officer Group (EOG) during which key strategic issues are reviewed. The PSE&G annual strategic plan consists of a detailed five-year financial forecast with a discussion of key assumptions. The business plan also defines PSE&G's strategic focus.

The enterprise risk management (ERM) function was moved in November 2021 from the CFO organization to the Legal Department. ERM, internal audit and compliance are now under the direction of one senior executive.

PSE&G and PSEG Services Corporation participate in numerous benchmarking studies, some on an ongoing annual basis and others discrete projects often tied to specific corporate initiatives. Performance in the top two quartiles of a peer group analysis is the desired performance benchmark, with lower scores driving evaluations for improvement.

Key Findings

- PSEG has a robust strategic planning process that includes detailed plans for each major operating subsidiary that include industry and company outlooks, strategic objectives, and five- and ten-year financial forecasts.
- The PSEG board reviews the Company's strategic plans during annual off-site meetings each summer specifically dedicated to industry trends and strategic outlooks. Plan updates are also reviewed by the board each December and the following February.
- While strategic plans are developed for each major PSEG subsidiary, the most recent consolidated strategic plan focuses primarily on PSE&G investments and operations, consistent with PSEG's renewed focus on its regulated investment.
- The Company has embraced climate change initiatives among its core strategic planning initiatives, focusing on energy efficiency, nuclear power advocacy, and alternative energy sources such as offshore wind.
- PSEG has recently reorganized its enterprise risk management ("ERM") function to reside within the Legal Department, which is atypical of industry practice, as part of a consolidation of three enterprise assurance functions (ERM, Internal Audit, and Compliance). Governance is provided through a Risk Management Committee, comprised of senior executive management, and two board committees.
- Enterprise risk analysis is updated frequently. In addition to annual board presentations in the December timeframe, key risks are reviewed during committee meetings. Key risks are assigned to the relevant board committee for oversight.

- The ERM Policy and practice documents are silent regarding the setting of the Company's risk appetite, which considers the types and amount of risk an organization is willing to accept. A risk appetite statement is an important element of the ERM process that aligns with the determination of risk tolerances and provides critical guidance in the strategic planning process.
- PSEG migrated from mandatory KPI measurements and scorecards at the department level to a company-wide balanced scorecard format in 2018. Scorecards are now maintained for PSE&G, PSEG Power, and PSEG Corporation.

Key Recommendation

- The Company should enhance its ERM policy and procedures to address the development of a risk appetite statement that is owned by the Risk Management Committee and subject to approval by the board (or relevant committee).

Overview of Finance

Given the utility's ambitious capital spending plan over the next five years, it must rely, in part, on external financing to fund these expenditures. PSE&G has accomplished this in the past primarily through the issuance of long-term debt, and that is not expected to change significantly on a prospective basis.

In addition to reviewing the Company's management of its funding sources, we evaluate its oversight of short-term liquidity, steps taken to insulate PSE&G from the potential financial difficulties of affiliates, the parent's increased focus on regulated operations, and certain income tax matters that were in dispute at the time the last management audit was conducted.

Key Findings

- PSE&G continues to project substantial capital spending in the near term (a cumulative $14 billion - $16 billion from 2021 to 2025). Most of this will be funded by cash flows from operations with any shortfall funded from external debt financing.
- PSE&G strives to maintain strong investment grade credit ratings. Given the financial metrics that are tracked by credit rating agencies, this is largely accomplished by managing the utility's equity ratio at a target level of 54%. S&P and Moody's currently rate PSE&G senior secured debt at A and A1, respectively.
- Calculations of the implied cost of equity using the capital asset pricing model indicate that there is no substantial difference between the cost of equity of a hybrid energy company and a predominantly regulated utility company in recent years. However, with the recent dispositions of PSEG Power's non-nuclear generating fleet, PSEG's risk profile should improve as it will derive more of its income from more predictable regulated operations with less volatility.

- While PSE&G's long-term debt balances have grown substantially over the past four years, the utility has benefitted from the decrease in market interest rates. PSE&G's embedded cost of debt has decreased by 180 basis points to 3.85% over the past decade.
- Moody's recently downgraded PSE&G's debt rating to a level more consistent with that of S&P. Reasons for this downgrade included continuing pressure on financial metrics resulting from the utility's capital investment plan and recognition that PSE&G would be the primary source of funding for future parent obligations.
- Consistent with past practice, PSE&G does not participate in a money pool with its affiliates. PSE&G has access to its own syndicated credit facility ($600 million) for short-term liquidity needs. In recent years, the primary use of the credit facility was as a back-stop to the utility's commercial paper program. Since the beginning of January 2019, the maximum amount of commercial paper outstanding was $480 million.
- To enhance PSEG's flexibility, it has entered into short-term loans totaling $2.5 billion that were outstanding as of December 31, 2021.
- PSEG has taken several steps to insulate PSE&G from potential financial difficulties of its affiliates. While S&P views these steps as currently effective, it also acknowledges that its credit ratings of PSE&G are at least partially dependent on the future ratings of its parent, PSEG.
- With the recent sale of PSEG Power's non-nuclear generating fleet, PSE&G is expected to generate 90 percent of consolidated earnings in 2025. This is a dramatic increase over the 27 percent of consolidated earnings the utility generated in 2010, a fact that Moody's considered in its recent downgrade of the utility.
- Despite PSEG recognizing a significant loss on the sale of PSEG Power's fossil-generating assets, we saw no evidence that significant funds from PSE&G were diverted to its affiliates over the past decade.
- PSEG's dividend amounts are driven in large part by market expectations as the board of directors takes into account such factors as annual dividend increases and dividend payout ratios of PSEG's peers when setting the appropriate level of dividends paid by the Company.
- Moody's recently downgraded PSEG's debt and corporate ratings over concerns about its deteriorating financial metrics coupled with PSE&G's robust capital investment plans. However, PSEG still maintains corporate ratings of BBB+ and Baa2 with S&P and Moody's, respectively.
- Income tax disputes outstanding during the last management audit concerning leveraged lease investments made by one of PSE&G's affiliates have since been resolved. These types of investments are no longer made by PSEG or its subsidiaries.

Overview of Accounting and Property Records

The focus of our audit on these matters were the functional areas most closely associated with accounting-related matters (e.g., revenue and accounts receivable, payroll, expenditures and accounts payable, etc.) as well as the internal controls over financial reporting. In addition, the Internal Audit organization was evaluated in terms of industry guidance. However, our review of Sarbanes-Oxley

testing of controls is addressed elsewhere in the report (see the chapter concerning Executive Management and Corporate Governance).

In addition, we considered the implications of asset impairments, if any, recorded by PSE&G and its affiliates on the utility's financial condition and cash flows.

Key Findings

- Since the last management audit, several functions typically associated with the principal expenditure cycles of the utility have been moved from the oversight of the Executive Vice President and Chief Financial Officer to others. Payroll, from an administrative process, now resides in the Human Resources organization, and Accounts Payable reports to the General Counsel organization.
- Rather than follow industry guidance, PSEG's Internal Audit organization currently reports administratively to the General Counsel. On a functional basis, it reports to the Audit Committee of the Board of Directors.
- PSEG has begun to outsource some of its accounts payable and payroll responsibilities to outside parties. While outsourced payroll services have no contractual performance objectives that must be met, the third-party accounts payable service provider has certain critical service levels that must be met in order to avoid penalties. If critical service levels are exceeded, the outside accounts payable service provider can earn a premium.
- As with other organizations throughout PSEG, performance measures tied to the achievement of departmental goals in accounting-related areas have been eliminated since the last management audit. However, there are a few enterprise-wide key performance metrics that are still tracked, which are most closely associated with accounting (e.g., Sarbanes-Oxley deficiency rates, timely remediation of Sarbanes-Oxley deficiencies, etc.). Performance in recent years has been largely favorable for these metrics. In addition, the attainment of contractual key service levels for outsourced payroll services have resulted in no penalties incurred or bonuses earned since performance began being tracked in mid-2020.
- PSEG's primary accounting system is SAP, a system it has been using for over 20 years. Although it has been delayed twice in recent years, the current version of SAP employed by PSEG will no longer be supported beginning in 2030. The Company is in the process of reviewing its options for the replacement of this system.
- Internal controls over financial reporting undergo a significant amount of scrutiny by various parties. One of these parties is the external auditors, who have opined in the most recent four years that PSEG has maintained, in all material respects, effective internal control over financial reporting.
- None of the deficiencies identified in Sarbanes-Oxley testing have been classified as material weaknesses since the last management audit, and only eight have been characterized as significant deficiencies (none specifically attributed to PSE&G). Excluding deficiencies identified by management, the Sarbanes-Oxley deficiency rate has ranged from 1.58% to 5.52% in the most recent six years and has trended downward over the past four years.

- Internal Audit plays a key role in evaluating the effectiveness of internal controls over financial reporting. The last two individuals assigned to be head of Internal Audit have an educational and work experience background predominately in law.
- The Institute of Internal Auditors (IIA) has identified certain responsibilities that the board of directors should assume for Internal Audit to maintain organizational independence. Some of these responsibilities at PSEG have currently been delegated to the Executive Vice President and General Counsel, including the approval for the requisition of new staff in Internal Audit as well as Internal Audit's budget.
- While PSE&G has recorded no asset impairments in recent years, some of its affiliates have recognized impairments or losses associated with their operations. The most significant of these was the $2.691 billion pre-tax impairment loss on the sale of PSEG Power's fossil generation assets recognized in 2021 because the purchase price of the assets was less than the carrying value of the assets at the time. However, as noted in the Finance chapter, we saw no evidence that funds were diverted from PSE&G to other entities to cover these losses.

Key Recommendations

- Internal Audit should continue to functionally report to the Audit Committee of the PSEG board of directors. However, on an administrative basis, it should ideally report to the CEO of PSEG. Alternatively, we recommend that Internal Audit should revert back to reporting administratively to the CFO, and the Audit Committee of the PSEG board of directors should document its rationale in writing for this reporting structure, including mitigating controls available for situations that could adversely impact the objectivity of the head of Internal Audit and the department as a whole. In such instances, the Audit Committee should periodically, but not less than annually, evaluate whether the head of Internal Audit is impartial and not unduly influenced by the administrative reporting line arrangement. Furthermore, conflicts of interest for the head of Internal Audit and all other audit staff should be monitored at least annually with appropriate restrictions placed on auditing areas where conflicts may arise.
- When a new person is considered for the position of head of Internal Audit on a prospective basis, management and PSEG board's Audit Committee should select and approve a person with a professional and educational background as an accountant and/or financial auditor. In addition, future periodic external assessments of PSEG's Internal Audit function should specifically include an assessment of the competence of the head of Internal Audit as well as a commentary on industry and peer best practices concerning the educational and professional qualifications of the head of Internal Audit, adequately supported by benchmarking data.

Overview of Electric Distribution and Operations Management

The responsibility for the Company's Electric System Operations and Maintenance is organized under the President and COO of PSE&G who in turn has 3 senior leaders with specific electric operations and maintenance responsibilities including; the Senior Vice President of Electric Transmission and Distribution, the Vice President of Asset Management and Planning, the and the Senior Director of Transformation & Centralized Services. Within the Electric Operations organization, staffing generally remained flat to declining with a range from approximately 3,200 to 3,500 employees over a 5-year period.

There are certain job activities within this group that consistently exceeded 30 percent of overtime over a 5-year period. The Company states that plans are underway to increase staffing for these respective activities, but due to the specialized skillset required it is difficult mitigate overtime with contractors or employees from other groups.

To support certain types of work the Company utilizes contractors but they do not track the historical number of contractors on property, nor do they forecast future contractor needs. Company's spend for 2020, contractors comprise approximately 50 percent of total labor spend for both O&M and Capital when compared to in-house labor.

From a safety perspective the 5-year lookback on performance revealed a declining trend (positive) for OHSA Recordables and Days Away and the Company generally compares well to the 1st Quartile peer utilities.

The Company has a dedicated Emergency Preparedness group to assist with the management of these plans and to ensure their compliance. This group reports to the Vice President of Electric Operations through the Senior Director Electric T&D Operations Support, which is a direct link to the leader who is also responsible for the tactical response to most major events. The response activation process is initiated by the Incident Commander, the individual ultimately responsible for event restoration, who weighs information from a variety of sources including from weather information vendors, historical data, and information from individual divisions to determine the "Storm Severity Level."

The Electric Asset Strategy and Systems team is tasked with managing the Company's electric assets and is structured such that individuals are responsible for specific assets. This allows for a level of focus so they remain familiar with the particularities of an asset and maintain continuity over the entire electric system. PSE&G, similar to other Northeastern utilities, maintains an aging asset base that, while currently reliable, does require an intensive inspection and monitoring program to stay ahead of problematic reliability issues.

Analysis of outage data indicates the Company is quite competent at managing reliability. While fluctuations in year over year reliability exist for 2017 and 2019, overall, the Company performs well.

When compared to their peers even PSE&G's worst performing years are better than their benchmark and on average is at or exceeds 1st decile performance.

System Planning considers the wide range of factors that influences short- and long-term loading for the electric system and the steps to manage loading. This includes population growth, new businesses driven by economic factors, public policy such as electrification, and the proliferation of renewables. These factors may either result in increasing or decreasing system demand both in a micro (circuit by circuit) and macro (division or system-wide) scale over the planning time horizon. Historically, PSE&G's load growth has been low to flat,[2] averaging less than 1% per year for electric customers.[3] Load management methods have been updated in recent years to accommodate DER and EV forecasts.[4]

Capital Programs are largely initiated through the Electric Delivery Planning organization, which is responsible for the development of solutions for any identified system challenge or projected need. This also includes, for Transmission, being responsive to PJM committees such as the "Transmission Expansion Advisory Committee and "Transmission Planning Subcommittee," and also supporting the PJM planning process. Project and Construction (P&C) is responsible for the management of capital projects as they move from the conceptual to planning phase with an average portfolio of $2B in Transmission and Distribution projects.

PSE&G has offered various energy efficiency programs since 2008.[5] The Company recently launched their latest program, Clean Energy Future Energy Efficiency (CEF-EE), which is part of the Company's "Powering Progress" vision. PSE&G stated they do not currently have an active DR program. Their previous program stopped accepting new customers in 2014 and was discontinued in 2018 due to "changes in the PJM capacity market rules that were inconsistent with program rules."

The Company noted that their smart grid strategy is developed to align to state and federal policies and programs such as NJ BPUs Infrastructure Investment program and Energy Master Plan and FERC 2222. The Utility of the Future group is responsible for the Company's smart grid strategy and stated they work with senior leadership to ensure that smart grid plans are consistent with Corporate Strategy, which itself is aligned to applicable state and federal policies.[6,7]
The Company maintains a number of IT systems to design, operate and maintain the electric system. All systems are in various stages of their lifecycle with all older applications except for SAP to be replaced within the next few years. Other more recently deployed applications have upgrade plans in place.

[2] Response to OC-1054.
[3] Response to OC-0591.
[4] Response to OC-0245.
[5] Response to OC-0117.
[6] Interview of Raymond Alvarez, Senior Director Asset Strategy, Technology and Systems, on September 20, 2021.
[7] Interview of Ahmed Mousa, Manager Technical Support, on November 3, 2021.

Key Findings

System Operations and Maintenance

- System Operations and Maintenance is supported through a matrix style organization that is linked through process and is monitored through robust performance metrics.
- Electric Operations staffing has remained mostly flat to declining ranging from approximately 3,200 to 3,500 employees over a 5-year period.
- Company leaders stated they endeavor to keep overtime at approximately 30 percent, and generally the data indicates these levels are sustained.
- Based on spend for 2020, contractors comprise around 50 percent of total labor spend for both O&M and Capital when compared to in-house labor.
- Leadership noted that typical strategies such as partnering with trade schools, working with unions to develop a candidate pool, and moving employees into critical roles when they express an interest are all underway to account for future resource needs.

Electric System Reliability

- PSE&G, similar to other Northeastern utilities, maintains an aging asset base that, while currently reliable, does require an intensive inspection monitoring program to stay ahead of problematic reliability issues.
- Our analysis of outage data indicates the Company is quite competent at managing reliability. When compared to their peers even their worst performing years are better than the benchmark and on average is at or exceeds 1st decile performance.
- Tree related outages continue to be the leading cause in both the number of outages and the amount of outage minutes.
- To support improvements in reliability, the Company maintains a list of Poorest Performing Circuits (PPC), to identify specific circuits that rank the lowest in system reliability. Efforts are directed at creating the actions necessary to drive improvements in PPC reliability, which appear to be effective.
- The Company generally met their Vegetation Management completion rate targets for Transmission and Distribution over a 5-year period, except for 2017 where Distribution was below target.

Capital Project Management

- The Company is in the process of growing the Centralized Work Planning and Scheduling Group capability through implementing new processes.
- The Investment Planning process is detailed in their “Establish the Detailed Capital Electric Delivery One-Year Five-Year Work/Cost Plan” document and serves to develop a unified Transmission and Distribution capital plan.

Key Recommendations

System Operations and Maintenance

- The Company should develop advanced computerized tools to assist with staffing forecasts that optimizes internal hiring and contractor utilization. This should be coordinated with a broader corporate effort to accurately model and forecast staffing needs by leveraging input from leadership through a formalized process. The output of this model should be the generation of a short- and long-term resourcing plan.
- The Company should conduct a time study for all front-line supervision within Electric Operations, then benchmark to other utilities for best practices. Pending the results of the study, the Company should strive to reduce the administrative burden, if applicable, so supervisors can maximize their time overseeing employee safety and productivity.
- The Company should re-evaluate their ETR process to determine whether Damage Assessment can be better incorporated to support ETR development in the earliest phase of major events. Additionally, the Company should indicate their compliance to the ETR standards established by the BPU by implementing a tracking method and reporting their compliance through every submitted Major Event report.
- The actions and initiatives resulting from AARs conducted after each weather event should incorporate project management rigor and governance to ensure accountability, timeliness and transparency.

System Planning

- More advanced DER penetration and EV Charger forecasts should be prepared on a short- and long-term basis. This effort should use more advanced forecasting methods such as econometric modeling, industry data, and surveying.

Smart Grid Development and Deployment

- The Company should implement an oversight and management strategy for the Company's Smart Grid strategy and implementation, including deploying their Integrated Distribution Plan (IDP), including consideration of whether a PMO and associated program management frameworks are optimal solutions.

Overview of Cybersecurity

PSEG maintains a dedicated Cybersecurity organization, the Cyber Security Risk and Compliance group (CSRC), reporting directly to the Chief Operating Officer who in turn reports directly to the Board of Directors (Board). The head of the CSRC is a Senior Director who serves as the Chief Information Security Officer. This organizational alignment results in the CISO reporting outside of the IT organization, which is preferable given certain compliance issues that require independence from the IT organization. To support the implementation of the policies, practices, compliance, readiness and response to cybersecurity events, the Company indicated that 21 Full-Time employees maintain this responsibility within the CSRC group.

At PSEG, the top layer of cybersecurity governance is the Board who is ultimately responsible for monitoring the performance of the Company's cybersecurity capability and has the authority to make course corrections where needed. The next layer below is the Cybersecurity Excellence Oversight Board (CEOB) which reports to the President and COO and maintains 1 Chairperson, 1 PSEG representative, and 2 representatives who are from outside of the Company to maintain a level of independent thought leadership. The Cybersecurity Council represents next layer below, is more tactically focused, and includes several stakeholders across the business.

Annually, the Company evaluates its Corporate Enterprise Risk Management (ERM) process to escalate major cybersecurity risk, so all ERM policies and procedures used throughout the Company apply to escalated cybersecurity risk as well. This process is used to identify, score, prioritize, mitigate and manage cybersecurity risk until it is no longer deemed a threat. For emergent risks outside of the annual ERM process the CISO is responsible for identifying and reporting risk through the cybersecurity governance including the Cybersecurity Council up to the Board. The Cybersecurity Council is responsible for the more tactical management of risk, and the Board is responsible for overseeing the proper response until mitigation.

The Company supports current and growing needs for cybersecurity management through investments based on findings from a KPMG's NIST audit to serve as their basis for several of their programs. The Company then identified additional projects that were necessary for compliance purposes. Finally, they identified the investments that were necessary for maintaining operations through third-party vendors, applications and other services. A total of 62 of these programs/projects/investments were detailed by the Company all in various stages of completion.

Key Findings

- The Company's Cybersecurity organization and capability continues to mature and evolve with recent hires, several open positions, and a number of initiatives underway.
- The group responsible for cybersecurity, Cyber Security Risk and Compliance (CSRC), is organized outside of the IT organization which is an industry best practice.

- Cybersecurity Excellence Oversight Board (CEOB) reports to the President and COO and maintains 2 representatives who are from outside of the Company for a level of independent thought leadership.
- The Company had a third party, KPMG, audit their cybersecurity practices using the National Institute of Standards and Technology Framework (NIST) cybersecurity framework which provided insights into the maturity of the Company's capabilities as well as opportunities to improve.
- To close findings from the NIST audit, the CSRC is in the process of more than doubling the size of the organization, which will increase the overall headcount to over 50 dedicated employees.
- The Company is encouraged to sustain their existing practice of continuous cybersecurity education given the ever-evolving cyber threat landscape.
- The Company's most recent NERC-CIP audit resulted in no adverse findings.
- The Company has affirmed their compliance to the BPU Cybersecurity Requirements order in 2017, 2018, 2019 and 2020. They have also, as of June 1, 2016, joined the New Jersey Cybersecurity and Communications Integration Cell and are reporting as required in the order.
- The Company maintains a comprehensive Cyber Incident Response plan and cross functional Team to support the response to incidents.

Key Recommendations

- The Company should develop a customized template to drive a consistent approach to reporting for all levels of governance. Content and metrics should be generally similar including, but not be limited to, Progress on Actions from last month, Emergent Topics or issues, latest intelligence, Key Risks, any escalations from other meetings and metrics.
- The Company should report key staffing risks to leadership through the governance process and highlight actions taken to close these risk areas.
- The Company should prioritize the creation of and implementation of an internally visible schedule of third party cybersecurity compliance audits for medium and high risk vendors and suppliers.
- The incorporation of cybersecurity checkpoints into the SDLC should be a mandatory requirement and not optional, the rationale for lack of implementation should be detailed and vetted through appropriate leadership.
- While Overland recognizes that the Company is moving forward with implementing a customized program management framework for cybersecurity programs, the effort is still developing and many questions remain. Overland recommends that the Company provide regular reporting to the BPU on progress and scope of this effort to ensure it incorporates best practices and is timely.
- The Company should implement a more robust After Action Review tracking approach by implementing a project management centric (including progress to date, delivery date, dependencies, key issues, etc.) and reporting approach, which assigns a clear owner for delivery.

Overview of Gas Delivery

For PSE&G's Gas Delivery function, we focused on the Asset Management & Planning and Gas Operations organizations that comprise the Gas Delivery function and the emergent best practices they employ, an assessment as to how well these two organizations have performed from a variety of measures, the existing gas distribution system including the various risk mitigation initiatives undertaken to safeguard its aging assets as well as the relatively high number of open leaks, distribution system planning requirements, methodology and related projects, the potential impact of the New Jersey Energy Master Plan, capital investments needed for the Gas System Modernization Program (GSMP) and other asset replacement programs, ongoing operations and maintenance activities, an overview of information technology, records management, and concluded with a review of the implementation actions initiated by the Company for the recommendations identified in the last Management Audit.

PSE&G's gas procurement and delivery function is spread over two major entities: the Asset Management & Planning department and the Gas Operations department, with Asset Management & Planning primarily doing the planning, and Gas Operations principally responsible for the execution. For sound strategy implementation it is essential that both entities work closely together to ensure efficient gas supply and effective delivery systems.

The existing gas distribution system is currently being modernized through an aggressive replacement and upgrade program called GSMP, initiated in 2017 and extended in 2019. To continue to reduce risk associated with its gas distribution system PSE&G plans to file for future GSMP programs as well as maintain its Distribution Integrity Management Program (DIMP) for the replacement and/or rehabilitation of its gas system. These capital programs along with prudent operations and maintenance of Gas Delivery's major assets support the Utility's asset management strategy.

Key Findings

- The large number of best practices employed by the Gas Delivery function indicates they seek and use leading industry practices to improve workplace efficiency and effectiveness.
- A broad number of meaningful key performance indicators (KPI's) are used to help drive safety, customer perception, operational, and financial results.
- Through programs like GSMP, Energy Strong, and DIMP good progress in removing both cast iron and bare and unprotected steel pipe material is being made. Based on the current rate of replacement, elimination of these materials should occur in 2039 at an estimated cost of $5.58 billion in 2021 dollars.
- Excavation damage to plastic services, natural force damage to cast iron pipe, and corrosion in unprotected steel services have been identified as the highest risks to the integrity of the gas delivery system.
- A balanced scorecard highlights the selected metrics of Gas Leak Reports per Mile, Leak Response Rate, Open Leaks, and Damages per 1,000 Locate Requests, all of which are in an improving trend.

- PSE&G maintains an active asset repair process to support the reliability and safety of its distribution system, and the overall projected growth rate for O&M expenditures is expected to stay below the rate of inflation.

Key Recommendations

- To support increased collaboration between Asset Management & Planning and Gas Operations departments, PSE&G should pursue the collaboration initiatives cited in the Utility Culture Action Plan Rollout, dated February 2021, with the goal of creating a shared vision, mutual respect, and in-depth understanding of each other's role in achieving excellent business outcomes and outstanding customer service. To confirm the two departments are making progress, a focused employee engagement survey should be periodically conducted, and based on survey results the collaboration initiatives employed adjusted.
- Develop a program that prioritizes the replacement of all short sections (less than 50 feet) of smaller diameter (8-inch and smaller) of cast iron pipe operating above utilization pressure in low priority GSMP grids. The program should have a definitive start and end date consistent with prudent distribution system risk management.
- Perform an open leak cost-benefit study, similar to what other gas utilities have conducted, to determine if there is a potential cost savings as well as reduced methane emissions associated with fixing leaks sooner.
- If conclusions from the open leak cost-benefit study support reducing the number of open leaks, the Company should develop and commit to a plan of significantly reducing the number of open leaks from end of year 2020 levels.
- Future GSMP filings will recommend continued replacement of cast iron and bare steel in PSE&G's gas distribution system. By continuing to remove these leak prone facilities and assuming normal winter conditions, the Company should experience less leaks per mile in the remaining facilities. Consequently, the Company should continue to commit to the BPU that it will achieve a reduced end of year open leak backlog in concert with any future GSMP filings.
- Develop a written policy and process addressing when and how potential non-pipeline alternatives to traditional long-term system reinforcement projects should be evaluated.
- To demonstrate GSMP success in reducing the Leak Hazard Index per mile of main that remains in its system, PSE&G should develop and annually report to the BPU a suitable metric that emphasizes the inventory of prioritized utilization pressure cast iron main remaining in its system based on the Hazard Index per mile of main per map grid.

Overview of Contractor Performance

As discussed in Chapter 19, we reviewed PSE&G's relationships and management of contractors and their performance. Areas of review included the Damage Prevention Program, including excavation damage causes, benchmark comparisons, and legal proceedings involving excavators. We reviewed gas construction work, including the Distribution Operations Gas Construction group and its ongoing use of contractors, how both the Gas Construction group and contractors are managed and have performed, and how quality oversight is provided. We reviewed management of electric construction work,

including the Projects and Construction Project Management Office and its approach to estimating large projects, budget performance, electric work outsourced, how contractor oversight is provided, and how electric construction and contractor work is monitored through quality assurance and control.

Key Findings

- Between 2016 and 2020 the number of gas markouts performed increased by 29.5 percent, while the number of damages decreased by 7.2 percent resulting in a damage rate decrease of 28.5 percent. Over the same five-year period the number of electric markouts performed increased by 32.3 percent while the number of damages doubled resulting in a damage rate increase of 25 percent.
- Between 2016 and 2020 Damages by Excavator accounts for 62.3 percent of the damages, Damages by Operator accounts for 33.9 percent of the damages, and Could Not Determine was used to categorize the remaining 3.7 percent of the damages.
- The amount of BPU Underground Facility Protection Act (UFPA) fines levied against PSE&G has varied from a high of $486,000 in 2018 to a low of $9,000 and 2020.
- There is no statewide database of excavators who frequently and/or flagrantly damaged underground utilities shared between the various utilities. Consequently, it is difficult to recognize these contractors in advance so that extra safety precautions can be taken.
- PSE&G has recently implemented several initiatives to enhance its damage prevention program including equipping and training markout personnel with multifrequency locators, formed a Damage Prevention/Markout Team to explore technology, supporting systems, data analytics, cost tracking, and work management approaches, initiated an enhanced One Call ticket management system, and hired artificial intelligence firm to look at the application of AI to damage prevention.
- Despite the establishment of the Gas Construction group, contractors still play a large support role in the completion of the Gas Operations department's capital project workload. Between 2016 and 2018 the hours worked by internal crews has steadily increased when compared to contractor hours and overall, outsourced work as averaged about 28 percent of total capital and O&M work completed in gas.
- To formulate the design and implementation of the Gas Construction PMO, Gas Operations collaborated and worked with the Projects & Construction PMO group and implemented the Project Management Body of Knowledge (PMBOK)/Project Management Institute (PMI) methodologies, providing the tools needed to efficiently manage the Gas Construction group and contractor workloads.
- PSE&G's 10 largest construction projects in the most recent five years were all electric. Eight of the 10 were at budget and two were under budget.
- Projects and Construction (P&C) and Electric Operations outsources work in both the Capital and O&M categories. For the years 2016 through 2020, overall outsourced work accounted for about 50 percent of total capital and O&M efforts.

- Contractor audits may cover safety, environmental, cost, and schedule performance during or at the conclusion of a project. Results are shared with individual suppliers at meetings, and "on an ad-hoc basis depending on findings."

Key Recommendation

- Expand PSE&G's Peer Panel Benchmarking to include additional comparisons for gas and electric damage prevention, specifically the markout program, or develop some other enhanced comparative analysis for damage prevention. The comparison should be structured in such a way that the damage prevention program variability between utilities can be identified to allow understanding of the methods utilized by the utilities achieving superior gas and electric damage prevention performance.

Overview of Human Resources

Within the category of Human Resources, we reviewed PSEG's compensation and benefits programs and procedures, labor relations, workforce planning and performance management, employee training and development, and diversity, equity and affirmative action and equal opportunity programs and procedures.

Key Findings

- PSE&G uses a third-party market pricing tool, MarketPay, to benchmark jobs and properly position them within PSE&G's MAST salary grading structure. All new positions are evaluated for placement within the grading structure. Existing positions are also evaluated for potential regrading when position requirements change.
- Total direct compensation for non-executive employees, which includes base salary, targeted cash-based incentive pay and the grant date value of long term stock based incentive pay, appears consistent with the market.
- PSE&G's primary bonus pay program for non-executive employees is the Performance Incentive Plan (PIP). Data from Pay Governance indicates that the median target annual incentive as a percentage of salary, and the percentage of MAST employees eligible for and participating in the PIP is consistent with peers.
- About 98% of eligible employees receive an annual PIP incentive award. The most important factors determining the award amount an employee receives are: 1) the budgeted (target level) award pool, which the actual award pool closely tracks, and 2) the employee's pay grade, with targeted awards ranging from 5% of base salary for employees in the lowest five pay grades up to 40% of base salary for employees in grade LX, one step below officer level.
- Financial and operational performance results appear to play a relatively minor role in determining an individual employee's cash-based incentive pay.

- Data from Aon shows the overall economic value of employee health and welfare benefits provided to MAST and union employees is roughly equivalent to the economic value of benefits provided to employees in a comparator group.
- To assess the reasonableness of union-requested changes in wages, PSE&G stated that the Labor Relations team research wage data from the U.S. Bureau of Labor Statistics, leverage information provided by other HR Centers of Excellence, and informally consult with industry peers through memberships in the Regional Utility Group, Edison Electric Institute, and American Gas Association. Records of the research and consultation are not formally maintained.
- It appears PSE&G does not utilize benchmarking data to assess the reasonableness of union-requested changes in wages.[8] The Company stated that it researches wage data from the U.S. Bureau of Labor Statistics and informally consults with industry peers through memberships in the Edison Electric Institute and American Gas Association.
- Staffing levels have remained consistent for PSE&G; however, due to attrition and other factors over the past decade, the volume of hiring has increased significantly in 2021. The PSEG Services workforce has increased recently due to reorganizations that moved employees from operating companies to the service company. PSEG anticipates moving an additional 500 engineering and construction support employees from the utility to the service company in the near future.
- There were no material constraints to workforce availability due the pandemic. While some impacts to hiring were observed at certain localities, the Company did not implement a hiring freeze or other enterprise-wide program to limit hiring in the last few years.
- Although open vacancies were at six-year highs at the end of 2021, PSE&G's turnover rates were consistent with industry peers.
- To maintain compliance with the US Department of Labor's Office of Federal Contract Compliance Program's AA requirements, PSEG stated that it: 1) conducts an annual Impact Ratio Analysis to ensure hiring, termination and promotions have been in compliance, 2) conducts compensation regression analysis to identify statistically significant pay differences by race and gender, 3) ensures its facilities are compliant with the Americans with Disabilities Act and any violations found are cured, and 4) ensures that employee requests for accommodation are handled in compliance with regulations.
- PSE&G has an increased focus on outreach and AA activities for veterans and people with disabilities. It conducted a dedicated campaign in 2020 with an aim on increasing inclusion for people with disabilities.
- As a federal contractor, PSE&G maintains an AA plan with hiring goals and results by job group. The plan attempts to compare the percentage of women and minorities in each group with requisite skills available in the Company's geographic are for employment and develops a placement goal where there is a gap. [BEGIN CONFIDENTIAL] [redacted] [END CONFIDENTIAL]

Key Recommendation

- The Labor Relations team within HR, in consultation with the company's Compensation HR Center of Excellence, should consider more formally benchmarking wage compensation for union employees against peers to assist in negotiating union wages that are both fair and comparable with peers.

Overview of Customer Service

We reviewed PSE&G's customer service function, including its organization, staffing, technology and operations. We reviewed the metrics used to measure operational performance and benchmarking with other utilities. We reviewed compliance with customer service rules codified in the New Jersey Administrative Code, focusing on account dunning, involuntary disconnection, customer contact and billing. Finally, we reviewed PSE&G's meter reading, testing and replacement procedures.

Key Findings

- PSE&G moved its primary customer contact operations from Cranford to Newark in 2019. As a result of the move square footage increased from approximately 65,000 to 82,000 square feet. Since the Covid pandemic, with most customer contact employees working from home, the new center appears to be significantly underutilized.
- At the end of 2021 PSE&G had approximately 100 employees distributed among 16 local customer contact centers. The centers serve as points of contact for a relatively small percentage of customers, and usage appears to be skewed toward customers with bill payment difficulties. Excluding rent, the centers cost approximately $10 million annually, and PSE&G estimates they process between 2 and 3 percent of total utility payments. Relative to other collection and payment activities, the cost effectiveness of the centers as a group is questionable and their efficiency relative to other methods of collecting payments appears low.
- PSE&G participates in customer operations benchmarking with a group of East Coast utilities. Overall, during 2020 (the year for which metrics were provided), PSE&G's performance was below average (below the 2nd quartile) for nine of the 12 metrics benchmarked. PSE&G believes its performance was negatively affected by Covid pandemic restrictions, and by its lack of implemented advanced meter reading infrastructure relative to peers.
- PSE&G maintains procedures needed to comply with important New Jersey Administrative Code regulations in the areas of service application and initiation, customer deposits, account dunning and collection, involuntary service disconnection, customer contact and billing and payment.
- Meter read rates deteriorated significantly in 2020, to approximately 82%, down from an average of approximately 90% over the previous five years, primarily a result of the Covid pandemic. PSE&G's 2020 read rate performance placed it at the bottom of the third quartile among Northeast region utilities surveyed by JD Power.

- PSE&G's meter read error rate deteriorated significantly in 2021, to 20.4 per 1,000 meters from an average of 15.6 per 1,000 over the previous six years. PSE&G cited reduced meter reads (both physical and ERT) resulting from the Covid pandemic as primary causes; however, the read error rate was just 13.3 per 1,000 for the year 2020. The Company also cited automation of the billing exception process as a reason for increased identification of billing errors.
- Long-term estimated meters, also known as "chronics," increased dramatically as a result of the Covid pandemic, from an average of about 45,000 meters at year end 2019 to approximately 140,000 at the end of 2020.
- In 2021 PSE&G began implementing its NJBPU-approved plan to replace nearly all electric meters by the end of 2024, at which time it expects to have 2.2 million new meters with Advanced Metering Infrastructure technology in place. The Company stated that it expects these meters will provide a variety of new data points, including daily meter reads, interval consumption data, voltage information, outage and restoration notifications, and conditional alerts.

Key Recommendations

- As soon as practicable, PSE&G should take steps to reduce its leased space footprint in the new Newark Customer Contact to match the highest utilization the Company expects it will need under its ongoing work-from-home policy.
- Rather than simply having a stated goal of top-quartile or top-decile performance, PSE&G should develop a concrete plan of action to improve, over the medium term (1-3 years), key Contact Center metrics in which it ranks in the third or fourth quartile, specifically the customer inquiry service level and the abandoned call percentage, to at least second quartile performance among peers in the JD Power survey.
- As part of the ongoing effort to move customer communication to digital channels, we recommend PSE&G develop a specific plan to better utilize the CSCs or simply reduce their overall cost by closing the least productive centers, as permitted by employee attrition or reassignment, and considering geography, customer payment alternatives, and historic trends of utilization.
- PSE&G should develop a metric to measure the extent to which its procedures result in the establishment of service within two business days of the receipt of a customer's application for utility service, as required by N.J.A.C. Section 14:3-3.2(g).
- PSE&G should develop a metric to measure the extent to which its procedures result in the restoration of service within 12 hours upon a customer correcting all of the conditions which caused service to be disconnected, as required by N.J.A.C. Section 14:3-3A.9(a).

Overview of External Relations

External relations are managed by PSEG's Corporate Citizenship Department, which was formed in 2018. A critical element in the formation of this group was the elevation of the corporate sustainability

function, and its importance in the Company's government and public outreach efforts. Resources have been added to address environmental, social and governance (ESG) initiatives in the last five years.

Certain employees have been designated as PSEG's representatives to communicate directly with the NJBPU, legislature and governor's office. Additionally, the Corporate Citizenship Department works with third-party lobbying and public relations entities to support its advocacy programs.

The Company revised its storm communications approval process after Tropical Storm Isaias. The Corporate Communications Department obtains outage data from Operations groups, drafts media updates, and circulates the document internally to designated individuals within Operations, Corporate Communications and Legal. In addition, PSE&G has a pre-storm checklist that includes a process for media updates with storm preparedness guidance, if necessary.

The Corporate Citizenship group plays a significant role in the implementation of corporate initiatives related to NJBPU filings, ESG reporting, and New Jersey hiring targets.

Key Findings

- In recent years, PSEG's lobbying activities have focused to a large extent on the advocacy in support of nuclear power, including its designation as a "green" energy source (due to the lack of carbon emissions) and the necessity for New Jersey's Zero Emission Credit (ZEC) program.
- PSEG has incorporated ESG awareness and promotion into its strategic planning and corporate objectives and developed numerous public reports to communicate these objectives with its stakeholders.

Overview of Support Services

PSEG's insurance program is designed to economically manage risk through the assumption of self-insured retentions ("SIRs") and insuring against significant losses. In addition, the program seeks to utilize mutual insurers where possible. The department conducts annual insurance reviews for each major policy, supported by its insurance broker.

The majority of third-party injury and property damage claims are resolved through direct interaction with claimants and are therefore not litigated. Members of the public can file a claim using a web page, emailing the Claims Group directly, or filling out a Property Damage Claim Form. All of these can be accessed through the Company's main website.

PSEG employs a larger number of staff attorneys than peer utilities, as the company prefers more direct control over legal matters. However, outside counsel is used for major corporate initiatives (such as the fossil asset sale) and in areas which the company lacks specific expertise. In 2021, two major

organizations that had existed elsewhere within PSEG Services were transferred to the Legal Department: the procurement function and internal audit.

PSEG's facilities and PSE&G's land are overseen by a group within PSEG Services Corporation comprised of approximately 70 individuals who are responsible for strategic planning, asset investment, facility construction and management, real estate taxes, and organizational performance management. Prior to 2016, facilities management was decentralized and handled at the local level.

The Materials & Logistics Management group is responsible for inventory management and warehouse functions across PSE&G's territories. PSE&G has separate inventory storage sites for electric and gas inventory, except for the Clifton, New Jersey location, where both are kept in separate areas. There are 10 storage locations for electric materials and 13 for gas materials that are geographically dispersed in the Company's service territory.

PSE&G's Transportation organization handles all administrative tasks (titling, registration, etc.), emergency (road call) services, repairs and maintenance, and disposition of the utility's vehicle fleet comprising approximately 7,000 owned and leased assets as of March 2022.

Key Findings

- PSEG corporate insurance premiums increased 6% annually between 2018 and 2021, although the fossil asset sale reduced the 2021 property insurance premium by a substantial amount. Premium increases were below peer averages.
- Using actuarial studies, the Insurance Department has made reductions to certain coverage limits that optimized premium costs without significant risk increase.
- Third party claims payments increased in 2020 in connection with Tropical Storm Isaias, but otherwise have been trending lower since 2018. Claim reserves have increased since 2018 due to several discrete incidents, while the number of reserved claims has remained stable.
- Outside legal expenses increased 57% in 2021 over the prior three-year average. The increased spend was attributable, in large part, due to fees associated with the fossil asset sale, a review of the compliance investigation process, and FERC enforcement matters.
- With the exception of the Newark downtown headquarters building and the Cragwood office in South Plainfield Borough, the most significant employee-occupied facilities are owned. The Newark downtown headquarters building is leased through 2030 and has 2 five-year renewal options. The Cragwood office is leased through 2023 and has 1 five-year renewal option.
- PSE&G owns relatively little vacant land, and most parcels not classified as held for future use were less than one acre in size.
- The usage of the Newark downtown headquarters building has decreased dramatically since the onset of the COVID-19 pandemic in early 2020. Average daily usage as of the end of 2021 is less than 10 percent of what it was prior to the pandemic, and PSEG has considered options at the site which would allow it to "go dark" on 7 of 21 floors it leases to realize savings associated with utilities, janitorial services, security, etc.

- PSE&G's Materials & Logistics Management group has not analyzed its material throughput to determine optimal inventory stock levels. As a result, the Company may have higher risk of parts shortages, or excessive working capital tied up in inventory assets.
- PSE&G manages most of the costs associated with its predominantly owned fleet on an in-house basis. This arrangement has permitted PSE&G to reduce its fleet costs between 2018 and 2020, it has also minimized the downtime associated with these assets since repair work can be scheduled either after-hours or over the weekend at management's discretion.

Key Recommendation

- PSE&G should implement the inventory optimization analysis currently in development and update the SAP system with optimal material quantities.

Public Service Electric and Gas Company Audit

Overland Consulting - Comprehensive Listing of All Recommendations

Recommendation	Chapter
We recommend PSEG develop the ability to classify intercompany transactions consistently and accurately by their nature and implement a procedure to review type-classified transactions as part of the monthly cash settlements process. PSEG should develop the accounting enhancements necessary to properly identify and classify affiliate transactions by type, something the Company currently lacks the ability to do. To the extent this may require an expensive reprogramming effort under the current SAP system, we recommend it be done manually on an annual basis, and that the results be reviewed by the Affiliate Transactions Committee. When a new version of SAP is implemented the ability to classify transactions by type for intercompany settlement purposes should be incorporated into the new system's capabilities	Non-Power Affiliate Relationships and Transactions Recommendation 2.1
In conjunction with Recommendation 1, we recommend PSEG explore development of transaction-type-based budgets and budget variance reporting for large, recurring intercompany transactions involving fund transfers between affiliates. PSEG should report to the BPU whether it is possible to develop and implement these capabilities cost effectively prior to the replacement of the Company's SAP system. Budgeting for expected funds transfers by type of transaction is no less necessary for large intercompany transactions than for transactions between unrelated parties. Budgeting occurs for each operating company and plans vs. actuals are reviewed and may trigger more in depth analysis for any given variance. However, by setting expected levels of charges and funds flow, budgeting can help maintain control over large, recurring charges between affiliates. Examples of recurring charges that should be budgeted include large, recurring transmission agreement payments made to Power but owed to PSE&G, large corporate life insurance payouts received by PSEG Enterprise that are owed to PSE&G, and retiree prescription subsidy program payments received by Enterprise but owed to PSE&G. When significant variances occur, it should prompt follow up review, at least by the affiliate to which funds are owed. Implementation of this recommendation requires maintaining information to classify intercompany transactions by type; as such it is related to the previous recommendation.	Non-Power Affiliate Relationships and Transactions Recommendation 2.2

Public Service Electric and Gas Company Audit
Overland Consulting - Comprehensive Listing of All Recommendations

Recommendation	Chapter
We recommend PSEG clarify its position regarding compliance with New Jersey Affiliate Standards in its Annual Compliance Plan and clarify and document controls in place between PSE&G and affiliates regardless of the Company's position that certain regulations are inapplicable. PSEG takes the position that, as a matter of law, it is required to comply with New Jersey Affiliate Standards only with respect to its relationships with two, in our opinion very minor, "affected affiliates" (PSEG Solar Hackettstown and PSEG Energy Solutions). It is our opinion as auditors that there are many provisions of Affiliate Standards that should apply to the material relationships between PSE&G and its more significant operating affiliates (PSEG Services, Power, Energy Holdings and PSEG LI). In addition, there are provisions in Affiliate Standards, including those in N.J.A.C 14:3-3.3 and 14:3-3.4, that, in our opinion should apply to PSE&G's Appliance Services Business, notwithstanding the fact that the ASB is a separate PSE&G business unit rather than a legally distinct affiliate. While we found that, in practice, PSEG applied Affiliate Standards requirements to PSE&G's relationships and transactions with PSEG Services, PSEG Power and other significant operating affiliates, we recommend PSEG consider the "Relevant [Affiliate] Standards" covered in its Annual Compliance Plan and clarify, in each of the Plan's "Compliance Procedures" sections, the affiliates and / or ASB business unit to which specific regulations apply. We also recommend PSEG clarify, regardless of applicability of these regulations, the procedures PSEG uses either to ensure compliance where required, or to enhance affiliate controls where technically not required. The NJBPU should review these Compliance Plan clarifications to ensure they properly recognize PSEG's controls with respect to PSE&G's relationships and transactions with its major operating affiliates, and between PSE&G's regulated utility business and the ASB.	Non-Power Affiliate Relationships and Transactions Recommendation 2.3
PSEG should reform the Enterprise Corporate allocator to implement a uniform set of inputs for all PSEG operating subsidiaries and document the calculation methodology in the CAM. Any adjustments to the inputs and the impacts of such adjustments, or the basis for not making such adjustments, such as to the O&M expense component of the allocator, should be documented in the CAM and submitted for review by the BPU. Specifically:	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.1

Recommendation	Chapter
The zero-value used for PSEG LI's assets should be replaced by the utility's actual net fixed asset (or gross plant) input value. Allocators that rely on measures of size to distribute non-attributable corporate costs are inherently arbitrary in that they cannot be linked to cost objectives based on cost causation. This does not mean they cannot be objective, systematic and rational. However, it is neither systematic or rational to calculate an allocator based on measures of size that, for one reason or another, either do not apply to or are determined not to be useful for all of the allocator's significant cost objectives. In this particular case, there is no reason that PSEG Long Island's net fixed assets should not contribute to its "weight" in drawing PSEG's corporate enterprise costs. PSEG supports the Long Island utility's assets in all material respects. PSEG manages, operates and maintains the assets and performs asset planning. If PSEG's stated reason for excluding Long Island's assets from the allocator's calculation, that it does not hold the title to the assets, overcomes the asset management, operation, maintenance and other activities supported by PSEG Corporation, then the basis for using assets as a measure of relative corporate support in the allocator is flawed, because it cannot be applied in a balanced fashion to the significant subsidiaries supported. Regardless of the measures selected, the Enterprise Corporate allocator should be based on measures of size that are characteristic of and can be used for all subsidiary cost objectives, with the exception of subsidiaries that are small enough that the difference between using or not using a particular component would be immaterial. Leaving assets out of the allocator lowers PSEG LI's allocation of corporate enterprise costs by nearly a third, and improperly shifts corporate enterprise costs to PSE&G and Power, but primarily to PSE&G as Power shrinks.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.1a
The Plan headcount factors used in the enterprise allocator should be replaced with actual employee headcounts. The Plan-based (authorized) subsidiary headcounts used to calculate the enterprise factor's headcount component materially exceeded actual headcounts for PSE&G and Power, but not for PSEG LI. For example, PSE&G's Plan headcount was more that 7% above actual headcount throughout the three-year review period, while PSEG LI's actual headcount was within about 2% of Plan. This caused the allocator to assign relatively less corporate cost to PSEG LI and relatively more to PSE&G and Power than would have been the case had actual employee counts been used. Actual headcount is an accurate measure of the relative level of support provided by corporate activities to the employees of each subsidiary and is preferable to authorized employee levels, particularly when Plan levels contain several hundred authorized positions that never seem to get filled for one subsidiary, but not for another.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.1b
Adjustments to financial statement O&M expense for use in the enterprise allocator should be documented and explained. There are significant adjustments made to financial statement O&M expense for use in the Enterprise Corporate allocator. For example, in 2020 nearly 48% of PSE&G's O&M expense was adjusted out for allocation purposes, and more than 42% was adjusted out for PSEG LI. Neither the basis nor the reasons for the adjustments are explained anywhere in PSEG Services' CAM. It is not clear that the adjustments render a better "apple-to-apples" comparison of O&M expense across subsidiaries. To the extent any adjustments to published, verifiable O&M expense amounts are made in the allocator, they should be supported by the objective of making the figures more comparable across all subsidiary cost objectives. The logic behind any adjustments to O&M used for allocation purposes should be fully explained and documented in the CAM.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.1c

Recommendation	Chapter
The service company catalog should be updated and documentation improved. The service company catalog should be reviewed to ensure it covers all services which are or are authorized to be provided. All obsolete services should be removed. An additional column of information should be added to better explain how the services are allocated; for example, descriptions of the transactional bases for services should be added. The service company activities included in services should be better documented in some cases. For example, instead of stating simply that a service is intended to include "enterprise level" activities, the service definition should provide examples of the types of work that qualify as enterprise level in the context of the department providing the service and the activities performed.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.2
The Cost Allocation Manual should be updated to add, or a supplemental document should be developed to provide, an understandable description of how costs are allocated to business units within PSE&G; in particular, how PSEG Services' costs are distributed to UbUs that comprise the foundation of state-level electric and gas distribution revenue requirements and rates. The CAM was not designed to explain how service company costs attributable to multiple PSE&G UbUs are distributed to the business units. The CAM does not explain the basis for allocations to UbUs or why some service company Customer Operations, Electric Operations and Asset Management and Centralized Services costs are or are not attributable to UbUs such as Appliance Services or Transmission. Instead, the CAM contains a technical discussion of the means of allocation within the utility (for example, what "surcharging," "assessment" and "fixed percentage allocators" are and how they are calculated.) While this technical information is fine, as far as it goes, it does not explain the basis for the allocation of various common service company activities or why they are considered attributable to some UbUs, but not others. One way to accomplish a service-level documentation of the basis for cost allocation to UbUs would be to add the information to the service company catalog discussed above. Alternatively, the company should develop supplemental documentation that should be referenced in the CAM that provides this information.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.3
PSEG Services should conduct and document a review of all significant common cost allocations to UbUs. Overland reviewed a limited number of allocations of service company costs within PSE&G and found mistakes had been made in the application of allocation percentages. In addition, services which appear to have been common to all UbUs served by operating organizations such as Customer Operations and Electric Operations were not allocated to all of the UbUs served by those organizations. It is likely that these problems are due to the "wall" between information available for utility FLoBs in the service company's accounting system and UbU information available in the utility's accounting system. We recommend a complete review of the links between service company services and utility UbUs and the basis and selection of UbU cost objectives for all services common to more than one UbU.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.4

Overland Consulting - Comprehensive Listing of All Recommendations

Recommendation	Chapter
At the time of our audit the Service Agreement between PSEG Services and PSE&G was outdated. The agreement should accurately reflect all current service and allocation relationships. PSEG stated that the agreement we reviewed, which had not updated since 2003, was updated in 2022. Going forward, the Company should periodically review the agreement for material changes and update the agreement to reflect details and applicable changes through an addendum, or as appropriate, to update the entire agreement. The Service Agreement establishes basic terms for service company staffing, service accounting and utility payment, a service company working capital fund, record keeping and PSE&G access to records. It provides for a service company Board of Directors with approval responsibility for cost allocation methods. Overland did not review the 2022 update and it is not clear that it was comprehensive or addressed the problems the led to our recommendation. Although service and charging method descriptions are generic enough that many still apply, certain services and allocation descriptions in Agreement Schedule 1 have been changed pursuant to notice to the BPU. For example, Schedule item 9 describes the allocation basis for General PSEG Management services (corporate enterprise services) as being "assigned using a number of allocation methodologies [which] include but are not limited to . . . Modified Massachusetts formula, Revenue, Earnings and Capital Expenditures and Headcount." It is Overland's understanding that enterprise cost allocation formulas other than the currently used three-factor formula composed of net assets, headcount and operating expense were abandoned after 2009.	Centralized Service Cost Allocation Methods and Procedures Recommendation 3.5
Provide a link to the Board's "Shop for Energy Suppliers" webpage on PSE&G's retail choice page to make Supplier browsing easier for customers.	Marketing Conditions Recommendation 4.1
Provide a link to the Company's Price to Compare directly from its "Electric and Gas Choice Customer Information" page to allow customers to easily see the Price to Compare versus TPS rates.	Marketing Conditions Recommendation 4.2
Continue to actively participate in supporting retail choice in New Jersey, especially with the roll-out of Advanced Metering Infrastructure.	Marketing Conditions Recommendation 4.3
PSE&G should initiate discussions with the New Jersey Board of Public Utilities (the "Board" or "BPU") to discuss options and strategies to advocate for new sector weighting in PJM to provide more voting power and influence for members owning significant transmission and distribution assets and that have long-term interests in providing reliable service to end-use customers when voting in transmission-related proceedings, especially regarding New Jersey.	Marketing Conditions Recommendation 4.4
PSE&G should not implement any changes in current BGS policies and practices until their proposal is approved by the Board.	Electric Procurement and Supply Recommendation 5.1
The Electric Procurement and Supply function in PSE&G should adopt a more formal documented succession planning process for all of its manager-level and key analyst roles to maintain secure operations in the future.	Electric Procurement and Supply Recommendation 5.2
The Board should look at the impacts post sale of PSEG Power fossil facilities relative to the financial information provided and justification of ZECs to make sure stranded shared Service Company costs are not included as part of the financial hardship justification included by the nuclear plants in any future ZEC application.	Electric Procurement and Supply Recommendation 5.3
The Board should conduct an inquiry or audit of PSEG Services allocation methodology to ensure that none of the stranded shared services costs resulting from the sale of PSEG Power's assets will be charged to the PSE&G ratepayers post-closing of the transaction.	Electric Procurement and Supply Recommendation 5.4

Recommendation	Chapter
The BPU should consider whether the benefits to customer of this arrangement continue to support this arrangement. Management should evaluate whether supply contract ownership and management should be moved to the regulated PSE&G utility, when practical. This would create synergies within the organization and centralize all gas supply processes within the PSE&G organization.	Gas Supply and Procurement Recommendation 6.1
Since the internal audit function is the primary tool for ensuring ER&T compliance with the Requirements Contract, audits should be scheduled more frequently and explicitly include the contract elements covered under the audit scope.	Gas Supply and Procurement Recommendation 6.2
ER&T should track the effectiveness of its hedging program to determine the overall impact to customers.	Gas Supply and Procurement Recommendation 6.3
Given the critical role operating areas play in determining which storm-related costs can be deferred, we recommend that PSE&G formally notify the BPU in advance in writing of any plans to increase or otherwise subdivide its current New Jersey operating areas on a prospective basis. In addition, until the BPU decides that the consequences of this decision on the deferral of future PSE&G storm restoration costs are acceptable, the criteria for determining whether an event is major or not will be based on historical definitions of PSE&G's operating areas.	Deferral of Costs Recommendation 8.1
If not already included in its 2022 plan, we recommend that Internal Auditing Services perform audit(s) in the next twelve months of PSE&G's most significant regulatory assets and liabilities as well as those that have been created since 2017, such as the post-2018 base rate case storm-related cost deferrals and the COVID-19 cost deferral. Thereafter, all of PSE&G's regulatory assets and liabilities should undergo internal audit at least once every three years, or the Company should justify why they do not warrant such examination. In addition to determining whether the regulatory assets and liabilities are properly presented and disclosed in the Company's financial statements, the audits should ensure compliance with regulatory policy, precedent, and rules in addition to confirming that internal controls associated with these regulatory assets and liabilities are appropriate and operating effectively. All related audit reports should be made available to BPU staff or their delegates, upon request.	Deferral of Costs Recommendation 8.2
We recommend that implementation plans and/or actions taken by the company to respond to recommendations made in this affiliate transactions and management audit be tested by PSEG's Internal Auditing Services group for comprehensiveness and effectiveness on an annual basis until all accepted recommendations have been implemented. The results of this review should be provided to the BPU in a timely manner upon request, and associated workpapers should be made available for review by the BPU, as requested.	Recommendations and Review of Previous Analysis Recommendation 10.1
We recommend that the PSEG board's Executive Committee members should be compensated by the number of meetings attended rather than by annual retainer at levels equal to that of the board's standing committees. A payment of $5,000 per meeting attended would more closely align with the actual workload of this as-needed committee than the status quo. If the board is concerned that this would unduly penalize Executive Committee members from a compensation standpoint, given the historical composition of the committee, it could make minor adjustments to Lead Director and committee chair annual retainer amounts.	Executive Management and Corporate Governance Recommendations 12.1

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Recommendation	Chapter
We recommend that actual and targeted performance associated with compensable metrics used in the SMICP, MICP, and LTIP be proactively communicated to all participants throughout the performance year so that informed decisions concerning remedial action can be taken by all in a timely manner. If release of this information cannot be disseminated to the Company employees who have been identified as most crucial to the success of the organization, then different metrics that can be shared should be selected.	Executive Management and Corporate Governance Recommendations 12.2
We recommend that the Organization and Compensation Committee require a certain level of accomplishment be achieved with respect to PSE&G safety, reliability, and customer satisfaction in order for pay-outs to be paid to executives under the short-term incentive compensation plans as currently designed. If these threshold levels of safety, reliability, and customer satisfaction are not achieved in a given year, then short-term incentive compensation earned by executives should be capped at 50 percent of target performance achievement irrespective of how the Company performs against other metrics such as financial, ESG, etc.	Executive Management and Corporate Governance Recommendations 12.3
The destruction of PSEG materials, including those related to the board and the board committee self-evaluations, should conform with the Company's currently existing record retention policy and verifiable market standard practices.	Executive Management and Corporate Governance Recommendations 12.4
The PSEG board of directors should retain a qualified expert on public company board and corporate governance matters to conduct a periodic independent assessment of the board's and its committees' effectiveness. At a minimum, the purpose of this assessment would be to identify areas of improvement, instances in which corporate governance best practices are not being followed by the board or its committees, and non-conformance with regulatory requirements. The third party should be retained by the PSEG board or one of its standing committees. The assessment should be conducted at least once every five years.	Executive Management and Corporate Governance Recommendations 12.5
The Company should enhance its ERM policy and procedures to address the development of a risk appetite statement that is owned by the Risk Management Committee and subject to approval by the board (or relevant committee).	Strategic Planning Recommendation 13.1
Internal Audit should continue to functionally report to the Audit Committee of the PSEG board of directors. However, on an administrative basis, it should ideally report to the CEO of PSEG. Alternatively, we recommend that Internal Audit should revert back to reporting administratively to the CFO, and the Audit Committee of the PSEG board of directors should document its rationale in writing for this reporting structure, including mitigating controls available for situations that could adversely impact the objectivity of the head of Internal Audit and the department as a whole. In such instances, the Audit Committee should periodically, but not less than annually, evaluate whether the head of Internal Audit is impartial and not unduly influenced by the administrative reporting line arrangement. Furthermore, conflicts of interest for the head of Internal Audit and all other audit staff should be monitored at least annually with appropriate restrictions placed on auditing areas where conflicts may arise.	Accounting and Property Records Recommendation 15.1
When a new person is considered for the position of head of Internal Audit on a prospective basis, management and PSEG board's Audit Committee should select and approve a person with a professional and educational background as an accountant and/or financial auditor. In addition, future periodic external assessments of PSEG's Internal Audit function should specifically include an assessment of the competence of the head of Internal Audit as well as a commentary on industry and peer best practices concerning the educational and professional qualifications of the head of Internal Audit, adequately supported by benchmarking data.	Accounting and Property Records Recommendation 15.2

Recommendation	Chapter
The Internal Audit charter and the PSEG board of directors' Audit Committee charter should state that the Audit Committee has the responsibility to approve the staffing of the Internal Audit department (a key component of resource planning) and the budget of Internal Audit rather than the Company's executive management.	Accounting and Property Records Recommendation 15.3
The PSEG Audit Committee charter should be modified to explicitly state that the Audit Committee is responsible for reviewing and approving the internal audit plan for the upcoming year.	Accounting and Property Records Recommendation 15.4
The Company should leverage advanced computerized tools to assist with staffing forecasts that optimizes internal hiring and contractor utilization. This should be coordinated with a broader corporate effort to accurately model and forecast staffing needs by leveraging input from leadership through a formalized process. The output of this model should be the generation of a short- and long-term resourcing plan.	Electric Distribution and Operations Management Recommendation 16.1
The Company should conduct a time study for all front-line supervision within Electric Operations, then benchmark to other utilities for best practices. Pending the results of the study, the Company should strive to reduce the administrative burden, if applicable, so supervisors can maximize their time overseeing employee safety and productivity.	Electric Distribution and Operations Management Recommendation 16.2
The Company should prepare checklists for all ICS roles that capture required activity for all phases of restoration. The checklist should be aligned to the Company's response plans and with the goal of supporting the effective management of each ICS role.	Electric Distribution and Operations Management Recommendation 16.3
The Company should re-evaluate their ETR process to determine whether Damage Assessment can be better incorporated to support ETR development in the earliest phase of major events. Additionally, the Company should indicate their compliance to the ETR standards established by the BPU by implementing a tracking method and reporting their compliance through every submitted Major Event report.	Electric Distribution and Operations Management Recommendation 16.4
The actions and initiatives resulting from AARs conducted after each weather event should incorporate project management rigor and governance to ensure accountability, timeliness and transparency.	Electric Distribution and Operations Management Recommendation 16.5
In addition to tracking PPCs at a circuit level, the Company should also track the substations that tend to contain a concentration of PPCs to identify trends that could support asset management recommendations at the substation level.	Electric Distribution and Operations Management Recommendation 16.6
More advanced DER penetration and EV Charger forecasts should be prepared on a short- and long-term basis. This effort should use more advanced forecasting methods such as economic modeling, industry data, and surveying.	Electric Distribution and Operations Management Recommendation 16.7
To ensure the proper oversight and management of the Company's Smart Grid strategy and implementation, including deploying their Integrated Distribution Plan (IDP), they should implement a PMO and associated program management frameworks to manage.	Electric Distribution and Operations Management Recommendation 16.8
The Company should develop a customized template to drive a consistent approach to reporting for all levels of governance. Content and metrics should be generally similar including, but not be limited to, Progress on Actions from last month, Emergent Topics or issues, latest intelligence, Key Risks, any escalations from other meetings and metrics.	Cybersecurity Recommendation 17.1
The Company should have robust meeting minutes, decision, and action tracking logs for all cybersecurity governance meetings. This will ensure that all decisions and actions are trackable and accountability is clear for appropriate follow through.	Cybersecurity Recommendation 17.2
The Company should report key staffing risks to leadership through the governance process and highlight actions taken to close these risk areas.	Cybersecurity Recommendation 17.3
The Company should prioritize the creation of and implementation of an internally visible schedule of third party cybersecurity compliance audits for medium and high risk vendors and suppliers.	Cybersecurity Recommendation 17.4

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Recommendation	Chapter
The incorporation of cybersecurity checkpoints into the SDLC should be a mandatory requirement and not optional, the rationale for not implementing should be detailed and vetted through appropriate leadership.	Cybersecurity Recommendation 17.5
While Overland recognizes that the Company is moving forward with implementing a customized program management framework for cybersecurity programs, the effort is still developing and many questions remain. Therefore, Overland recommends that the Company provides regular reporting to the BPU on progress and scope of this effort to ensure it incorporates best practices and is timely.	Cybersecurity Recommendation 17.6
The CSRC Incident Response Plan should include process maps where appropriate to assist with plan use. Additionally, where applicable decision trees should also be included to help with more complex decision making processes.	Cybersecurity Recommendation 17.7
The Company should implement a more robust After Action Review tracking approach by implementing a project management centric (including progress to date, delivery date, dependencies, key issues, etc.) and reporting approach, which assigns a clear owner for delivery.	Cybersecurity Recommendation 17.8
To support increased collaboration between Asset Management & Planning and Gas Operations departments, PSE&G should pursue the collaboration initiatives cited in the Utility Culture Action Plan Rollout, dated February 2021, with the goal of creating a shared vision, mutual respect, and in-depth understanding of each other's role in achieving excellent business outcomes and outstanding customer service. To confirm the two departments are making progress, a focused employee engagement survey should be periodically conducted, and based on survey results the collaboration initiatives employed adjusted.	Gas Delivery Recommendation 18.1
Develop a program that prioritizes the replacement of all short sections (less than 50 feet) of smaller diameter (8-inch and smaller) of cast iron pipe operating above utilization pressure in low priority GSMP grids. The program should have a definitive start and end date consistent with prudent distribution system risk management.	Gas Delivery Recommendation 18.2
Augment current Gas Distribution Standards training by stressing the need for correct entries with respect to leak cause. Training should emphasize the importance of this information as it provides the basis for determining which mains and services get replaced.	Gas Delivery Recommendation 18.3
Perform an open leak cost-benefit study, similar to what other gas utilities have conducted, to determine if there is a potential cost savings as well as reduced methane emissions associated with fixing leaks sooner.	Gas Delivery Recommendation 18.4
If conclusions from the open leak cost-benefit study support reducing the number of open leaks, the Company should develop and commit to a plan of significantly reducing the number of open leaks from end of year 2020 levels.	Gas Delivery Recommendation 18.5
Future GSMP filings will recommend continued replacement of cast iron and bare steel in PSE&G's gas distribution system. By continuing to remove these leak prone facilities and assuming normal winter conditions, the Company should experience less leaks per mile in the remaining facilities. Consequently, the Company should continue to commit to the BPU that it will achieve a reduced end of year open leak backlog in concert with any future GSMP filings.	Gas Delivery Recommendation 18.6
Develop a written policy and process addressing when and how potential non-pipeline alternatives to traditional long-term system reinforcement projects should be evaluated.	Gas Delivery Recommendation 18.7
To demonstrate GSMP success in reducing the Leak Hazard Index per mile of main that remains in its system, PSE&G should develop and annually report to the BPU a suitable metric that emphasizes the inventory of prioritized utilization pressure cast iron main remaining in its system based on the Hazard Index per mile of main per map grid.	Gas Delivery Recommendation 18.8

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Recommendation	Chapter
Expand PSE&G's Peer Panel Benchmarking to include additional comparisons for gas and electric damage prevention, specifically the markout program, or develop some other enhanced comparative analysis for damage prevention. The comparison should be structured in such a way that the damage prevention program variability between utilities can be identified to allow understanding of the methods utilized by the utilities achieving superior gas and electric damage prevention performance.	Contractor Performance Recommendation 19.1
Initiate the documenting and tracking of any procedure or process changes resulting from analysis of major categories of improvement ideas expressed by customers in the Transaction Satisfaction Survey should be initiated.	Contractor Performance Recommendation 19.2
Include the Gas Operator Qualifications Program in PSE&G's audit risk assessment process and perform an internal audit of operator qualifications (OQ) program compliance with US Department of Transportation (DOT) rules and regulations. The audit should focus on determining whether the OQ program adheres to the protocols required by DOT rules. Reassess audit risk after performing the audit and determine whether the OQ program should be subject to periodic audit.	Contractor Performance Recommendation 19.3
The Labor Relations team within HR, in consultation with the company's Compensation HR Center of Excellence, should consider more formally benchmarking wage compensation for union employees against peers to assist in negotiating union wages that are both fair and comparable with peers. Overland requested union wage, benefits, job classification and work rules benchmarking data. In response to our request, PSEG stated that "[o]ther than the benchmarking data provided by the other HR Centers for Excellence, records of the research and consultation performed by Labor Relations are utilized in the normal course of business to inform the work of the Labor Relations team but are not formally archived." Our recommendation applies primarily to union wages, as opposed to employee benefits, given that PSEG obtains benchmarking data for union employee benefits from Aon.	Human Resources Recommendation 20.1
The relatively new 82,000 square foot Newark Customer Contact Center is significantly underutilized considering the annual lease and utilities costs of approximately **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**million and estimated space utilization of only about 15%, due mainly to a continuation of the Covid-era policy of allowing most agents to work from home. As soon as practicable, PSE&G should take steps to reduce its leased space footprint in the new Newark Customer Contact to match the highest utilization the Company expects it will need under its ongoing work-from-home policy.	Customer Service Recommendation 21.1
Rather than simply having a stated goal of top-quartile or top-decile performance, PSE&G should develop a concrete plan of action to improve, over the medium term (1-3 years), key Contact Center metrics in which it ranks in the third or fourth quartile, specifically the customer inquiry service level and the abandoned call percentage, to at least second quartile performance among peers in the JD Power survey. While the ongoing efforts PSE&G cited in response to our data request concerning performance in these metrics could be part of this plan, we recommend PSE&G document a plan with an overall target performance level for each metric, the timeframe over which it expects to achieve the resulting performance, the specific efforts or projects it expects will bring about the improvement, and assign management accountability for the targeted performance.	Customer Service Recommendation 21.2

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Recommendation	Chapter
PSE&G's 16 CSCs currently cost approximately $10 million annually to operate, excluding building costs, while processing only about 2% of PSE&G's total payments. As part of the ongoing effort to move customer communication to digital channels, we recommend PSE&G develop a specific plan to better utilize the CSCs or simply reduce their overall cost by closing the least productive centers, as permitted by employee attrition or reassignment, and considering geography, customer payment alternatives, and historic trends of utilization. Recognizing PSE&G may be constrained by current agreements with union-represented employees, such steps might include utilizing current CSC employees for additional customer service functions or requirements, or simply closing the least utilized centers permanently. Overland recognizes there are additional mitigating factors, such as the social service assistance provided within some of the centers; however, regarding these we believe PSE&G should determine whether digitized customer channels might, in some cases, provide equivalent or even improved social services assistance. This should not be construed as a recommendation to close all 16 local centers.	Customer Service Recommendation 21.3
We recommend PSE&G develop a metric to measure the extent to which its procedures result in the establishment of service within two business days of the receipt of a customer's application for utility service, as required by N.J.A.C. Section 14:3-3.2(g). Consideration should include evaluation of processes, systems, and costs required to implement.	Customer Service Recommendation 21.4
We recommend PSE&G develop a metric to measure the extent to which its procedures result in the restoration of service within 12 hours upon a customer correcting all of the conditions which caused service to be disconnected, as required by N.J.A.C. Section 14:3-3A.9(a). Consideration should include evaluation of processes, systems, and costs required to implement.	Customer Service Recommendation 21.5
PSE&G should implement the inventory optimization analysis currently in development and update the SAP system with optimal material quantities.	Support Services Recommendation 23.1

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LIST OF INTERVIEWS

Date	Auditor	Auditor/Notetaker	Interviewee	Interviewee Title	Subject Matter
7/28/21	Colin Hasset	Victoria Lorvig	Gurdeep Kaur	Senior Director Chief Information Security Officer	Topics about Cyber Security
7/27/21	Colin Hasset	Victoria Lorvig	Susanna Chiu	Director Energy Services	Topics related to Energy Services
7/29/21	Colin Hasset	Victoria Lorvig	Todd Hranicka	Director Solar Energy EV & ES	Topics related to Renewables/Storage interconnections and utilization
8/10/21	Colin Hasset	Victoria Lorvig	Jack Bridges	VP Electric Operations	Various Topics related to Electric Operation (see below)
8/12/21	Colin Hasset	Victoria Lorvig	Lauren Thomas	Senior Director Transformation & Central Services	Work Management & Resourcing
8/20/21	Colin Hasset	Victoria Lorvig	Michael Schmid	VP Asset Management and Planning	Various Topics related to Electric Operation
8/12/21	Colin Hasset	Victoria Lorvig	Mike Kayes	Executive Director Trans & Subs Consr & Maintenance	Various Topics related to Asset Management and Planning
8/12/21	Greg Oetting	Nick Nocita	Robert Egner	Manager Utility Business Strategy, Utility Electric Business Planning (Finance Org)	Storm Deferred Costs
8/12/21	Greg Oetting	Nick Nocita	Donna Powell	Assistant Controller PSE&G and PSE&G Accounting Services (Accounting Org)	Storm Deferred Costs
8/4/21	John Cochrane	Matthew DeCourcey	Maria Calcado	Manager Energy Supply Regulatory Support & Administration	Electric Supply & Procurement
8/11/21	John Cochrane	Matthew DeCourcey	Myron Filewicz	Manager Electic Supply Acquisition	Electric Supply & Procurement
8/18/21	John Cochrane	Matthew DeCourcey	Rosa Farinhas	Manager Retail Choice	Electric Supply & Procurement
8/4/21	John Cochrane	Matthew DeCourcey	Steve Irons	Manager Gas Supply Acquisition	Electric Supply & Procurement
8/5/21	John Cochrane	Matthew DeCourcey	Steve Huber	Manager Energy Supply Administration	Electric Supply & Procurement
8/17/21	John Cochrane	Matthew DeCourcey	Terrence Moran	Director Energy Supply Acquisition & Operations	Electric Supply & Procurement
8/5/21	John Cochrane	Matthew DeCourcey	Al Grisolia	Manager Energy Settlements	Energy Supply & Procurement
8/2/21	Howard Lubow	Frank DiPalma	David Caffrey	VP Gas Supply	Gas Procurement & Supply
9/1/21	Greg Oetting	Nick Nocita	Courtney McCormick	VP Internal Auditing Services	Internal Audit and Sarbanes-Oxley Testing
8/4/21	Frank DiPalma	Bill Williams	Michael Gaffney	Senior Director Gas System Moderization	Gas Operations
8/10/21	Frank DiPalma	Bill Williams	Christopher LaRossa	Distribution	E&G Markouts
8/6/21	Frank DiPalma	Bill Williams	Bernice Rivera Adams	Manager Project Controls	Gas Operations
8/5/21	Frank DiPalma	Bill Williams	Beth Acquaire	Senior Director Field Operations	Gas Operations
8/10/21	Frank DiPalma	Bill Williams	Christopher LaRosa	District Manager Regulatory Policy and Procedure	Gas Operations
8/9/21	Frank DiPalma	Bill Williams	William Elmer	Senior Project Manager Gas Operations	Gas System Modernization Program
8/11/21	Howard Lubow		Terrence Moran	Director Energy Supply Acquisition and Ops	Gas Procurement & Supply
8/25/21	Susan Pope	Matthew DeCourcey	Jodi Moskowitz	Deputy General Counsel & RTO Strategy Officer	PJM/Electric Procurement and Supply
8/30/21	Bob Welchlin		Nancy McCluchy, Cindy Hill, Rich Aicher	Accounting SPV, Financial Mgt Services (Steve Jones-Rose Chernick), Manager Planning Reporting & Analysis Services Corporation Finance (Martin Shames-Scott Jennings), Director SAP Strategy&Planning, Utility SAP/Systems & Plng (Scott Jennings)	Questions related to the data provided in DR OC-14
8/18/21	Frank DiPalma	Bill Williams	Andrew Argeski	Planning and Design Manager Gas	See Topics on interview request
8/12/21	Frank DiPalma	Bill Williams	Anthony Furman	Manager Asset Strategy Gas	Gas Asset Strategy
8/13/21	Frank DiPalma	Bill Williams	John Filman	Manager M&R and Gas Plants	M&R and Gas Plants
8/12/21	Frank DiPalma	Bill Williams	Michael Schmid	VP Asset Management and Planning	Asset Management and Planning
8/16/21	Frank DiPalma	Bill Williams	Wade Miller	Director Gas Distribution and Transmission Engineering	Gas Transmission & Engineering
8/13/21	Frank DiPalma	Bill Williams	Pete McKenna	Manager Gas System Operations	Gas System Operations
9/14/21	Bob Welchlin	Nick Nocita	Martin Shames	Director Services Corp Finance	PSEG Services Corp
8/27/21	Greg Oetting	Nick Nocita	Rose Chernick	VP & Controller	Accounting Matters

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Date	Auditor	Auditor/Notetaker	Interviewee	Interviewee Title	Subject Matter
9/2/21	Nick Nocita	Bob Welchlin	Michael Giardina	District Manager Gas Operations and Appliance Business Services	Appliance Services
8/31/21	Colin Hasset	Victoria Lorvig	Aaron Ford	Vice President/Chief Security Officer	Security/Risk Mgt
9/23/21	Colin Hasset	Victoria Lorvig	Edward O'Brien, Yoel Piney, John Ochman William Stroud, Shobhan Kapuganti	Multiple Cybersecurity personnel	Various Cybersecurity Topics
9/18/21	Colin Hasset	Victoria Lorvig	Michael Henry		DER Connections
8/9/21	Frank DiPalma	Bill Williams	Renee Veneziano	Senior Project Manager Gas Operations	PMO
9/16/21	Bob Welchlin	Nick Nocita	Rich Marinelli, Rich Aicher, Esam Khadr, Emman Ebosie	Manager Transmission Rates & Tariffs (Finance Org), Director SAP Strategy & Planning (Finance Org), Senior Director Electric Delivery Planning (Asset Management), Director Project Management Ofc (Projects & Construction)	FERC Formula Rates/Revenue Requirement, Reliability vs supplemental transmission projects, Shared site projects
9/28/21	Colin Hassett	Victoria Lorvig	Ronald E. Wharton	Senior Director Electric System Operations Center	Electric System Operations Ctr
9/22/21	Colin Hasset	Victoria Lorvig	Abigail Phillips	Senior Director Continuous Improvement	Continuous Improvement Topics
9/20/21	Colin Hasset	Victoria Lorvig	Paul Toscarelli	Director Emergency Preparedness	Emergency Preparedness topics
9/21/21	Colin Hasset	Victoria Lorvig	Damon J. Lo Boi	Senior Director IT PSE&G Smart Ops Technology	Smart Ops Tech Topics
9/24/21	Colin Hasset	Victoria Lorvig	Ronald Shute II	Senior Director Construction & Maintenance	Construction & Maintenance Topics
9/21/21	Colin Hasset	Victoria Lorvig	Emman Eboise	Director Project Management Office	PMO Topics
9/22/21	Colin Hasset	Victoria Lorvig	Robert Felton	Senior Director Program Areas	Program Area Topics
9/21/21	Colin Hasset	Victoria Lorvig	Rick Fonseca	Senior Director Operational Support	Investment/Resouce Mgt
12/21/21	Colin Hasset	Victoria Lorvig	Andrew Tummino	Senior Director Operational Support	Investment/Resouce Mgt
9/20/21	Colin Hasset	Victoria Lorvig	Esam Khadr	Senior Director Electric Delivery Planning	System Planning Topics
9/20/21	Colin Hasset	Victoria Lorvig	Raymond Alvarez	Senior Director Asset Strategy Technology and Systems	Assett Management Strategy
10/14/21	Robert Welchlin	Nick Nocita	Michael Cullen	Manager Operations, Meter Reading & Collections	Meter Readings
10/14/21	Robert Welchlin	Nick Nocita	Robert Jarvis	Manager Measurement Systems Operations	Meter Testing
10/20/21	Bob Welchlin	Nick Nocita	Rich Aicher, Richard Fonseca, Donna Powell	Manager Measurement Systems Ops, Director PSE&G Finance & Development, Assistant Controller PSE&G	PSE&G's and Service Company's allocations to Utility Business (Operating) Units
10/8/21	Greg Oetting		Martin Shames, Mark Pepe, James Mooney, Steven Jones	Martin Shames, Director Service Company Finance	Executive Compensation (both annual and long-term) Restricted Info
11/3/21	Colin Hassett	Victoria Lorvig	Ahmed Mousa	Manager Technical Support	Utility of the Future topics
11/4/21	Colin Hassett	Victoria Lorvig	Albert P. Nicol	Senior Director Electric T&D Operations	Various topics related to Electric T&D Operations
11/16/21	Colin Hassett	Victoria Lorvig	Harold "Danny" Nembhard	Projects & Construction	Energy Strong Project Execution
11/4/21	Colin Hassett	Victoria Lorvig	Nancy Harris	Emergency Preparedness Manager	Emergency Response Processes
12/16/21	Colin Hassett	Victoria Lorvig	Edward Gray	Director Transmission & Disribution Engineering, Reporting	Energy Strong Program Development and Reliability and Asset Health Monitoring
11/17/21	Greg Oetting		Michael Hyun	Deputy General Counsel & Corporate Secretary	Diligent Board Management System, may contain restricted information
11/16/21	Bob Welchlin	Nick Nocita	Martin Shames, Donna Powell, Rich Aicher	Director Service Company Finance, Assistant Controller PSE&G, Manager Measurement Systems Ops	The procedures and allocation rules established for assignment/allocation of costs from the Regional Transmission Organization of the service company

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Date	Auditor	Auditor/Notetaker	Interviewee	Interviewee Title	Subject Matter
11/30/21	Bob Welchlin	Nick Nocita	Shawn Leyden, Scott Jennings, Martin Shames	Shawn Leyden, VP & Deputy General Counsel Scott Jennings, SVP CORP Planning and Strategy, and Utility Finance Martin Shames, Director Service Company Finance	PSEG Long Island
11/19/21	Frank DiPalma	Bill Williams	Jeffrey Dahl	Senior Distribution Supervisor	Gas and Electric Markouts
12/21/21	Bob Welchlin	Nick Nocita	Rich Aicher and Martin Shames	Manager Measurement Systems Ops and Director Service Company Finance	Questions pertaining to data requests 1534-1540
2/14/22	Howard Lubow Greg Oetting		Willie Deese	Chair of the Corporate Governance Committee, Member of the Sudit and Org&Comp Committee - PSEG Board	Board and Board Committee Matters - Likely Restricted Information
2/14/22	Howard Lubow Greg Oetting		David Lilley	Chair of Org& Comp Committee, Member of the Sudit, Exec and Finance Committee - PSEG Board	Board and Board Committee Matters - Likely Restricted Information
2/14/22	Howard Lubow Greg Oetting		Susan Tomasky	Chair of the Sudit Committee, Current Member of the Corporate Governance, Executive and Org&Comp Committees - PSEG Board	Board and Board Committee Matters - Likely Restricted Information
2/14/22	Howard Lubow Greg Oetting		Alfred Zollar	Chari of Finance Committee, Current Member of the Audit and Industrial Operations Committees - PSEG Board	Board and Board Committee Matters - Likely Restricted Information
2/15/22	Howard Lubow Greg Oetting		Shirley Ann Jackson	Current Independent Lead Director, Current Member of the Corp Gov, Executive Industrial Ops and Org&Comp Committees - PSEG Board	Board and Board Committee Matters - Likely Restricted Information
2/15/22	Howard Lubow Greg Oetting		Ralph Izzo	Chairman of the Board, President and CEO	Board and Board Committee Matters - Likely Restricted Information
2/24/22	Greg Oetting		Bradford Huntington	VP & Treasurer Treasury Services	Finance and cash management - some matters identified in restricted documents
3/2/22	Bob Welchlin	Nick Nocita	Jane Bergan and Fred Daum	Customer Service Organization	Customer Service
4/12/22	Greg Oetting	Nick Nocita	Ryan Kral, Joe Martindelcampo, Randolph DeKranis	Director Utility Operations Services, Manager Transporation & Equipment, Fleet Administrative Manager	Organization, Operations, Performance
4/26/22	Greg Oetting	Nick Nocita	Stephen Kelly	Head of Facilities and Land Management	Performance, Benchmarking, Landholdings and various other topics
6/15/22	Nick Nocita	Greg Oetting	Scott Landrieu, Ryan Kral, John Casisa, Rory Caherly	Manager Material & Logistics, Director Utility Operations Services, Director Procurement, Director Procurement	Material Logistics organization, internal controls at physical inventory locations, vendor qualification, inventory management, purchasing goals, KPI measurements, benchmarking data, answers in OC-1773-1781
5/25/22	Nick Nocita	Greg Oetting	Timothy Donovan	Manager Corporate Claims	PSE&G Corporate Claims
5/24/22	Nick Nocita	Greg Oetting	Brian Sassano	Manager Insurance Risks	PSE&G Insurance Management
7/22/22	Howard Lubow		Richard Thigpen	Senior Vice President, Corporate Citizenship	External Relations
5/24/22	Howard Lubow		Ted Repetti	Director Enterprise Risk Management	Risk Management
5/20/22	Howard Lubow		Joe Accardo and Tamara Linde	VP Regulatory and EVP General Counsel Litigation, Legal Functions	Litigation, Legal Function
7/6/22	Howard Lubow	Nick Nocita	Diane LaRocca and Sheila Rostiac	Executive Director Labor Relations and Senior VP Human Resources	Comp&Benefits, Labor Relations, Performance

LIST OF INTERVIEWS

Date	Auditor	Auditor/Notetaker	Interviewee	Interviewee Title	Subject Matter
7/28/22	Howard Lubow	Greg Oetting	Daniell Cregg and Scott Jennings	Chief Financial Officer and Senior VP Utility	Strategic Planning
7/26/22	Howard Lubow	Colin Hassett and Frank DiPalma	Kim Hanemann	President/COO PSE&G	Strategic Planning

2. NON-POWER AFFILIATE RELATIONSHIPS AND TRANSACTIONS

Introduction and Overview

This chapter covers the non-power relationships and transactions between PSE&G and its affiliates within the structure of Public Service Enterprise Group, Inc. (PSEG). It also covers competitive appliance services provided by a business unit within PSE&G. It is divided into the following sections:

- Affiliate Relationships and Transactions Overview – This section covers the legal and management (staffing) organization of PSEG and its key subsidiaries. It provides information about the scope and scale of transactions between PSE&G and its affiliates.
- Internal Control Environment – This section covers State of New Jersey rules and regulations governing utility affiliate relationships and transactions. It covers the PSEG programs and procedures designed to establish control over affiliate relationships and transactions and maintain compliance with state and federal affiliate transaction rules.
- Review of Intercompany Transactions – This covers intercompany transaction activity between PSE&G and affiliates other than PSEG Services. Most of PSE&G's intercompany activity involves transactions with PSEG Power and PSEG Enterprise (the parent company). We conducted a review of these intercompany transactions for the years 2018 through 2020 and performed testing of selected transactions.
- Appliance Services – This section covers PSE&G's competitive appliance services business and its compliance with the BPU's Affiliate Standards concerning competitive services.

Affiliate transactions involving energy and the provision of shared, centralized services are covered in separate chapters, as follows:

- Centralized services charged by PSEG Services Corp. (PSEG Services) and cost distributions to PSE&G and other PSEG subsidiaries are covered in Chapter 3 – Centralized Service Cost Allocation Methods and Procedures.
- Energy procurement and energy transactions are covered in Chapter 4 - Market Conditions, Chapter 5 – Electric Procurement and Supply and Chapter 6 – Gas Procurement and Supply.

Summary of Findings

1. PSEG's operations were at one time divided approximately equally between a power production company and a regulated utility. Over the past decade, PSEG has evolved into a more utility-focused organization. In 2014 it began operating the Long Island Power Authority's (LIPA's) electric utility in Long Island New York. During the past five years PSEG sold power plants, and, in 2021 it sold its Fossil business unit (Power Fossil). The distribution of employees among subsidiaries has shifted as Power reduced its generation portfolio, and this will continue through

2022 as Power loses the employees associated with its former fossil plant operations.[1] Although total corporate employees increased with the addition of the Long Island utility in 2014, PSEG has maintained the PSEG LI as a largely independent entity that does not rely as significantly on centralized services from PSEG Services.[2] Corporate organizational changes during the past decade have had the following effects on PSE&G:

- A shift in the distribution of corporate-level costs, including executive management and corporate governance, away from Power and toward PSE&G.
- A shift in certain shared services costs, particularly overheads such as the cost of facilities, away from Power and toward PSE&G.
- Reduced affiliate transactions between Power and PSE&G; in particular, a reduction in support services provided by Power to PSE&G.
- A reduction in the competitive concerns surrounding PSE&G's relationship with Power, due to the sale of the Fossil business.

2. PSEG's system of internal controls over affiliate transactions is generally adequate to ensure services and products exchanged between affiliates are recognized and properly compensated, and that PSE&G does not cross-subsidize the affiliates. Important internal controls include:

   - Legal, functional and accounting segregation of non-regulated operations and activities from regulated utility operations and activities.[3] PSEG's operating subsidiaries are separate legal entities with their own management and functional organizations. Most activities shared by PSE&G and its affiliates are conducted by PSEG Services.
   - A New Jersey Affiliate Standards Compliance Plan, filed annually with the NJBPU. However, as discussed below, PSEG states that it does not believe the Affiliate Standards apply as a matter of law to most of PSE&G's important affiliate relationships or transactions.
   - A Business Conduct Compliance Program to deter, detect and take corrective action against wrongdoing.
   - Employee Standards of Conduct and related employee training that apply to all activities, including those between affiliates.
   - An Affiliate Transactions Council (ATC) consisting of representatives from various subsidiaries and disciplines. The ATC holds regular meetings and reviews applications submitted by operating subsidiaries prior to implementing new affiliate transactions.
   - Written policies and procedures governing services and service pricing between PSE&G and its affiliates.

[1] A majority of employees impacted by the sale either transferred to the buyer or were retained in positions with other PSEG entities. See Response to OC-1089.

[2] Historically, there have been many PSEG LI employees reporting directly to PSEG Service Corporation Management. As of April of 2022 when the new Operations Service Agreement between PSEG-LI and LIPA, PSEG-LI operates more independently.

[3] Appliance services is an exception. The Appliance Services Business is legally part of PSE&G, however, it is in most respects a separate functional organization within PSE&G.

- Internal audits of affiliate transactions and cost allocations.

3. Significant non-power transactions[4] between PSE&G and its major affiliates (other than PSEG Services[5]) during our 2018 through 2020 review period included:

    - Utility support services provided by Power to PSE&G, primarily by Power's Central Maintenance Shop and System Maintenance organizations.
    - Electricity provided by PSE&G to Power for power plants.
    - Support for and maintenance of the Energy Monitoring System shared by PSE&G and Power, provided by PSE&G to Power.
    - Peak Shaving services provided by PSE&G to Power.
    - Various financial transfers between Power and PSE&G, such as, Power's reimbursement of PSE&G for Power's share of township property taxes paid by PSE&G, Power's reimbursement of pension and OPEB payments made by PSE&G and Power's reimbursement of PSE&G for third-party payment made by Exelon Corporation to Power instead of to PSE&G.
    - PSEG Enterprise's reimbursement of PSE&G for third-party payments deposited into the parent's bank accounts but owed to the utility. Examples include retiree prescription drug subsidy payments, proceeds from corporate-owned life insurance policies on PSE&G employees and retirees, payments from PJM, and thousands of smaller payments associated with various insurance, legal and operational matters.
    - Employee payroll tax withholdings made at the corporate level on behalf of all operating subsidiaries (beginning in late 2020), distributed by PSEG Enterprises to PSE&G based on its employees' liabilities.
    - Miscellaneous corporate expenses allocated from PSEG Enterprises to PSE&G, including Board of Directors fees, rating agency and stock listing fees, corporate entertainment, travel and donations and executive incentive stock compensation.

4. PSEG charges and settles intercompany transactions through electronic invoicing and cash transfer on a monthly basis.

    - Intercompany services provided by employees and contractors are generally well controlled by written practices and documentation, by employee training, by ATC review to help identify and set up intercompany charging for new types of services, and by accounting system controls that utilize orders to identify and capture intercompany services using positive time reporting, price the services based on fully distributed cost and establish the proper cost direction (billed by and billed to subsidiaries).
    - Transactions other than for intercompany employee or contractor services include charges that often arise from vendor payments made by or third-party remittances received by one affiliate on behalf of another. PSEG has no reporting or analytical tools

[4] Non-power transactions are transactions between Power and PSE&G that do not involve energy. Energy transactions (BGS and BGSS) are discussed in Chapters 4, 5, and 6.

[5] The relationship and transactions with PSEG Services are discussed in Chapter 3.

available to categorize intercompany charges by their type or nature. Although we believe overall control of affiliate relationships and transactions is adequate, we consider PSEG's inability to identify, evaluate and summarize affiliate charges based on their type and nature inhibits the ability to manage and assess the reasonableness of the transactions and take corrective steps if necessary. Management controls would be significantly strengthened by enhancing visibility of intercompany charges at a more granular level once they are billed.

5. Affiliate Standards are regulations governing the relationships and transactions between New Jersey utilities and their affiliates, as enumerated in the State of New Jersey's Administrative Code, Title 14. Although PSE&G files an annual Compliance Plan with the BPU, PSEG believes the Affiliate Standards do not apply to PSE&G's relationships with its largest affiliates, as a matter of law. PSEG presents the regulations and its assumptions based on the regulations in its annual Affiliate Standards Compliance filing. Specifically, PSEG believes Affiliate Standards are applicable only to PSE&G's relationship with two very minor "affected affiliates" based on the fact that these affiliates "offer competitive services to retail customers in the State of New Jersey." In PSEG's view, PSE&G's relationships and transactions with major affiliates such as PSEG Services, Power and PSEG LI are not subject to Affiliate Standards because these affiliates do not offer competitive services in New Jersey. Notwithstanding PSE&G's legal position, we found that PSEG applied Affiliate Standards requirements to PSE&G's relationships and transactions with PSEG Services, PSEG Power and other significant operating affiliates.
6. PSE&G's Appliance Service Business (ASB) is the only PSEG entity currently offering significant competitive services to PSE&G's retail utility customers. Although it is technically a Utility Business Unit (UbU) rather than an affiliate, and notwithstanding PSEG's stated view about the applicability of Affiliate Standards, PSEG functionally applies most requirements of the standards of conduct applicable to Competitive Business Segments enumerated in the New Jersey Administrative Code directly to the relationship between the ASB and the rate-regulated businesses within PSE&G. We found that procedures and controls used by the ASB were generally adequate to prevent material cross-subsidization by PSE&G's rate-regulated businesses. We believe controls are adequate to ensure, to the extent possible between two closely-aligned and legally affiliated businesses, that anti-competitive practices such as preferential treatment of PSE&G's regulated utility customers in favor of the ASB and transfer of utility customer proprietary information to the ASB are avoided. Nevertheless, by virtue of its relationship with the utility, the ASB has certain advantages and disadvantages relative to its competitors. The ASB's primary advantages, which we believe outweigh the disadvantages, include:

    - Economies of scope made possible by access to utility operations facilities covering most of the urbanized areas of the state.
    - Economies of scale arising from ASB's ability to share many of its operating costs with a much larger rate-regulated utility.

- ASB's access to sophisticated customer information and service dispatch systems built for the utility and its access to the utility's billing envelope for advertising.
- ASB's access to the utility's sophisticated management, administrative and employee benefits infrastructure, including utility industry professionals to recruit, hire, train and manage ASB employees.

The most obvious disadvantage, relative to competitors not affiliated with the utility, is that the ASB faces significant marketing and pricing constraints imposed by Affiliate Standards, which include restrictions designed to prevent cross-subsidization. In addition, ASB employees are bound by certain restrictions in communicating with potential customers about its competitors. ASB's competitors are not bound by these rules.

Recommendations

2.1 We recommend PSEG develop the ability to classify intercompany transactions consistently and accurately by their nature and implement a procedure to review type-classified transactions as part of the monthly cash settlements process. PSEG should develop the accounting enhancements necessary to properly identify and classify affiliate transactions by type, something the Company currently lacks the ability to do. To the extent this may require an expensive reprogramming effort under the current SAP system, we recommend it be done manually on an annual basis, and that the results be reviewed by the Affiliate Transactions Committee. When a new version of SAP is implemented the ability to classify transactions by type for intercompany settlement purposes should be incorporated into the new system's capabilities

2.2 In conjunction with Recommendation 1, we recommend PSEG explore development of transaction-type-based budgets and budget variance reporting for large, recurring intercompany transactions involving fund transfers between affiliates. PSEG should report to the BPU whether it is possible to develop and implement these capabilities cost effectively prior to the replacement of the Company's SAP system. Budgeting for expected funds transfers by type of transaction is no less necessary for large intercompany transactions than for transactions between unrelated parties. Budgeting occurs for each operating company and plans vs. actuals are reviewed and may trigger more in depth analysis for any given variance. However, by setting expected levels of charges and funds flow, budgeting can help maintain control over large, recurring charges between affiliates. Examples of recurring charges that should be budgeted include large, recurring transmission agreement payments made to Power but owed to PSE&G, large corporate life insurance payouts received by PSEG Enterprise that are owed to PSE&G, and retiree prescription subsidy program payments received by Enterprise but owed to PSE&G. When significant variances occur, it should prompt follow up review, at least by the affiliate to which funds are owed. Implementation of this recommendation requires maintaining information to classify intercompany transactions by type; as such it is related to the previous recommendation.

2.3 We recommend PSEG clarify its position regarding compliance with New Jersey Affiliate Standards in its Annual Compliance Plan and clarify and document controls in place between PSE&G and affiliates regardless of the Company's position that certain regulations are inapplicable. PSEG takes the position that, as a matter of law, it is required to comply with New Jersey Affiliate Standards only with respect to its relationships with two, in our opinion very minor, "affected affiliates" (PSEG Solar Hackettstown and PSEG Energy Solutions). It is our opinion as auditors that there are many provisions of Affiliate Standards that *should* apply to the material relationships between PSE&G and its more significant operating affiliates (PSEG Services, Power, Energy Holdings and PSEG LI). In addition, there are provisions in Affiliate Standards, including those in N.J.A.C 14:3-3.3 and 14:3-3.4, that, in our opinion *should* apply to PSE&G's Appliance Services Business, notwithstanding the fact that the ASB is a separate PSE&G business unit rather than a legally distinct affiliate. While we found that, in practice, PSEG applied Affiliate Standards requirements to PSE&G's relationships and transactions with PSEG Services, PSEG Power and other significant operating affiliates, we recommend PSEG consider the "Relevant [Affiliate] Standards" covered in its Annual Compliance Plan and clarify, in each of the Plan's "Compliance Procedures" sections, the affiliates and / or ASB business unit to which specific regulations apply. We also recommend PSEG clarify, regardless of applicability of these regulations, the procedures PSEG uses either to ensure compliance where required, or to enhance affiliate controls where technically not required. The NJBPU should review these Compliance Plan clarifications to ensure they properly recognize PSEG's controls with respect to PSE&G's relationships and transactions with its major operating affiliates, and between PSE&G's regulated utility business and the ASB.

Affiliate Relationships and Transactions Overview

The State of New Jersey's Administrative Code, Title 14, specifies rules governing the relationships between regulated utilities and certain affiliated companies. These rules, known as the New Jersey Affiliate Standards, directly apply to affiliates of PSE&G that provide competitive services to New Jersey retail customers, and in some respects, to transactions between a regulated utility and its affiliates generally. PSEG does not consider PSE&G's primary operating affiliates (PSEG Services, Power and PSEG LI) to be "affected" by Affiliate Standards, as a matter of law. As such, even though PSEG has various internal controls designed to regulate the relationships among major affiliates, PSEG believes, at least officially, that these relationships are not bound by Affiliate Standards.[6] PSEG's position regarding

[6] A review of the current written procedure governing intercompany billing indicates that the company's main concern in reviewing transactions prior to monthly settlement is ensuring that intercompany payables and receivables balance for consolidation purposes. Transactions can be, and are, balanced without consideration given to the nature of the charges settled. When Overland asked for a listing of affiliate transactions by type, PSEG indicated it did not exist and would take a significant manual effort to develop. We eventually acquired three years of affiliate transaction accounting detail, covering thousands of transactions, and through manual analysis and the submission of follow-up data requests we were able to develop our own high-level breakdown of intercompany transactions by type. These type-classified transaction totals are shown in various tables in this chapter. While PSEG has controls on the front-end of these processes to ensure transactions are appropriate, it currently has no efficient means to perform these classifications once billed, which means management lacks a

applicability of the Affiliate Standards is included, but in our opinion could be further clarified, in the annual Affiliate Standards Compliance Filing. Notwithstanding PSEG's position, we approached our review using the New Jersey Affiliate Standards and FERC affiliate transaction pricing rules as a compliance basis for examining relationships and transactions between PSE&G and its affiliates PSEG Services, Power and PSEG LI.

The primary competitive services provided in New Jersey are appliance services, and these are provided by a separate PSE&G business unit rather than an affiliate. PSEG states in its 2021 Compliance Plan that:

> Affected Affiliate: *PSE&G affiliates* that have business segments which provide competitive services to retail customers in New Jersey and that fall under N.J.A.C. 14:4-3.3,14:4-3.4 and 14:4-3.5 of the Final Affiliate Standards are: PSEG Solar Hackettstown LLC ("Solar Hackettstown"), and PSEG Energy Solutions LLC ("Energy Solutions").[7]

Related competitive business segments *of the public utility holding company* are defined in N.J.A.C. 14:4-3.2 of the Final Affiliate Standards - Definitions, to include functionally separate business units. Therefore, it is PSE&G's view that the provisions of N.J.A.C. 14:4-3.3 through 14:4-3.5 of the Final Affiliate Standards apply to such functionally separate business units within subsidiaries of PSEG that provide or offer to provide competitive services to retail customers in New Jersey and not to the entire subsidiary company. The use of the defined term "affected affiliate" throughout this Compliance Plan is intended to address this distinction.[8] Notwithstanding PSE&G's position on applicability of the regulations, we approached PSE&G's appliance service business (ASB) as a business unit subject to Affiliate Standards in order to test the controls PSE&G has in place.

Legal Organization

PSE&G is the regulated utility subsidiary of the PSEG Enterprise holding company. PSEG Enterprise and its principal legal subsidiaries from 2015 to 2021 are summarized in the following chart.[9]

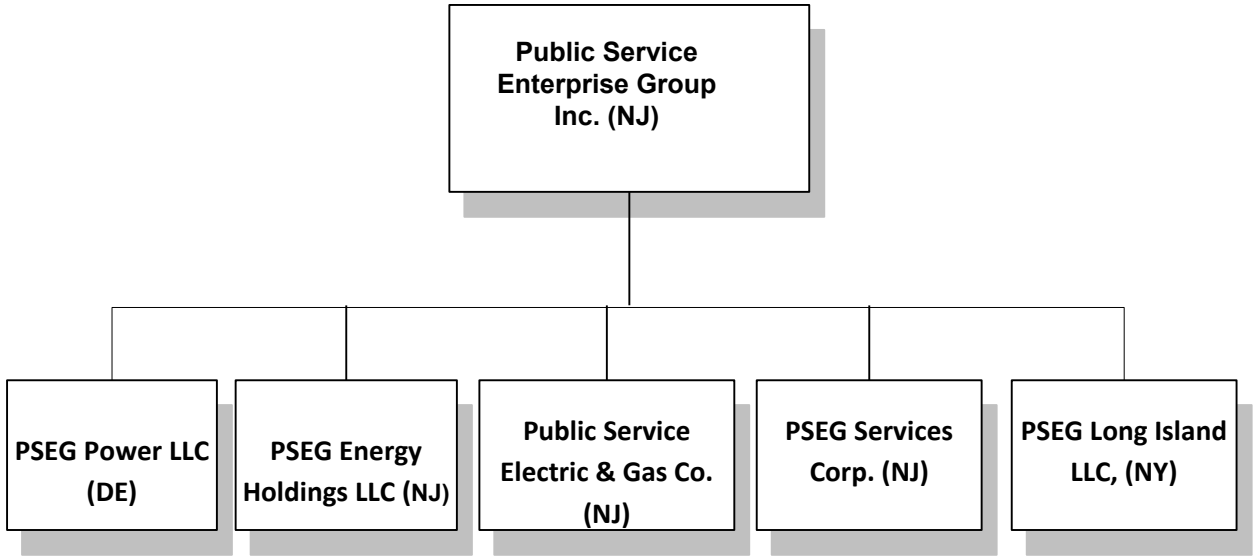
degree of post-transaction systematic control over large, recurring transactions, such as PSE&G's intercompany invoicing of Power for recurring property taxes paid on Power's behalf, or millions of dollars in corporate life insurance proceeds received each year by PSEG Enterprise but owed to PSE&G.

[7] 2021 PSEG Affiliate Standards Compliance Plan at page 6, italicized emphasis added.

[8] 2021 PSEG Affiliate Standards Compliance Plan at Footnote 1, italicized emphasis added.

[9] Response to OC-0013, Attachment OC_00013_Enterprise Org Chart 2015 01 01.

Chart 2-1 – PSEG Inc. and First-Tier Legal Subsidiaries (2015-2021)



The primary business purpose of each principal PSEG Enterprise subsidiary is as follows:

- PSEG Power (Power) – Power is a multi-regional energy supply company that in 2020 provided wholesale electric power produced by electric generating plants it owns in various states, primarily in the Northeast and Mid-Atlantic regions. At the end of 2020 Power owned approximately 11,200 megawatts of nuclear, coal, gas and fuel oil generating capacity. Power is regulated by the Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission (NRC). It is large enough to be one of Enterprise's two reportable business segments. In 2020 Power accounted for approximately 35% of corporate revenue (before eliminations) and 25% of corporate income. In August 2021 PSEG sold its Fossil business unit, consisting of 13 natural gas-fired power plants, to ArcLight Capital for approximately $2 billion. At the time of this report, Power consists only of PSEG Nuclear, which operates two nuclear plants (Salem and Hope Creek) and is a part owner of the Peach Bottom generating station in Pennsylvania.
- Public Service Electric and Gas (PSE&G) – PSE&G is a transmission and distribution utility providing retail electricity and natural gas to about 70% of New Jersey's population. It has approximately 2.3 million electric and 1.9 million gas customers and is regulated primarily by the New Jersey Board of Public utilities (NJBPU). PSE&G is a reportable business segment and is responsible for approximately 60% of corporate revenue (before eliminations) and 75% of corporate net income.
- PSEG Energy Holdings (Energy Holdings) – Through its primary subsidiaries Energy Holdings holds investments in domestic leveraged leases, in which it holds an equity interest.
- PSEG Services Corp (PSEG Services) – PSEG Services is a centralized service company that provides corporate management and administrative services shared by all subsidiaries, but principally by PSE&G, Power and PSEG LI. As a service company, PSEG Services is structured to charge its services to the subsidiaries it serves based on fully distributed cost (FDC). PSEG Services and its charges to the affiliates it serves are covered extensively in Chapter 3.

- PSEG Long Island (PSEG LI) – PSEG LI is a holding company existing to manage and operate the electric utility on New York's Long Island owned by the Long Island Power Authority (LIPA). The relationship between PSEG LI and LIPA is governed primarily by an Operator Services Agreement (OSA).

Management and Staffing Organization

PSEG is comprised of four principal operating subsidiaries. The employee headcount for these subsidiaries and their sub-units is summarized in the table below.

Table 2-1 – Employee Headcount by Subsidiary

Employee Headcount by Subsidiary				
Company	**Employee Headcount**			
	EoY 2018	**EoY 2019**	**EoY 2020**	**6/30/2021**
Long Island Electric Util	2,396	2,490	2,531	2,474
PSEG Long Island LLC	13	12	14	14
PSEG Long Island Total	**2,409**	**2,502**	**2,545**	**2,488**
PSEG Energy Res and Trade	1	1	1	1
PSEG Keys Energy Center LLC	29	28	29	26
PSEG Nuclear LLC	2	2	2	2
PSEG Power	1,934	1,856	1,628	1,555
PSEG Power Connecticut LLC	105	100	93	76
PSEG Power New York Inc.	49	44	42	40
PSEG US Services	2	2	2	2
PSEG Power Total	**2,122**	**2,033**	**1,797**	**1,702**
Delivery Company	6,600	6,424	6,360	6,458
Transmission Company	718	706	689	675
PSE&G Total	**7,318**	**7,130**	**7,049**	**7,133**
Internal Services	1296	1327	1397	1407
PSEG Services Total	**1296**	**1327**	**1397**	**1407**
PSEG Enterprise Corp. Total	**13,145**	**12,992**	**12,788**	**12,730**
Source: Response to OC-940.				

Changes in operating subsidiary headcount during our review period up to 2021, are summarized as follows:

- Power – Power's staffing has been shrinking for a number of years. Approximately 270 employees in Power's Nuclear Security function were transferred to PSEG Services in 2018. Headcount declined by approximately 20% between the end of 2018 and mid-2021. PSEG states this was due to the decommissioning of Sewaren units 1 through 4 and the expected closure of Bridgeport Harbor Station 3. Power also reorganized its Maintenance and Repair organization,

and reorganized the Bergen, Line and Peaking generating stations, reducing staffing and transferring Laboratory Testing Services to PSEG Services.[10]

- PSE&G - PSE&G's employment declined by 2 ½ percent between the end of 2018 and mid-2021. Much of this was due to attrition in the meter reading function, as PSE&G installed meters with Encode-Receive-Transmit (ERT) technology, which converted manual reading routes to walk-by or drive-by routes. Meter reading attrition is continuing with the implementation of Advanced Metering Infrastructure (AMI), which began in the spring of 2021 and is expected to be completed in 2024.
- PSEG LI – PSEG LI consists of a management company with 14 employees and the Long Island Utility with approximately 2,474 employees. The utility, also referred to as Servco, grew from 2,396 employees at the end of 2018 to 2,474 employees in mid-2021. It consists primarily of utility operations and management employees whose employment predates PSEG's 2014 takeover of operations from National Grid. Long Island's headcount during the review period was stable and there were no major internal reorganizations. The net change in headcount is due to a new "AMI Deployment" department created in 2019, which had 78 employees by mid-2021. As with PSE&G, deployment of AMI in Long Island should create force reductions in employment over time, primarily as a result of attrition in the meter reading function.
- PSEG Services – Headcount for PSEG Services increased approximately 20% during 2018 due to the transfer of Power's 270-employee Nuclear Security department from Power. Headcount increased by an additional 9% between the end of 2018 and mid-2021, primarily due to the insourcing of computer applications and desktop management activities that had previously been performed by a contractor. Other changes to PSEG Services staffing, which overall did not materially change total headcount, are discussed in Chapter 3.

Intercompany Transactions

There were a variety of intercompany charges both to and from PSE&G with affiliates during our three year review period. Setting aside charges for energy, intercompany charges to PSE&G for the years 2018 through 2020 totaled approximately $2.4 billion. Of this, $2.3 billion were charges from PSEG Services for shared services and reimbursements for convenience payments, both of which are covered in Chapter 3. Intercompany charges to PSE&G are summarized as follows.

[10] Response to OC-0942.

Table 2-2 – Summary of Intercompany Charges by Affiliates to PSE&G 2018-2020

Summary of Intercompany Charges by Affiliates to PSE&G 2018-2020		
Affiliate	**Description**	**Amount**
PSEG Services Corp	Centralized management and administrative services and reimbursement of vendor payments made on behalf of PSE&G	2,291,962,000
PSEG Enterprise (Parent)	1) Misc. corporate costs, including board fees, stock exchange fees, "below the line" expenses such as travel and donations, desginated as a "corporate income / loss allocation." 2) Incentive Compensation (stock performance units). 3) PSE&G's share of payroll taxes processed at the corporate level (beginning at the end of 2020). 4) Misc. other charges	33,726,323
PSEG Power - Non-Power Goods and Services	1) Employee and contractor services (distribution system inspection, maintenance, testing and repair) 2) Materials and supplies 3). Land, structure and facilities rental and easements.	108,844,702
PSEG Long Island	Employee and contractor support services	97,075
Total Non-Power		**2,434,630,100**
Energy Transactions (PSEG Power)	BGS Electricity,BGSS Gas, and zero emission credits	4,173,933,000
Total		**6,608,563,100**
Source: Responses to OC-14 (initial and supplemental), OC-1093, OC-1094 (Analysis in WP All Bill Details 2018-2020 OC1093 1094.xls).		

The following table breaks out charges for energy purchased by Power on PSE&G's behalf and Power's credits for nuclear power under the Zero Emission Credit (ZEC) program. Electric, gas supply, and ZEC transactions are discussed in chapters 4 through 6.

Table 2-3 – Electricity, Gas Supply, and Zero Emission Credit Charges Billed by PSEG Power

Electricity, Gas Supply and Zero Emission Credit Charges Billed by PSEG Power				
Category	**2018**	**2019**	**2020**	**Totals**
BGS	650,112,000	498,917,000	369,363,000	1,518,392,000
BGSS	844,289,000	913,003,000	710,379,000	2,467,671,000
ZEC	-	75,299,000	112,571,000	187,870,000
Totals	**1,494,401,000**	**1,487,219,000**	**1,192,313,000**	**4,173,933,000**
Source: Response to OC-14.				

As best we could determine from analysis of accounting detail, intercompany charges from PSE&G to affiliates totaled approximately $444 million during the review period. These are summarized in the following table.[11]

[11] As discussed in additional detail below, quantifying and assessing the nature of transactions between affiliates requires a significant manual effort analyzing transaction detail from the accounting system.

Table 2-4 – Summary of Intercompany Charges by PSE&G to Affiliates 2018-2020

Summary of Intercompany Charges by PSE&G to Affiliates 2018-2020		
Affiliate	**Description**	**Amount 2018 through 2020**
PSEG Services Corp	Fleet, facility and project support	9,555,000
PSEG Enterprise (Parent)	Third party remittances to PSEG Enterprise, owed to PSE&G	299,534,242
PSEG Power - Peak Shaving	Peak shaving services	11,823,000
PSEG Power - Other Than Peak Shaving	1) Employee and contractor services (Fleet, facility and Energy Management System support) 2) Materials and supplies 3) Power property taxes paid by PSE&G 4) Lower Delaware Valley Transmission Agreement payments made to Power but owed to PSE&G 5) Electricity to serve Power's facilities 6) Power employee benefits paid by PSE&G. 7) Misc. other charges.	116,729,592
PSEG Long Island	1) Employee and contractor services (Asset management and FEMA project support) 2) Employee incentive compensation paid by PSE&G, attributable to PSEG LI.	3,671,928
PSEG Energy Holdings	Employee and contractor services and management consulting (Offshore wind project support, support for LI appliance service insurance program)	2,695,096
Total		**444,008,858**
Source: OC-14 (initial and supplemental), OC-1093, OC-1094 (Analysis in WP All Bill Details 2018-2020 OC1093 1094.xls).		

Affiliate Transactions Internal Control

This section covers internal controls governing the intercompany relationships and transactions. These controls consist primarily of policies and procedures to help ensure PSE&G complies with applicable rules governing affiliate relationships and transactions.

New Jersey Affiliate Transaction Rules

Rules governing transactions between utilities and competitive business segments (CBSs) of the utility or its holding company are covered in Section 14:4-3 of the New Jersey Administrative Code (NJAC), and the scope and definitions for these regulations are set forth in Sections 14:4-1 and 14:4-2, respectively. Collectively, these are referred to as Affiliate Standards.

- Subsections 3.3 through 3.5 contain standards applicable to transactions between a utility, including a related CBS of the public utility, and a CBS of the public utility holding company.[12] Subsection 3.3 prohibits discrimination in favor of a CBS of the public utility holding company; 3.4 covers the transfer of proprietary information between a utility and a CBS of the public

[12] 14:4-3.1(a)(1).

utility holding company. Subsection 3.5 requires separation between a utility and a CBS of the public utility holding company, including separate corporate entities, books and records.

- Subsection 3.6 addresses competitive products and services that a utility or a CBS of the utility may provide.[13] It allows a utility to offer a competitive service (such as PSE&G's Appliance Services Business) under certain circumstances. Prices for utility-provided competitive services must equal or exceed the fully allocated cost of providing the service, and "will not otherwise result in cross-subsidization." Subsection 3.6 also contains restrictions preventing utilities from soliciting competitive services from utility customers, providing preferential treatment to utility customers who purchase competitive services, or tying the provision of regulated utility services to the provision of competitive services.
- Subsection 3.7 requires utilities to file annual compliance plans with the BPU demonstrating adequate procedures to ensure compliance with Section 14:4-3 of the Administrative Code. This section also provides for independent audits, the scope of which is established by the BPU.

NJAC Section 14:4-4 contains requirements that apply to utilities operating in New Jersey that are owned by a public utility holding company. Subsection 4.1 states that the rules are intended to protect New Jersey utility ratepayers from risks presented by a public utility's ownership by a holding company.

- Subsection 4.3 includes rules limiting a utility holding company's investment in non-utility assets. Non-utility assets do not include "utility associated" assets such as power generating plants.
- Subsection 4.4 requires utilities and their parent holding company systems to make available to the BPU and its staff all information provided to the FERC. If a New Jersey utility with a service agreement exempt from a FERC Form 60 filing (such as PSEG Services) to make an annual filing similar to FERC Form 60 for the service-providing subsidiary.
- Subsection 4.5 requires NJBPU approval of service agreements between utilities and their affiliates, and BPU notification for modifications to approved agreements such as additions or deletions to the categories of services provided under the service agreement. BPU approval is required for any modifications to cost allocation methods that would result in a 5% or greater change in the factors.
- Subsection 4.6 requires utilities to file annual certifications stating that at least 40 percent of the utility's board of directors satisfy "New Jersey qualification and board of directors independence qualification." It also requires a public utility maintain a distinct corporate identity and a separate corporate credit rating.
- Subsection 4.7 contains rules to prevent a utility from financial operations that could impair its credit, access to capital or ability to provide utility service to its customers.

[13] 14:4-3.1(a)(2).

PSEG's Affiliate Transaction Control Environment

PSEG has programs and procedures which establish an internal control framework for affiliate relationships and transactions. However, PSEG also maintains that the New Jersey utility is not bound by New Jersey Affiliate Standards with respect to relationships and transactions with major operating subsidiaries. PSEG's stated position is as follows:

> *The BPU's Affiliate Standards do not apply to affiliates that are not "affected affiliates." Notwithstanding, the company's approach to compliance with affiliate standards and to guard against cross-subsidization concerns is fully described in the Company's annual Affiliate Compliance Plan filings and the Company's Affiliate Council Transactions processes. See the Responses to OC-0018, OC-0500, OC-0502, and OC-0503 for additional information.*[14]

Notwithstanding this position, PSEG's internal controls (including the Business Conduct Compliance Program, the Affiliate Transactions Council, and regular employee training in Affiliate Standards) cover most, if not all, significant affiliate relationships within their scope. The key procedures and programs designed to establish internal control over affiliate relationships and transactions and maintain compliance with FERC and NJBPU rules are as follows.

PSE&G's Annual Compliance Plan

PSE&G annually files a Compliance Plan with the NJBPU covering its compliance with the BPU's Final Affiliate Standards, in accordance with NJAC 14:4-3.7(a), which addresses the NJBPU's regulatory oversight of PSE&G. The Compliance Plan contains nine chapters addressing the following subjects:

- Regulatory Oversight
- Corporate Governance
- Transactions with Affected Affiliates
- Competitive Products and Services
- External Interfaces
- Corporate Identification and Advertising
- Employees

As noted above, PSEG's position is that PSE&G's relationships with PSEG Services, Power and PSEG LI are not subject to the Affiliate Standards because they do not provide competitive services to New Jersey retail customers.[15] The Compliance Plan does appear to acknowledge that appliance services provided by PSE&G's ASB are subject to N.J.A.C. 14:4-3.6, but it does not set forth the Company's position that the Affiliate Standards do not cover relationships between the utility and its major operating affiliates.

[14] Response to OC-0678-C. PSEG defines "affected affiliates" as affiliates providing or offering competitive retail services to customers in New Jersey.

[15] Response to OC-0678-C.

We view this lack of clarity as a problem with the Compliance Plan, which is otherwise a comprehensive internal control document.

Written Practices Governing Affiliate Transactions

PSEG has the following written practices which govern affiliate transactions review, approval and pricing.

- Practice 520-3 applies to all employees providing non-power goods and services between PSE&G and "any of its Affiliates, subject to exceptions set forth in [the] Practice."[16] This Practice documents the responsibilities and authority of the Affiliate Transaction Council (ATC), discussed below, which oversees all affiliate transactions. Apart from this, it documents PSEG's transfer pricing rule for non-power goods and services exchanged between PSE&G and affiliates. It states that 1) PSE&G may provide goods and services to affiliates at the "higher of cost or market," which, in practical terms means fully distributed cost and 2) that PSE&G may only purchase goods and services "at or below market prices," which in practice also means fully distributed cost. PSEG references FERC cross subsidization rules as the basis for its transfer pricing rule. This practice was updated in 2021.[17]
- Practice 520-3-1 documents the detailed procedures for pricing for services provided by PSE&G to Power and PSEG LI at the "higher of cost or market," as required by FERC transfer pricing rules. The Practice does not apply to transactions with PSEG Services. It states that transfer pricing for MAST (non-union) employees is based on the presumption that PSE&G's fully loaded employee billing rates, which include salary and incentive compensation, are market-based, and that the rates also incorporate "fringe benefits, payroll taxes, office space and information technology (IT toolkit) costs.[18]

- Practice 520-4 is similar to Practice 520-3 and applies to PSE&G and the PSEG LI (both the management company and the Long Island utility). It is intended to ensure that services exchanged between the two companies are reviewed and approved before they occur. It notes that FERC transfer pricing rules apply (which, in practical terms, means that services must be exchanged at fully distributed cost). It requires written "requests for support" for all new transactions, and approval and review by the ATC. It requires PSE&G's Finance Manager – Utility Business Strategy to notify PSE&G employees of the proper orders to use for charging time and expenses to PSEG LI and it requires the billing rates to be reviewed at least annually.[19,20]

[16] Enterprise Practice 520-3, PSEG Practice for Affiliate Transactions, Response to OC-0018 (Confidential).
[17] Response to OC-0018 Update.
[18] It is noteworthy that for PSEG Services, charging rates for employee services do not include office space or information technology costs. These are incurred by the service company and charged separately from employee professional services.
[19] Practice 520-4 is similar to Practice 520-3, except that it focuses on the relationship between PSE&G and PSEG LI.
[20] Enterprise Practice 520-4 PSE&G Practice for Affiliate Transactions with PSEG Long Island, Response to OC-0018 (Confidential).

Business Conduct Compliance Program

PSEG maintains certain governance controls, including a Business Conduct Compliance Program (BCCP) consisting of "policies, standards, procedures, controls and systems designed to deter . . . wrongdoing and, if wrongdoing occurs, to detect, implement appropriate corrective action to prevent recurrence and make appropriate regulatory reporting and to promote a culture that encourages ethical and compliance behavior."[21] PSEG's Chief Compliance Officer has responsibility under the BCCP to oversee the program and PSEG's Compliance Counsel uses resources to provide reasonable assurance of compliance with the Final Affiliate Standards.

Employee Standards of Conduct

PSEG maintains Standards of Conduct that "establish a set of common expectations for behavior . . . regarding the conduct of the Company's businesses and operations."[22] The Compliance Plan states that PSEG conducts annual Standards of Conduct training for all employees and maintains documentation evidencing program completion.

Affiliate Transactions Council

PSEG established an Affiliate Transactions Council (ATC) in 2012 "to provide reasonable assurance of employee compliance with Final Affiliate Standards."[23] Even though PSEG states that Power, PSEG Services and PSEG LI are not "affected affiliates" and therefore not subject to Affiliate Standards, the Annual Compliance Plan states that the ATC is responsible for reviewing the exchange of non-power goods and services between PSE&G and its affiliates to ensure that those transactions are compliant with both FERC and BPU regulations." According to PSEG, ATC's significant activities include.[24]

- Providing employee access to the ATC through an email address.
- Review and approval of the exchange of non-power goods and services between PSE&G and its affiliates. Operating subsidiaries must complete an ATC application prior to implementing a new affiliate transaction with PSE&G, which must be submitted and approved by the ATC.[25]
- Regular meetings to review pending applications and to determine if transactions are compliant with Practice 520-3, Practice 520-4, and/or Instruction 520-3-1.
- Affiliate transaction training support for new and existing employees, upon request.
- Support the filing of the Annual Compliance Plan.

The ATC consists of representatives from several PSEG subsidiaries. As shown below, ATC members represent legal, procurement, business performance, finance and accounting functions and, through

[21] 2020 Compliance Plan, Chapter 2, Corporate Governance, B. Internal Control Environment (Response to OC-0020).
[22] 2020 Compliance Plan, Chapter 2, Corporate Governance, B. Internal Control Environment (Response to OC-0020).
[23] 2020 Compliance Plan, Chapter 2, Corporate Governance, B. Internal Control Environment (Response to OC-0020).
[24] Enterprise Practice 520-3, August 3, 2020. Response to OC-0018 (Confidential).
[25] The ATC has final approval authority for transactions valued up to $1 million. Above that level, further approval must be obtained from the Managing Counsel – Regulatory.

April of 2022, included representatives from PSE&G and all three of its largest affiliates (PSEG Services, Power and PSEG LI).[26] The ATC holds regular meetings, which appear to have increased in frequency in 2020 compared with the prior two years. 2020 meeting topics and discussions are shown in Attachment 2-1. We have included them because they show the types of issues that occur and must be discussed that involve relationships and transactions among affiliates. We believe the ATC is one of the most important components of PSEG's overall control over affiliate transactions.

Table 2-5 – PSEG Affiliate Transactions Council Members as of June 14, 2021

PSEG Affiliate Transactions Council Members as of June 14, 2021		
Company	**Job Title**	**Function**
PSEG Services	Associate Counsel - Regulatory	Co-Chair
PSE&G	Manager Technical Training	Co-Chair
PSE&G	Manager Energy Supply Regulatory Support & Compliance	Council Secretary
PSEG Services	Director SAP Strategy & Planning	Member
PSEG Power (Fossil)	Power Plan Manager Peaking	Member
PSEG Services	Manager Management Accounting & Controls	Member
PSE&G	Manager Business Processes	Member
PSEG LI	Executive Director - Special Projects	Member
PSEG LI	Director Procurement PSEG LI	Member
PSEG Services	Assistant Controller - PSE&G	Member
Source: Response to OC-499.		

Internal Audits

PSEG's internal audit department conducts regular audits of affiliate transaction processes. The table below summarizes the audits PSEG reported for the years 2015 through 2020.

[26] As of April of 2022, following execution of the new Operations Service Agreement between PSEG-LI and LIPA, the ATC no longer has PSEG-LI members.

Table 2-6 – Internal Audits of PSEG's Affiliate Relationships and Transactions Compliance – 2015 through 2020

Internal Audits of PSEG's Affiliate Relationships and Transactions Compliance - 2015 through 2020		
Audit	**Report Date**	**Objective**
Intercompany Billing to PSEG Long Island (a Review)	8/31/2015	Evaluate that PSEG Long Island inter-company billings are complete, accurate, recorded timely, and compliant with pertinent regulation and contracts.
Affiliate Standards Compliance	10/10/2017	Evaluate the structures and processes which help ensure compliance with the New Jersey Board of Public Utilities (BPU) Affiliate Standards regulations as they relate to the Affected Affiliate, PSEG Energy Solutions LLC (Energy Solutions).
Inter-Company Billings	3/7/2018	Evaluate that PSEG Inter-Company billings are complete, accurate, recorded timely, and compliant with pertinent regulation and company polices.
Appliance Service	2/7/2020	Evaluate processes and controls over Appliance Service (AS) including compliance with BPU orders and Business policies/procedures .
Source: Response to OC-21.		

Additional recent audits which PSEG did not classify as "affiliate transaction" audits included:

- Servco Billings (December 2019) – The audit objective was to evaluate and validate the accuracy of service company billing processes, and their compliance with labor agreements, cost accounting principles and Affiliate Standards. [27,28] Control issues noted as a result of the review were minor.[29]
- PSE&G Cost Allocation Methodology (April 2020) – The audit objective was to evaluate the adequacy and effectiveness of methodologies used to allocate Utility Support Organizations to Utility Business Units. The audit found "two moderate risks" and noted "some improvement [was] required."

These last two audits covered material similar to what we covered in our audit of cost allocation methods and procedures, discussed in Chapter 3.

[27] Review – Servco Billings, December 13, 2019. Response to OC-0791 (Restricted).

[28] It is unclear why PSEG did not list this to be an affiliate transactions audit in Response to OC-0021. It could have been because PSEG classified it as a "review" rather than an audit.

[29] Audit: PSE&G Cost Allocation Methodology, April 17, 2020. Response to OC-0787 (Restricted).

Contracts and Agreements

PSEG maintains written contracts and agreements establishing the terms and conditions for transactions among affiliates, including their pricing. Important categories of agreements between PSE&G and its affiliates include:[30]

- PSEG Service Company Agreement with PSEG Services
- Service Company Cost Allocation Manual (CAM)
- Gas Requirements Contract with Power Energy Resources and Trading
- Various Interconnection Agreements with Power
- Various Easement and Property Use Agreements with Power
- Tax Allocation Agreement with PSEG Enterprise (parent)

Service Company Agreement - The PSEG Service Company Agreement establishes the terms for services provided by PSEG Services to PSE&G. It is nearly 20 years old and had not been amended through the end of 2021. It establishes basic terms for service company staffing, service accounting and utility payment, a service company working capital fund, record keeping and PSE&G access to records. It provides for a service company Board of Directors with approval responsibility for cost allocation methods. The agreement was approved by the NJBPU before becoming effective in 2003. In October of 2021, PSEG filed a petition to amend the Service Company Agreement for the sole purpose of adding two new categories of service: Engineering and Design and Construction Support. The BPU granted approval for these changes in June of 2022.[31] There have been no other changes to the agreement since 2003.

Schedule I to the Service Company Agreement is a description of services and cost assignment methodologies. Although service and charging method descriptions are generic enough that most still apply, it appears certain descriptions of both services and allocation methods are outdated, perhaps long outdated in some cases. For example, Schedule item 9 describes the allocation basis for General PSEG Management services (corporate enterprise services) as being "assigned using a number of allocation methodologies [which] include but are not limited to . . . Modified Massachusetts formula, Revenue, Earnings and Capital Expenditures and Headcount." It is Overland's understanding that enterprise cost allocation formulas other than the currently used three-factor formula composed of net assets, headcount and operating expense were abandoned after 2009.

Cost Allocation Manual - The CAM is a lengthy, highly technical document setting forth the rules for accumulating and allocating PSEG Services' costs to operating subsidiaries, as well as the rules for further allocating such costs to Utility Business Units within PSE&G. We found the CAM to be confusing and difficult to understand. In Overland's opinion, it was not designed to facilitate a general understanding of the cost allocation process.

[30] Response to OC-0015.
[31] See BPU Docket No. EM21101204.

Analysis of Intercompany Transactions

Intercompany transactions between PSEG's operating subsidiaries and business units are recorded as they occur and net amounts are settled in cash each month.[32] "Process documentation" states that "[intercompany] invoices and billing details for all [intercompany] balances" are "distributed . . . approved and paid by the Treasury."[33]

In our initial set of data requests for affiliate transactions we asked for a breakout of 2018 through 2020 intercompany charges "by type" with "a brief description of the nature of the services or products provided."[34] As shown in the following table, the response provided only a listing of summarized transaction totals by month. It did not include identification of the nature of the services or products embedded in the transaction totals.

[32] Interview of Richard Aicher, Director SAP Strategy and Planning, and Joanne Brandmaier, Senior Staff Accountant, on August 4, 2021.

[33] Response to OC-1093, "Process Write-up IC Invoicing Procedure," Confidential. This documentation consists of about a page and a half of technical task. It is likely to be understood only by the accountant responsible for processing intercompany invoices. We do not consider it to be a comprehensive of formal intercompany transactions procedure.

[34] Response to OC-0014.

Table 2-7 – Sample of Data Provided in Response to Request for Affiliate Transactions Broken Out by Transaction Type with Descriptions

PSEG Data for Utility Billing Affiliates - 2020 ($000s)										
Month	Peak Shaving Services	Other Power	Total Power	Service Company	Enterprise	Global	Holdings	Resources	PS LI Mgt Company	Ps LI SERVCO
Jan-20	218	3,623	3,841	225	15,344	-	335	-	17	50
Feb-20	336	1,019	1,355	137	18,325	-	59	-	19	41
Mar-20	171	3,311	3,482	193	17,760	1	86	1	14	61
Apr-20	113	6,357	6,470	152	12,811	1	91	1	30	46
May-20	95	825	920	131	5,794	-	106	-	1	43
Jun-20	276	2,526	2,802	149	10,471	1	278	1	1	37
Jul-20	501	3,703	4,204	126	11,264	1	113	1	1	44
Aug-20	388	7,945	8,333	146	6,865	-	69	-	40	190
Sep-20	462	9,087	9,549	113	4,684	1	197	1	17	61
Oct-20	319	8,864	9,183	99	3,968	1	116	1	10	49
Nov-20	266	12,971	13,237	116	15,766	-	75	-	9	46
Dec-20	320	7,651	7,971	112	9,621	1	61	1	10	56
Totals	**3,465**	**67,882**	**71,347**	**1,697**	**132,672**	**5**	**1,587**	**5**	**170**	**725**

Source: Response to OC-14.

In explaining the lack of any grouping of transactions by type, PSEG stated it would require a significant manual analysis of intercompany accounting detail, something we eventually did ourselves. PSEG's custom SAP configuration that has been in place since prior to this audit period limits the Company's ability to report transactions by type in the manner and format we requested. PSEG offered to provide "one month of data that provides a grouping of the transactions by type" and "a brief description of the nature of the services or products provided." A sample of this data with transaction descriptions, which was provided for May 2020, is shown in Table 2-8:

Table 2-8 – Sample of Data Provided in Response to Our Supplemental Request for Affiliate Transaction Data Broken Out by Type with Descriptions for May 2020

Utility Charges to Service Company ($000s)	
Description	**Amount**
Facility Support	18
Fleet	22
General Support	1
Project Support	57
Rent Facilities Charges	33
Total	**131**
Utility Charges to Enterprise	
Disbursements of Headquarters Receipts	5,510
Reclass Expense	283
Total	**5,793**
Source: Response to OC-14 Supplemental.	

Note that nearly all of the transactions fall under the very limited and uninformative description "disbursements of headquarters receipts." Although the supplemental data was a slight improvement over the summarized totals initially provided, it was only a starting point for review because it contained very little descriptive information and covered only one of the 36 months in our review period. The type of substantive review we would typically undertake in an audit of this nature of PSE&G's intercompany transactions would not have been possible with this data, even if it had been extended to all 36 months in the review period.

We further requested "monthly affiliate transaction bills, including all support" for the three-year review period, which PSEG provided in response to requests OC-1093 and OC-1094. Monthly intercompany invoices were provided in two sets of 36 spreadsheets and transaction-level detail containing thousands of individual intercompany receivables and payables transactions were provided in two additional spreadsheets.[35]

The following table is a sample intercompany invoice for January 2020 which we have condensed to fit on a single page. Of note is that, although it is labeled as a bill from PSE&G to affiliates, the bills are netted such that this bill also contains amounts charged by affiliates to PSE&G. For example, the category "Fossil bills Utility" consists of charges from Power Fossil to PSE&G in which the small receivables amount was owed by PSE&G to Fossil, and the large payables amount was owed by Fossil to PSE&G.

[35] We requested intercompany transactions with charges from PSE&G to affiliates in OC-1093 and charges from affiliates to PSE&G in OC-1094. Responses to both requests included charges in both directions (i.e., both to and from PSE&G). A "billed from – billed to" cost relationship can also contain both receivables and payables activity, meaning charges can flow in both directions within a given entity billing relationship.

Table 2-9 – Sample "Affiliate Bill" – PSE&G to Affiliates, January 2020

Sample "Affiliate Bill" - PSE&G to Affiliates, January 2020								
OC-1093 PSEG CONFIDENTIAL								
Summary of Utility Billing					**Billing Date**	**2/14/2020**		
January-20 Transactions					**Due Date**	**2/25/2020**		
			AR	**AP**	**Net**			
Utility Bills Power								
EG10	G1906	EG10G1906	0.00	0.00	0.00	Payable to	Power	(for Solar
Utility Bills Francis Corp								
TC10	FR10	TC10FR10	7,706.57	0.00	7,706.57	Receivable from	Francis Corp	
Utility Bills PSEG Long Island								
EG10	H3702	EG10H3702	0.00	-84.19	(84.19)	Payable to	PSEG LI	
Utility Bills Global								
EG10	G1001	EG10G1001	0.00	(42.10)	(42.10)	Payable to	Global	
Delivery bills Holdings								
DC10	G1001	DC10G1001	322,672.87	0.00	322,672.87	Receivable from	Global	
DC10	R2002	DC10R2002	0.00	0.00	0.00	Payable to	Resources	
Utility Bills Holdings								
EG10	H3000	EG10H3000	0.00	(42.10)	(42.10)	Payable to	Holdings	
Utility Bills Resources								
EG10	R2002	EG10R2002	0.00	-42.10	(42.10)	Payable to	Resources	
EG10	R2003	EG10R2003	0.00	0.00	0.00	Payable to	Resources	
Delivery bills PSEG Long Island/Servco								
DC10	H3702	DC10H3702	17,229.64	0.00	17,229.64	Receivable from	PSEG LI	
DC10	H3704	DC10H3704	50,352.35	0.00	50,352.35	Receivable from	PSEG LI	Servco
Fossil Bills Utility								
FG10	EG10	FG10EG10	0.00	0.00	0.00			
FG10	DC10	FG10DC10	0.00	(2,390,923.22)	(2,390,923.22)			
FG10	TC10	FG10TC10	42,227.17	(401.56)	41,825.61			
FG20	EG10	FG20EG10	0.00	0.00	0.00			
FG20	DC10	FG20DC10	0.00	0.00	0.00			
FG20	TC10	FG20TC10	0.00	0.00	0.00			
					(2,349,097.61)	Payable to	Utility	
Nuclear Bills Utilities								
NG10	EG10	NG10EG10	0.00	0.00	0.00			
NG10	DC10	NG10DC10	0.00	(8,505.34)	(8,505.34)			
NG10	TC10	NG10TC10	95,278.08	(452,997.58)	(357,719.50)			
					(366,224.84)	Payable to	Utility	
Trading Bills Utility								
TR10	EG10	TR10EG10	0.00	0.00	0.00			
TR10	DC10	TR10DC10	0.00	(64,738.68)	(64,738.68)			
TR10	TC10	TR10TC10	0.00	(54,143.71)	(54,143.71)			
					(118,882.39)	Payable to	Utility	
Albany Bills Utility								
FG30	EG10	FG30EG10	0.00	0.00	0.00			
FG30	DC10	FG30DC10	75,911.99	(76,173.78)	(261.79)			
FG30	TC10	FG30TC10	0.00	0.00	0.00			
					(261.79)	Payable to	Utility	
Keys Energy bills Utilities								
FG80	DC10	FG80DC10	0.00	(275.00)	(275.00)	Payable to	Utility	
Delivery bills Holdings								
DC10	H3000	DC10H3000	0.00	0.00	0.00	Payable to	Holdings	
DC10	H3101	DC10H3101	12,271.34	0.00	12,271.34	Receivable from	Holdings	
Transmission bills Global								
TC10	G1001	TC10G1001	12.45	0.00	12.45	Receivable from	Global	
Total Net Bill			**623,662.46**	**(3,048,369.36)**	**(2,424,706.90)**			
Source: Response to OC-1093.								

As the invoice demonstrates, it is only a summary of monthly intercompany activity. This appears to be the level of information that is available based on existing system capabilities for approval and payment

by the Treasury. It contains no information about the type or nature of transactions underlying intercompany receivables and payables because that information only exists in the existing SAP system, albeit inconsistently, at the transaction level.

We reviewed transaction-level detail supporting intercompany charges to classify transactions by type and to perform testing of selected transactions. It required significant effort to combine, summarize, sort and filter the transaction detail to make it useful for the type of analysis we typically conduct. Transaction detail included three data fields with descriptive information, titled "Description," "Header Text" and "Long Text." However, for a given transaction one or more of the fields was often blank or contained cryptic or abbreviated notations. None of the descriptive fields, either independently or combined, provided consistent, reliable post-billing information about the nature of the charges between affiliates.

We issued a number of additional data requests to obtain information about specific types of transactions that the accounting detail by itself could not provide. This highlights an important issue: Even with transaction-level detail, it is not possible to gain a reliable, high-level understanding of the nature of transactions between affiliates, post billing, without the research assistance of PSEG's accounting employees. This is unlike the service company, for which accounting detail and related documentation, such as the Cost Allocation Manual and the Service Catalog, provides enough departmental and service-level information to enable at least a high-level understanding of charges and allocation processes. There is also no internal reporting that can provide an understanding of the transactions. PSEG explained that this type of reporting for intercompany transactions is not supported by the Company's configuration of SAP, which is a custom configuration. Nonetheless, we consider the lack of readily available information about the nature of intercompany transactions as identified in this chapter after they are billed to be a management control weakness.

In addition to lacking the information necessary to understand of the nature of the transactions after they are billed, intercompany invoices cannot necessarily be relied upon as an accurate indicator of the amount of intercompany activity between affiliates. For example, in 2020 the apparent monthly intercompany receivables and payables totals between Power and PSE&G were inflated by employee purchasing card (pcard) entries made to clear the charges among PSE&G's utility business units, as a function of SAP system configuration requirements. As the Company noted in a data response:

> *Power is not part of the PSE&G-specific PCard transactions. PSEG General Accounting posts a single monthly journal entry to clear all the 174XXX clearing accounts for all subsidiaries and company codes, with Power (Company Code PO10) as the leading company code in this entry. Note, SAP requires a "leading company code." By doing so**, the payable and receivable went in and out of PO10*** [emphasis added]. *The net payable and receivable from PSE&G to Power is zero.*[36]

[36] Response to OC-1596-A.

The net intercompany activity associated with pcard transactions was in fact close to (but not exactly) zero for the year, and it should be zero over time. However, the inclusion of Power as the "leading company" in these transactions made the level of intercompany receivables and payables activity between PSE&G and Power appear to be significantly higher than it actually was in 2020. As a result, because it lacked contextual information about the nature of the transactions, the data provided in response to request OC-0014 PSEG inaccurately showed total 2020 services provided by Power to PSE&G to be $54 million, when in fact they were only about $25.5 million.

PSE&G Intercompany Transactions with PSEG Enterprise

PSEG Enterprise, Company PS10, refers to the corporate parent. Transactions with Enterprise are broken out by transaction type in the table below. In dollar terms, the majority of these transactions during the review period were intercompany payables to PSE&G for thousands of third-party payments attributable to PSE&G that were deposited into Enterprise bank accounts.

Table 2-10 – PSE&G Intercompany Transaction Activity with PSEG Enterprise, 2018 - 2020

PSE&G Intercompany Transaction Activity with PSEG Enterprise, 2018-2020				
Description	**Amounts by Year (1)**			
	2018	**2019**	**2020**	**Total**
Expenses Charged by PSEG Enterprise to PSE&G				
Restricted and Performance Stock Units, Net	2,109,458	2,536,162	2,711,029	7,356,649
Allocated Payroll Taxes			8,857,842	8,857,842
Allocated Corporate Expenses (Directors Fees, etc.) (2)	5,117,179	4,882,002	3,900,675	13,899,856
Total Payable by PSE&G to Enterprise	**7,226,637**	**7,418,164**	**15,469,546**	**30,114,347**
Third-Party Remittances to PSEG Enterprise, Owed to PSE&G				
Corporate-Owned Life Insurance Proceeds	(11,270,538)	(11,830,102)	(14,265,301)	(37,365,941)
Retiree Prescription Drug Subsidy Program Pmts	(11,352,368)	(8,650,794)	(35,282,471)	(55,285,633)
Payments from PJM	(255,289)	(1,573,169)	(15,405,888)	(17,234,346)
State of NJ Lifeline Program Payments	(13,693,275)	(6,837,638)	(3,433,500)	(23,964,413)
All Other	(48,370,484)	(65,999,473)	(51,313,952)	(165,683,909)
Total Payable by Enterprise to PSE&G	**(84,941,954)**	**(94,891,176)**	**(119,701,112)**	**(299,534,242)**
Other Transactions, Net	3,994,522	(654,374)	271,828	3,611,976
Total Intercompany Activity, Net	**(73,720,795)**	**(88,127,386)**	**(103,959,738)**	**(265,807,919)**
Sources: Responses to OC-1093 and OC-1094, (Analysis in WP All Bill Details 2018-2020 OC1093 1094.xls) Note 1: Positive amounts are receivable by PSEG Enterprise from PSE&G; Negative amounts are payable by Enterprise to PSE&G. Note 2: Allocated corporate expenses are referred to in transaction detail an "income / loss allocation."				

Charges by PSEG Enterprise to PSE&G

Allocated Payroll Taxes

PSEG stated that to improve efficiency it changed its process for remitting payroll tax withholdings to its payroll vendor ADP. In December 2020 PSEG Enterprise began remitting payroll tax withholdings to ADP on behalf of all operating subsidiaries, which each operating subsidiary had previously remitted on its

own behalf. PSEG stated that the December clearing entries for $8,857,842 reflect withholdings for PSE&G employees, remitted to ADP, for which PSE&G must reimburse Enterprise.[37]

Allocated Corporate Expenses / Income-Loss Allocation

Allocated corporate expenses are also described in intercompany transaction detail as "other deductions" and "income / loss allocation." They are miscellaneous corporate fees and expenses, including board of directors' fees, rating agency and stock exchange listing fees, and certain "below the line" expenses such as corporate entertainment, travel and donations that cannot be recovered from regulated utility customers. PSEG stated that in 2020 it recorded PSE&G's share of corporate board, rating agency, stock listing and similar expenses in FERC Account 930.2 – Miscellaneous Business Expense, and its allocation of corporate entertainment, travel and donations in FERC account 426.1 – Donations.[38] In response to a follow up data request, PSEG stated that PSE&G's share of these expenses, which totaled $5,770,471 in 2020 prior to distribution, were allocated to PSE&G based on its 59% share of enterprise costs (in 2020) as calculated by the Enterprise Corporate allocator.[39]

Third Party Remittances to PSEG Enterprise, Owed to PSE&G

All incoming physical checks are deposited to a single lockbox account, Enterprise PS10. PSEG stated this is done for efficiency and to ensure there is a single set of instructions for all possible third parties sending checks and to decrease potential for errors in managing multiple accounts (lost or misappropriated checks).[40] PSE&G, therefore, does not have an account that can receive incoming checks via mail. Each year Enterprise receives thousands of payments from third parties that are owed to PSE&G (and receives similar payments owed to other subsidiaries). The payments are recorded as an intercompany liability in Enterprise's two primary bank clearing accounts (JP Morgan and Wells Fargo).[41] When the cash receipt belongs to PSE&G, the entries to record the cash are:

PS10

Debit Cash
Credit Intercompany payable to PSE&G

PSE&G

Debit Intercompany receivable from Enterprise
Credit Receivable from PJM

We analyzed the largest categories of these payments, as discussed below.

[37] Response to OC-1418.
[38] Response to OC-1419.
[39] Response to OC-1593. The Enterprise Corporate allocator is discussed in Chapter 3 of this report.
[40] Interview of Richard Aicher, Director SAP Strategy and Planning, and Joanne Brandmaier, Senior Staff Accountant, on August 4, 2021.
[41] Responses to OC-1412 and 1414. See these data responses for additional detail concerning these transactions.

Corporate Life Insurance Proceeds

PSEG stated that PSE&G purchased corporate-owned life insurance (COLI) policies for "union and non-union employees during the 1980s." During the review period PSEG Enterprise received the proceeds from these policies for employees and retirees who passed away. We inquired about 19 of these payments made in 2020, from Talcott Resolution to PSEG Enterprise, totaling $12,503,538. PSEG stated that the utility's life insurance costs and proceeds flow through FERC balance sheet account 124 – Other Investments, with proceeds reducing the asset balance in the account.[42]

Employer Group Waiver Plan Rebate

During 2020, PSEG Enterprise recorded intercompany payables associated with the Employer Group Waiver Plan (EGWP).[43] PSEG stated EGWP is a program offered by the federal government "that will increase federal subsidies for prescription drugs for retiree health trusts."[44] The rebate payments received by PSEG Enterprise were recorded as intercompany payables to PSE&G. The payment to PSE&G was credited to its retiree medical liability account.

PSE&G Intercompany Transactions with Energy Holdings and PSEG Long Island

The table below summarizes intercompany activity between PSE&G and Energy Holdings by type, based on an analysis of transaction detail from OC-1093.

Table 2-11 – PSE&G Intercompany Transaction Activity with PSEG Energy Holdings, 2018 - 2020

PSE&G Intercompany Transaction Activity with PSEG Energy Holdings, 2018-2020				
Description	**Amounts by Year (2)**			
	2018	**2019**	**2020**	**Total**
Net Expenses Charged by PSE&G to Energy Holdings Subsidiaries				
Employee and Contractor Services (1)	(43,579)	(180,316)	(955,695)	(1,179,590)
Employee / Retiree Benefits Billings	(753,515)	(197,496)	(20,917)	(971,928)
Licenses and Permits			(237,583)	(237,583)
Management Consulting			(277,278)	(277,278)
All Other	(1,323)	(19,612)	(7,782)	(28,717)
Net Expenses Payable by Energy Holdings to PSE&G	**(798,417)**	**(397,424)**	**(1,499,255)**	**(2,695,096)**

Sources: Responses to OC-1093 and OC-1094, (Analysis in WP All Bill Details 2018-2020 OC1093 1094.xls)
Note 1: Accounting detail does not adequately identify these charges. The amounts in this category are based on an assumption that FI-CO Reconciliation entries represent intercompany services provided by employees and contractors with billings based on timesheets.
Note 2: Negative amounts are net amounts payable by Energy Holdings to PSE&G.

We requested information about intercompany activity in 2020.[45] The response included the following information:

[42] Responses to OC-1416 and 1592.

[43] Response to OC-1094. Analysis shows 17 checks in 2020 associated with "Express Scripts" or "EGWP Rebate Check." Express Scripts is an online pharmacy through which EGWP rebates appear to flow.

[44] Response to OC-1417.

[45] Response to OC-1405.

Employee and Contractor Services

PSE&G utility employees provided services for "various non-regulated offshore wind projects." Activities included review and evaluation of onshore transmission and interconnection information, support of the permitting process, project cost information and bid preparation support. The transfer pricing basis for these charges is the fully loaded hourly cost of Company labor charged for the services.

We selected one line item totaling $43,370 from 2020 intercompany transaction detail and asked PSEG to provide supporting documentation.[46] PSE&G provided a spreadsheet summarizing employee time and expenses which totaled to the amount for the selected line item.

Licenses and Permits

Licenses and Permits consisted of fees paid by PSE&G to the New Jersey Dept. of Environmental Protection for land use permits and paid to the Delaware River Basin Commission for the New Jersey Wind Port project. These were PSE&G vendors; therefore, the utility paid the vendors and billed Energy Holdings.[47]

Management Consulting

This consisted of a payment to the New Jersey Economic Development Authority for a study of Hope Creek Port, related to the New Jersey Wind Port project.[48] The intercompany transaction is the result of payment made by PSE&G for an expense attributable to Energy Holdings.

PSE&G Intercompany Transactions with PSEG Long Island

Intercompany transaction activity between PSE&G and Long Island is relatively minor. As the table below demonstrates, activity consists primarily of utility services provided by PSE&G employees to PSEG LI. In 2020 the services included of asset management support and Federal Emergency Management Agency (FEMA) project support.[49]

[46] Document number 100000593 totaling $47,417, billed by PSE&G Co. DC10 to PSEG Global Co. 1001, dated February 29, 2020, "Reconciliation Posting CO," "FI-CO Reconciliation," from the MS Excel file OC_1093-Utility Billing Details JAN-DEC 2020.

[47] Response to OC-1405.

[48] Response to OC-1405.

[49] Supplemental Response to OC-0014, services provide in May 2020. There may have been other types of services in other months of 2020 and in the years 2018 and 2019.

Table 2-12 – PSE&G Intercompany Transaction Activity with PSEG Long Island, 2018-2020

PSE&G Intercompany Transaction Activity with PSEG Long Island, 2018-2020				
Description	Amounts by Year (2)			
	2018	2019	2020	Total
Expenses Charged by PSEG Long Island to PSE&G				
Employee and Contractor Services (1)	3,640	74,765	(19,323)	59,082
Remittances to PSE&G owed to PSEG LI			63,636	63,636
All Other		25	(25,668)	(25,643)
Total Payable by PSE&G to PSEG LI	**3,640**	**74,790**	**18,645**	**97,075**
Expenses Charged by PSE&G to PSEG Long Island				
Employee and Contractor Services (1)	(1,064,566)	(1,649,404)	(710,624)	(3,424,594)
Incentive Compensation Payments	(194,201)			(194,201)
All Other	(9,816)	(22,413)	(20,904)	(53,133)
Total Amounts Owed to PSE&G	**(1,268,583)**	**(1,671,817)**	**(731,528)**	**(3,671,928)**
Total Intercompany Activity, Net	**(1,264,943)**	**(1,597,027)**	**(712,883)**	**(3,574,853)**

Sources: Response to OC-1093 and OC-1094, (Analysis in WP All Bill Details 2018-2020 OC1093 1094.xls)
Note 1: Accounting detail does not adequately identify these charges. The amounts are based on an assumption that FI-CO Reconciliation entries represent intercompany services provided by employees and contractors with billings based on timesheets.
Note 2: Negative amounts are payable by PSEG LI to PSE&G; positive amounts are payable by PSE&G to PSEG LI.

PSE&G Intercompany Transactions with Power

We analyzed intercompany transaction detail between Power and PSE&G for the year 2020. We combined information from both affiliate invoices and transaction detail and segregated amounts owed by Power to PSE&G and by PSE&G to Power. The table below summarizes all transactions between PSE&G and Power except energy transactions and peak shaving services provided by PSE&G.

Table 2-13 – PSE&G Intercompany Transaction Activity with PSEG Power, 2018 - 2020

PSE&G Intercompany Transaction Activity with PSEG Power, 2018-2020				
Description	Amounts by Year (2)			
	2018	2019	2020	Total
Intercompany Charges by Power to PSE&G				
Employee and Contractor Services (1)	28,318,848	29,283,356	18,140,198	75,742,402
Materials and Supplies	2,172,201	557,377	776,079	3,505,657
Charges for PSE&G Easements on Power property	-	530,376	779,720	1,310,096
Land, Structure & Facilities Rental	4,491,376	903,553	704,405	6,099,334
Employee / Retiree Benefits Billings	1,009,063	38,386	563,747	1,611,196
Payroll Tax Reclassification	12,111,030	-	-	12,111,030
All Other	2,540,906	1,347,926	4,576,155	8,464,987
Total Payable by PSE&G to Power	**50,643,424**	**32,660,974**	**25,540,304**	**108,844,702**
Intercompany Charges by PSE&G to Power				
Employee and Contractor Services (1)	(7,905,126)	(4,767,311)	(3,604,137)	(16,276,574)
Materials and Supplies	(1,694,150)	(244,955)	(186,533)	(2,125,638)
Property Taxes Paid by PSE&G on Behalf of Power	(13,603,565)	(11,107,249)	(8,341,952)	(33,052,766)
Lower Delaware Valley Transmission Payments	(8,373,684)	(8,973,493)	(11,988,508)	(29,335,685)
Electricity to Serve Power Facilities	(53)	(323,174)	(776,191)	(1,099,418)
Employee / Retiree Benefits Billings	(10,899,709)	(9,240,042)	(5,579,781)	(25,719,532)
All Other	(4,039,699)	(2,046,878)	(3,033,402)	(9,119,979)
Total Payable by Power to PSE&G	**(46,515,986)**	**(36,703,102)**	**(33,510,504)**	**(116,729,592)**
Total Intercompany Activity, Net	**4,127,438**	**(4,042,128)**	**(7,970,200)**	**(7,884,890)**

Sources: Responses to OC-1093 and OC-1094, (Anaysis in WP All Bill Details 2018-2020 OC1093 1094.xls)
Note 1: Accounting detail does not adequately identify these charges. The amounts in this category are based on an assumption that FI-CO Reconciliation entries represent intercompany services provided by employees and contractors with billings based on timesheets.
Note 2: Positive amounts are receivable by PSEG Power from PSE&G; Negative amounts are payable by Power to PSE&G.

We classified transactions by type and performed analysis and testing, as described below.

Intercompany Charges by PSE&G to Power

During the review period PSE&G employees and contractors provided services to Power which were billed based on timesheets and the fully-distributed cost of labor. PSE&G also provided small amounts of materials and supplies and supplied electricity at tariffed rates to Power facilities within PSE&G's service territory. PSE&G also charged Power for property taxes and other post-retirement benefits (OPEBs) paid on Power's behalf. Power reimbursed PSE&G for payments Power received from Exelon (Philadelphia Electric) under a transmission agreement. We selected several of these items for additional analysis.

Employee and Contractor Services Provided by PSE&G to Power

PSE&G employees and contractors provided services to Power, including Energy Monitoring System support and fleet maintenance. PSE&G's Energy Monitoring System is shared with Power's Energy Resources and Trading (ER&T) business unit. EMS maintenance and support accounted for

approximately $1.58 million in charges to ER&T in 2020, most of which was attributable to services provided by two contractors.[50]

Overland selected one Energy Monitoring System transaction, totaling $12,500, for testing and asked for supporting documentation.[51] PSEG stated that the EMS is housed in the Electric System Operations Center (ESOC). The Bridgewater facility in which the ESOC is housed also contains the Gas System Operations Center (GSOC). Thus, Bridgewater's common facilities costs are allocable between the two centers. In 2020 the ESOC's EMS costs were allocable between PSE&G Transmission (81.25% in 2020) and Power's ER&T unit (18.75%).[52] The $12,500 owed by Power ER&T was its $4,399 share of $35,547 in common Bridgewater facilities costs plus its $8,101, 18.75% share of $43,204 in total EMS costs. PSEG attached requested invoice support for each of 16 line items associated with the common Bridgewater costs and each of nine line items for EMS costs. The EMS costs consisted of $32,312 in electricity charges from PSE&G[53] and $10,892 in charges for contractor engineering labor from two outside service suppliers (Rangam Consultants, Inc. and U.S. Tech Solutions, Inc.).

Prepaid Property Taxes

PSEG stated that New Jersey townships bill property taxes for all PSEG companies on one invoice. PSE&G makes most of these payments on behalf of itself and other business units, including Power Fossil. PSEG stated the "calculation to prorate a single invoice pricing is based on the ownership of the individual parcels."[54] In addition, during the review period PSE&G had easements on Fossil properties for areas at generating stations where PSE&G requires access to the land for its transmission facilities. PSE&G reimbursed Fossil on a per-acre basis for its share of the tax on these properties.[55] We selected one property tax payment transaction for testing.[56] The selected item had been paid by PSE&G on behalf of Fossil and was reflected in intercompany charges as a payable by Fossil to PSE&G. Supporting documentation showed it was a township tax bill for land owned by Fossil (thus no proration between PSE&G and Power was required). PSEG provided a copy of the tax invoice sent to "PSE&G Power / Fossil" showing the tax amounts due from Fossil for four parcels of land.[57]

[50] Response to OC-1409.

[51] Document number 100005911, totaling $12,500, "FI-CO Reconciliation," dated June 30, 2020, payable by Power Energy Resources (Co. TR10) and Trading to PSE&G Transmission (Co. TC10).

[52] Response to OC-1590.

[53] June 2020 electric charges were $10,172. The June bill also included $22,140 in past due charges from the May bill.

[54] Response to OC-1407.

[55] It is not clear why PSE&G would owe Fossil a share of property taxes on its property merely because it had an easement. Utilities have easements covering most of their distribution and transmission facilities, but do not, in our experience, pay landowners a share of the property tax they owe on their property. Time constraints prevented us from pursuing this question.

[56] Document number 1900004504 totaling $395,219, "PPTax-11010330," dated July 23, 2020, from the MS Excel file OC_1093-Utility Billing Details JAN-DEC 2020.

[57] Response to OC-1589. The only remaining question is why PSE&G, instead of Power, pays this bill when it is entirely attributable to Power Fossil. We did not pursue this question, as time did not permit.

Transmission Agreement Payments to Power, Owed to PSE&G

Exelon Corp., on behalf of Philadelphia Electric Co. and other Exelon utilities, makes certain payments to PSEG under the Lower Delaware Valley Transmission System agreement. Although the payments are made to Power, they are owed to PSE&G, requiring an intercompany payment by Power to PSE&G.[58] PSEG stated that Exelon pays Power instead of to PSE&G "because this was the legacy manner of payment and our understanding is that major system changes would be required to enable payment directly to PSE&G." In response to a follow up data request, PSEG stated that all payments under the agreement are attributable to PSE&G's Transmission UbU.[59]

Electricity at Tariffed Rates

Power's fossil plants within PSE&G's service territory consume electricity supplied by PSE&G.[60] We confirmed that the charges are based on NJBPU-approved tariffed rates.[61]

Intercompany Charges by Power to PSE&G

Intercompany charges from Power to PSE&G during the review period consisted primarily of timesheet-billed services provided by Power's employees and contractors. In 2020 these included Laboratory and Testing department services (a department that moved to PSEG Services in December 2020), and Central Maintenance Shop and system maintenance services.[62] Some services were provided to PSE&G Delivery (Electric Distribution), while others were provided to PSE&G Transmission. As the table below shows, many of the maintenance shop and system maintenance services provided by Power were routine services that would normally be provided by PSE&G's own employees.

[58] Response to OC-1420. The Exelon utilities involved in this agreement are Philadelphia Electric, Delmarva Power & Light, and Atlantic City Electric. Exelon is headquartered in Chicago and also owns Commonwealth Edison, an Illinois utility located at the western end of the PJM RTO.

[59] Response to OC-1594.

[60] Response to OC-1408.

[61] Response to OC-1591.

[62] Response to OC-1421.

Table 2-14 – Services Provided by Power Fossil's Central Maintenance and System Maintenance Organizations to PSE&G in 2020

Services Provided by Power Fossil's Central Maintenance and System Maintenance Organizations to PSE&G in 2020	
EE Position	**Service Tasks**
Mechanic	Splicing, Cable Pulling, Functional Testing, Manhole Inspection, Storm Look-ups, Switchyard Testing, Manhole Rescue, Age Change Meters, Security and Ride Along, Meter Turn ons, Cathodic Protection Repair, Splice Value Inspection, Diamond Wrap, Transmission Tower Baseplate Modification, Revese Engineering Fixtures, Filter Change Outs, HVAC Repairs, Maintenace, Install and Removal, Meter INspections and Replace or Transfer Gas Services.
Welder	Weld Repairs, Weld Fabrication.
Electrician	Relay Rack Wiring and Fabrication, Transmission Tower Baseplate Modification.
Heavy Equipment Operator	Operate Heavy Equipment, Machine Operator.
Source: Response to OC-1595.	

We selected one transaction and asked for supporting documentation.[63] PSEG provided a detailed spreadsheet with breakout of employee labor hours and charges by service (task) and order (object). The detail provided supported the transaction total of $415,291. The services, hours charged, and totals billed by type (task) are summarized in the table below.

[63] Document number 100015334 totaling $415,291, "FI-CO Reconciliation," dated June 30, 2020, from the MS Excel file OC_1094_Power Billing Details JAN-DEC 2020 (Confidential).

Table 2-15 – Intercompany Services Provided by PSEG Power to PSE&G, Document #1000015334, June 30, 2020

Intercompany Services Provided by PSEG Power to PSE&G, Document #100015334, June 30, 2020			
Task	**EE Hours**	**Charges**	**Average Rate (1)**
Cathodic protection testing	217.00	21,866.64	100.77
Infrared inspections of connections	70.00	7,949.90	113.57
Infrared scans of line connections	2.00	227.14	113.57
Install nitrogen cabinets	56.00	5,777.32	103.17
Install signage at pumping plants	53.00	5,455.91	102.94
Installing station wiring	21.50	2,635.52	122.58
Permitting support for Edison Gen	5.00	567.85	113.57
Permitting support for Metuchen Switch	25.50	2,896.04	113.57
PFT injections	12.50	1,419.63	113.57
Relay rack testing	12.50	1,437.24	114.98
Remote Terminal Unit installatoin	10.00	1,206.16	120.62
Splice chamber inspections	667.00	66,446.54	
Testing 13kV power cables	79.50	10,103.33	127.09
Testing 69kV breakers	389.00	46,662.45	119.95
Testing and calibration of equipment such as fluke meters,relay test sets, phasing sets, etc'	188.00	23,464.98	124.81
Testing and installing transformers	82.50	11,201.49	135.78
Testing circuit breakers and capacitor voltag transformers	168.00	21,581.09	128.46
Testing DC Chargers and Batteries	11.50	1,429.36	124.29
Testing failed and new Capacitive & Coupling Voltage Transformer	12.00	1,362.84	113.57
Testing gas insulated sytems	33.00	3,853.50	116.77
Testing new capacitors	103.00	12,525.62	121.61
Testing oil filled reactors and ESOC's data acquistion systems	133.00	15,492.34	116.48
Testing oversight and Gas Insulated systems testing	84.30	10,130.59	120.17
Testing regulators	59.50	7,092.10	119.19
Testing surge arrestors	74.50	8,936.57	119.95
Testing switchgear	38.00	5,020.26	132.11
Testing the ESOC alarms	6.00	681.42	113.57
Testing transformer	888.80	108,503.79	122.08
Various testing and inspections	93.00	9,363.41	100.68
Totals and Overall Average Hourly Rate	**3,595.60**	**415,291.03**	**115.50**
Note 1. - Average Rate was calculated by Overland. It was not included in the data. Response to OC-1595 (Confidential).			

Appliance Services

PSE&G offers repair, installation and maintenance services for household appliances to customers in its service territory that are regulated under the New Jersey BPU's Electric Discount and Energy Competition Act (EDECA) Affiliate Standards. Service offerings that are subject to EDECA are summarized below:

- Appliance Service Parts Service - respond to customer requests for repair of appliances.

- Appliance Service Contracts - enroll customers in an appliance service contract and respond to requests for repairs under the service contract terms and conditions, under its Worry Free brand.
- HVAC Replacements - provide boiler, furnace, central air conditioner, heat pump and mini-split system replacement service.
- Water Heater Replacement - provide water heater system replacement service.

The above activities are overseen by PSE&G's Appliance Services Business (ASB) group. The group also manages regulated utility services on customer premises, including safety calls, gas meter repairs or replacements, and gas service activation or deactivation.

Appliance Service Organization

The Appliance Services Business unit is led by the District Manager – Gas Operations. The group was recently centralized into one cost center - ASB-Mgmt. & Support Srvcs. Staff. The 16 employees in the group include:

- **Program Support Managers (5)**, who manage the various programs, including marketing, new product offerings, and program evaluation (i.e., scorecards),
- **Sr. Service Supervisors (3)**, who provide direct oversight of the HVAC and white goods field technicians. They approve time reports, evaluate productivity and provide training,
- **Program Support Leaders (2)**, who oversee contractors performing water heater installations, and
- **Various Staff-Level Positions (6),** who support the program managers in areas such as sales and marketing, and data collection and management.[64]

Appliance services are directly provided by field technicians. For gas appliances, PSE&G's 900-person unionized field technicians provide services under the Worry-Free contract and non-contract (APSO) offerings. The technicians may perform both regulated and ASB work when responding to a service call. These employees are assigned to one of PSE&G's twelve operating districts in the Company's Gas Distribution organization.

In addition, PSE&G has an 80-person team of white goods repair technicians (who repair dishwashers, ranges, refrigerators and other electric appliances) and another 80-person group who perform HVAC installation and repairs. These employees are directly supervised by the ASB management team, and their labor costs are directly charged to the ASB cost center. These technicians are licensed specifically for appliance or HVAC repairs and do not perform any regulated utility work. PSE&G uses outside contractors for water heater installations.

[64] Response to OC-0880.

Financial Overview

Under EDECA regulations, appliance services revenue must adequately recover their fully allocated costs to ensure competitive market pricing. The following table summarizes the financial results for PSE&G's ASB over the past three years.

Table 2-16 – PSE&G Appliance Services Business Summary of Financial Results

PSE&G Appliance Services Business Summary of Financial Results			
	12 Months Ended 12/31/20	**12 Months Ended 12/31/19**	**12 Months Ended 12/31/18**
Program Revenues	196,372,987	184,311,273	174,790,928
Direct Program Expenses	70,297,247	67,633,657	63,873,942
Allocated Administrative Expenses	55,338,649	58,364,689	58,156,389
Total Expenses	125,635,896	125,998,346	122,030,331
Net Income (Before Taxes)	70,737,091	58,312,927	52,760,597
Operating Margin	36%	32%	30%
Source: Response to Discovery, OC-684.			

ASB revenues and operating income are predominantly derived from the Worry-Free contract program, which provides repairs on covered appliances for a monthly fee. As shown on the following table, the increases in operating margin over the audit period are also attributable to the performance of the Worry-Free product.

Table 2-17 – PSE&G Appliance Services Business Financial Performance by Service Offering

PSE&G Appliance Services Business Financial Performance by Service Offering				
	Contracts	HVAC	APSO	AWH
FYE 12/31/20				
Revenues	$ 132,166,280	$ 38,629,864	$ 6,873,376	$ 18,703,467
Expenses	$ (71,787,625)	$ (32,609,062)	$ (6,842,000)	$ (14,397,209)
Net Income (Before Taxes)	$ 60,378,655	$ 6,020,802	$ 31,376	$ 4,306,258
Premise Hours	210,258	92,211	22,958	N/A
FYE 12/31/19				
Revenues	$ 123,567,120	$ 34,758,950	$ 7,617,679	$ 18,367,526
Expenses	$ (70,851,921)	$ (32,732,967)	$ (8,685,071)	$ (13,728,387)
Net Income (Before Taxes)	$ 52,715,199	$ 2,025,983	$ (1,067,392)	$ 4,639,139
Premise Hours	214,078	88,070	28,543	N/A
FYE 12/31/18				
Revenues	121,699,976	28,283,225	7,071,429	17,736,299
Expenses	(73,597,566)	(26,297,819)	(8,044,896)	(14,090,050)
Net Income (Before Taxes)	$ 48,102,410	$ 1,985,406	$ (973,467)	$ 3,646,249
Premise Hours	221,331	70,224	24,442	N/A
Source: Response to Discovery, OC-881.				

Except for the HVAC replacement program, appliance service premise hours were down in 2020 compared to prior years, which management attributed to the COVID-19 pandemic. The Worry-Free program saw revenue and margin increases in fiscal year 2020 compared to prior years because revenues and expenses are decoupled for service contracts.

The APSO program (non-contract, fee-based appliance repairs) operated at a loss in both 2018 and 2019 in violation of N.J.A.C. 14:4-3.6 (n), which states, "Each electric and/or gas public utility is responsible for and has an ongoing obligation…to ensure that the price it or its related competitive business segment charges for each such competitive product and/or service at all times equals or exceeds the fully allocated cost of providing such competitive products and/or services…" To determine the sufficiency of its pricing, management reviews direct costs (labor and materials) monthly for individual appliances, which can be determined through the use of separate job codes by field technicians. However, the assignment of indirect allocated costs to the ASB occurs at a higher level.[65]

[65] Interview of Michael Giardina, District Manager Gas Operations, on September 2, 2021.

PSE&G increased its APSO retail pricing on several appliances during 2019 and filed a tariff revision to its floor price on September 12, 2019.[66] These increases appear to have been sufficient to bring the APSO program into compliance with the New Jersey regulations, as the program was profitable again in 2020.

ASB Cost Allocation Processes

As shown on Table 2-17 above, between 45% and 50% of ASB costs are allocations of expenses from other PSE&G operating areas. These expenses are compiled semiannually using spreadsheets with data sourced from customized SAP reports.[67] Significant allocated costs include:[68]

- Non-Technician Labor – Supervision of field employees (accumulated by zone), and "security" expenses related to the dispatching of a second technician to a service call. Costs are allocated to tariff work and ASB based on premise hours.
- Non-Premise Technician Labor – Field employee labor costs charged to job codes not associated to a premises visit. Costs are allocated based on premise hours.
- Travel – Technician labor costs associated with travel to/from premises, as documented on time reporting system. Costs are allocated based on premise visits.
- Operations Management and Planning Support – Centralized management and dispatching functions. Dispatching costs are allocated based on premise hours, management costs by premise visits.
- Small Tools & Consumables – Includes safety equipment, work gloves, hearing protection, etc. Costs are allocated using direct labor hours, as they are considered essential to the job activity.
- Outside Marketing – Allocation of expenses is based on the annual marketing spending plan. Costs have been assigned to the Worry-Free contract program in increasing proportion during the audit period. By the second half of 2020, all marketing costs were allocated to contracts.
- Internal Services – Includes costs distributed from PSEG Enterprise, utility executive-level, service company, human resources, and billing/collections. They are allocated using a mix of premise hours and visits.

The ASB is one of PSE&G's five Utility Business Units (UbUs). The further distribution to UbUs of service company costs allocated to PSE&G is covered in Chapter 3. Based on our analysis we question why certain service company costs attributable to Customer Operations that may benefit Appliance Services are not allocated to it.

[66] Response to OC-0884.
[67] Interview of Michael Giardina, District Manager Gas Operations, on September 2, 2021.
[68] Response to OC-0881 "BPU Year End 2020 Submission backup".

Other Compliance Matters

Training

An apprentice training program is used in each of PSE&G's operating districts to certify field employees to perform gas appliance repairs. HVAC and white goods repair technicians, who reside within the ASB organization, are hired on as fully trained and licensed individuals. All employees receive safety compliance training and internal standards training in a full-day session twice per year.[69]

Compliance with New Jersey's affiliate and competitive service rules are addressed in training courses annually. Training materials include a summary of the Company's obligations under N.J.A.C. 14:4-3.6 and provide real-world scenarios to illustrate actions that are permissible and prohibited under the regulation. [70]

Marketing

Each Program Support Manager has responsibility for marketing activities associated with a different ASB product offering. The company uses direct mail, e-mail, and billing inserts to advertise the Worry-Free warranty and appliance replacement programs. Recently the ASB has also expanded into paid on-line search promotions and social media advertising. The costs associated with these marketing campaigns are budgeted and directly charged to the ASB cost center. Furthermore, the ASB marketing staff use internally-developed customer databases and do not have access to PSE&G's customer information system for marketing analysis or business leads.[71] This segregation complies with N.J.A.C. 14:4-3.6(m)1-2.

Promotional discounts are offered for ASB products and services, such as waiving monthly warranty fees for a predetermined period upon enrollment. Manufacturer rebates for new water heaters or HVAC systems may also be passed onto customers (which has no financial impact to the company). However, ASB customers do not receive discounts on any regulated utility service provided by PSE&G.[72]

Customer Service

Requests for appliance repairs that are called into PSE&G's customer service center are placed into PSE&G's customer service information system. White goods repairs are routed to the ASB team, who is responsible for dispatching qualified technicians. For gas appliances, field employees are dispatched in

[69] Interview of Michael Giardina, District Manager Gas Operations, on September 2, 2021.

[70] Response to OC-0668 Attachment – "WF Enrollment Recognition Program_Affiliate Standards Training_Jan 2020.pptx."

[71] Response to OC-0668 Attachment – "WF Enrollment Recognition Program_Affiliate Standards Training_Jan 2020.pptx."

[72] Response to OC-0668 Attachment – "WF Enrollment Recognition Program_Affiliate Standards Training_Jan 2020.pptx."

accordance with the order of execution specified in PSE&G's compliance plan.[73] This process complies with N.J.A.C. 14:4-3.6(m)4-5, which prohibits preferential customer treatment for competitive services.

[73] Response to OC-0668 Attachment – "WF Enrollment Recognition Program_Affiliate Standards Training_Jan 2020.pptx."

2020 Affiliate Transaction Council Advisory Discussion Summaries

Request Date	Topic	Advice
11-Nov-20	[redacted]	[redacted]
21-Oct-20	[redacted]	[redacted]
01-Jul-20	[redacted]	[redacted]
01-Jul-20	[redacted]	[redacted]
29-Jun-20	[redacted]	[redacted]
17-Jun-20	[redacted]	[redacted]
17-Jun-20	[redacted]	[redacted]
20-May-20	[redacted]	[redacted]
06-May-20	[redacted]	[redacted]
22-Apr-20	[redacted]	[redacted]
22-Apr-20	[redacted]	[redacted]
22-Apr-20	[redacted]	[redacted]
08-Apr-20	[redacted]	[redacted]
08-Apr-20	[redacted]	[redacted]
26-Feb-20	[redacted]	[redacted]
12-Feb-20	[redacted]	[redacted]

2020 Affiliate Transaction Council Advisory Discussion Summaries

Request Date	Topic	Advice
12-Feb-20	[redacted]	[redacted]
09-Oct-19	[redacted]	[redacted]
31-Jul-19	[redacted]	[redacted]
19-Jun-19	[redacted]	[redacted]
22-May-19	[redacted]	[redacted]
22-May-19	[redacted]	[redacted]
08-May-19	[redacted]	[redacted]
10-Apr-19	[redacted]	[redacted]
29-Jan-19	[redacted]	[redacted]
10-Oct-18	[redacted]	[redacted]

2020 Affiliate Transaction Council Advisory Discussion Summaries

Request Date	Topic	Advice
23-May-18	[redacted]	[redacted]
09-May-18	[redacted]	[redacted]

Response to OC-500 (Confidential).

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3. CENTRALIZED SERVICE COST ALLOCATION METHODS AND PROCEDURES

Introduction and Overview

This chapter covers Overland's review of PSEG's cost allocation processes and procedures. It focuses primarily on centralized services cost distributions from PSEG Services Corporation (PSEG Services) to PSE&G and to Utility Business Units (UbUs) within PSE&G. It includes the following sections:

- Service company relationships and transactions with PSE&G - This section discusses the relationship and transactions between PSE&G and PSEG Services. It covers the service company's staff organization, activities and services, the service company's budgeting process, and the distribution of costs to operating subsidiaries, which include PSE&G, PSEG Power (Power), PSEG Long Island (PSEG LI) and PSEG Energy Holdings.
- Centralized services cost distributions within PSE&G - PSE&G is composed of five revenue-producing utility business units (UbUs): Electric Distribution, Gas Distribution, Transmission, Appliance Services and Affiliates. This section covers the distribution of centralized service company costs to PSE&G's UbUs. This process is separate from the process that distributes centralized services costs to PSE&G.
- Service company convenience payments – This section discusses convenience payments, which are payments that PSEG Services makes to vendors on behalf of the operating subsidiaries. PSEG Services charges and is reimbursed by the operating subsidiaries for the payments. During the 2018-2020 review period, vendor convenience payments made on behalf of PSE&G exceeded the total cost of services provided and charged by PSEG Services to PSE&G.
- PSEG Long Island – PSEG Services' cost distributions to PSE&G are influenced by PSEG's newest operating subsidiary, PSEG Long Island (PSEG LI). This section contains information on PSEG Long Island and its relationship with the Long Island Power Authority (LIPA). It covers our review of PSEG LI's relationship and transactions with PSEG Services and its impact on PSE&G.
- Allocation of shared site project costs to transmission and distribution – This section discusses the controls intended to ensure that the costs of shared transmission and distribution construction projects are assigned to the correct UbU balance sheets.

Summary of Findings

PSEG Services and Cost Distributions to Subsidiaries

1. PSEG Services provides approximately $500 million annually in centralized management and administrative services to PSEG's operating subsidiaries. Our review of the years 2018 through 2020 found the processes and procedures governing the distribution of centralized services costs to operating subsidiaries were sound and generally consistent with the regulatory

objective of preventing PSE&G's cross-subsidization of PSEG's other subsidiaries. An exception involving the allocation of unattributable corporate enterprise costs is discussed below.

2. PSEG Services is actively managed to minimize growth in the cost of non-revenue producing administrative services. The Services Corporation Leadership Team prepares quarterly cost updates for the Executive Officers Group (EOG) which include ongoing revisions to the five-year service company financial plan. Quarterly updates include analysis of changes in cost outlook, potential savings opportunities, performance against budgets, and various risks that affect PSEG Services and the subsidiaries it serves. The quarterly updates also show that service company employee headcount is monitored and actively managed at the department level on an ongoing basis.
3. Centralization of services in PSEG Services currently produces relatively small economies of scale compared with a multi-utility holding company. The service company is currently scaled primarily to serve PSE&G, with the New Jersey utility consuming about two-thirds of its total services in 2020, and though this may change with the growth of the Service Company, our review focused on the Service Company's historic and current functions, as approved changes have not yet functionally taken effect. Power, PSEG's second largest operating subsidiary, is shrinking due to the sale of power plants and more recently the sale of its Fossil business unit. PSEG Long Island, operated by PSEG, is about one-third the size of PSE&G. However, many of Long Island's administrative services are provided by PSEG LI, rather than by PSEG Services, limiting potential opportunities for scale economies. Recent changes to the Operator Service Agreement between PSEG LI and the Long Island Power Authority are expected to reduce these opportunities even further. For the foreseeable future, with Power's reduced size, we estimate PSE&G will account for as much as 75% of PSEG Services' shared services.
4. PSEG Services' cost distribution procedures effectively link attributable activities and costs with benefiting operating subsidiaries. Service company activities are assigned among approximately 240 services, each of which, through orders established in the company's SAP accounting system, determine the assignment or allocation of costs to subsidiaries. With the exception of corporate enterprise costs, discussed below, our analysis showed procedures appeared reasonable. Service company costs distributed to PSEG LI appeared low given its size relative to PSE&G; however, we performed an analysis and determined this was reasonable based on PSEG LI's provision of administrative services within its own organization.
5. Enterprise costs are corporate-level costs, such as the costs of the CEO, CFO, COO and Corporate Secretary, which benefit PSEG as a whole and are therefore not attributable to specific operating subsidiaries based on cost-causation. They constitute about 15% of PSEG Services' total cost distributions. During the 2018-2020 review period, the Enterprise Corporate allocator used to distribute these costs was a subsidiary size-based multi-factor allocator consisting of net fixed assets, employee headcount and O&M expense.[1] We found the types and amounts of cost classified as corporate enterprise were reasonable. While PSE&G notified the BPU of the methodology in 2008, we have concerns with PSEG's calculation of the allocator. These include: 1) omission of Long Island's assets from the allocator, which in our opinion results in

[1] Beginning in 2022, gross plant in service will replace the net fixed asset component of the formula.

understated allocations to Long Island and overstated allocations to PSE&G and Power; 2) the use of Plan rather than actual headcount, which in our opinion consistently overstates PSE&G's headcount relative to its actual headcount and relative to other subsidiaries' Plan headcounts; and 3) various adjustments made to O&M expenses used as inputs to the calculation. Overall, these issues increased enterprise cost allocations to PSE&G and lowered allocations to PSEG LI during our review period.

Distribution of PSEG Services' Costs to PSE&G's Utility Business Units

1. Service company costs charged to PSE&G are further distributed among its revenue producing Utility Business Units (UbUs): Electric Distribution, Gas Distribution, Transmission, Appliance Services and Affiliates. The first three of these are the foundation for PSE&G's regulated state and federal revenue requirements and New Jersey customer rates.
2. PSEG Services' Cost Allocation Manual (CAM) documents and explains the allocation methodology for Service Company transactions to the affiliates receiving services and is not, in its current form, intended to document or explain intra-utility cost distributions. In our opinion, the CAM does not contain much useful information describing the basis for allocations of centralized services costs to UbUs. Specifically, there is a lack of documentation for the basis for allocation methods and the choice of UbUs benefiting from specific service company services and costs.
3. PSEG Services allocates its cost of services to operating subsidiaries' UbUs and these allocations are also tracked for some management purposes by "Forecasting Lines of Business" (FLoBs) within subsidiaries. FLoBs are not designed for or used for accounting purposes, but are a reference tool for management.[2] The service company uses FLoBs to estimate the impact of its costs on UbUs; however, FLoBs are not the same as UbUs and there is no direct link between them, as they are each the product of separate accounting processes. Due to the Company's existing custom configuration of SAP, there is currently no program or process which can enable direct evaluation of the services and costs distributed from PSEG Services FLoBs to PSE&G's individual UbUs.
4. It has been more than 20 years since PSEG developed its service company SAP billing engine, used to coordinate and bill charges to operating subsidiaries. The billing engine was originally designed as a custom configuration. It is outdated and is responsible for an information barrier between the service company's cost distributions to PSE&G and PSE&G's further distribution of the costs to UbUs. The result is a lack of transparency between costs incurred by the service company, as reported by FLoBs and their final distribution to PSE&G's UbUs. PSEG stated that SAP will cease supporting the company's configuration of SAP in 2030, at which time the system will need to be fully replaced. PSEG expects begin consideration of a replacement system and replacement system functionality in the years preceding 2030.

[2] FLoBs are a set of 17 organizational units and cost pools within operating subsidiaries. FLoB organizations are responsible for causing the service company costs distributed to them. The service company procedures that result in the distribution of costs to FLoBs are detailed and complex. FLoBs are used primarily as a management tool rather than as a step in the process of allocating costs to UbUs**.** We did not attempt to review these procedures as part of this management audit.

5. Review of the service company cost allocations to PSE&G's UbUs revealed certain questionable allocations and errors. In some cases, the issues may have been clarified if UbU allocation processes had been documented in the CAM or in PSEG Services' service catalog. We analyzed UbU distributions of service company costs for 2018 and 2019 using data manually prepared by PSEG to circumvent the billing engine's "data wall." Our analysis identified the following issues:

    - Significant changes in UbU headcount between 2018 and 2019 affected the Enterprise Utility allocator. For example, between 2018 and 2019, the Transmission headcount figure used in the allocator doubled and the Appliance Services headcount figure declined by almost two-thirds. In addition, an unusually high, possibly errant O&M expense figure for the Transmission UbU in 2018, used only in the Electric Operations version of the allocator, was also used.[3] PSE&G stated that it identified and corrected this issue. As a mitigation action, PSE&G stated that it implemented annual reviews of the allocators and is in the process of adding documentation to the receiving object about the basis of the allocation, with the intention of annual reviews going forward.[4]

    - In some cases, PSE&G's selection of business units benefiting from centralized administrative services was unclear or appeared to omit UbUs that may have benefited. Examples include 1) Human Resources services from the Asset Management and Centralized Services FLoB that were not distributed to Appliance Services when other administrative services were; 2) Customer Operations administrative costs such as corporate facilities, insurance; 3) Information Technology baseline services not allocated to Appliance Services; and 4) Electric Operations administrative costs directly assigned to Electric Distribution instead of being allocated between the Electric Distribution and Transmission.

Service Company Convenience Payments

1. Convenience payments are expenses from vendor-provided services that are processed and paid centrally by PSEG Services on behalf of the operating subsidiaries. PSEG Services charges PSE&G and other operating subsidiaries monthly and obtains reimbursement for these payments. During the 2018-2020 review period 86% of the vendor payments made by PSEG Services on behalf of subsidiaries were charged to PSE&G. PSE&G's convenience payments during the review period, approximately $1.3 billion, exceeded its billings for service company-incurred costs for services provided to the utility of $971 million, making convenience payments the bulk of what was billed. The largest category of convenience payments during this period was employee and retiree benefits costs.
2. Employee benefits convenience payments billed to PSE&G totaled approximately $287 million over our three-year review period and accounted for approximately three-fourths of the total

[3] There are several versions of the Enterprise Utility allocator, each of which represents a different combination of benefiting UbUs. All versions use the same three size-based factors (business unit net fixed assets, O&M expense and headcount) to distribute costs. The "overall" version distributes costs to all UbUs, the Electric Operations version distributes to Electric Distribution and Transmission, and a Customer Operations version distributes to Electric Distribution, Gas Distribution and Appliance Services.

[4] The actions PSE&G states that it took have not been audited by Overland.

payments in this category. PSE&G's 76% share of these payments is comparable to its share of employees (about 75% during the review period) among the three affiliates billed (PSE&G, Power and PSEG LI Management Co.). Employee benefits cost distributions among UbUs, which are driven by employee labor, also appeared reasonable.

3. Vendor convenience payments processed by the service company's Accounts Payable function on intercompany billing Schedule 2, Part 2 consist of thousands of payments annually to hundreds of different vendors. Of $1.1 billion in non-power payments billed under this schedule during the three-year review period, $986 million, or 88%, was charged to PSE&G. Although high relative to PSE&G's share of total corporate operations, the 88% share attributed to PSE&G appears reasonable based on the nature of PSE&G's business compared with that of PSEG's second-largest subsidiary (Power) and based on the fact that PSEG Services generally does not make convenience payments on behalf of PSEG LI, the other utility run by PSEG.[5]
4. We conducted an analysis of several of the largest vendor payment categories billed to PSE&G during the review period under Schedule 2, Part 2, including JP Morgan (employee purchasing cards, $151 million), Horizon Blue Cross (retiree health insurance, $101 million), Medco Health Solutions (retiree prescription drugs, $138 million) and Sedgewick (claims management services, $17 million). In most cases the costs charged to PSE&G, Power and Long Island Management Company for these vendors were based on allocations made by the vendors on their bills or by employee benefits consultant Aon. Our review did not identify problems or issues with the amounts charged by these vendors to PSE&G.

PSEG Long Island

1. PSEG Long Island (PSEG LI) is the electric utility serving Long Island, New York. PSEG operates the utility through PSEG LI LLC and its subsidiary, Long Island Electric Utility Servco LLC. Our analysis of the PSE&G, PSEG Services and PSEG LI organizations demonstrated that PSEG Corp. maintains adequate operational and financial separation between New Jersey and New York utilities' management and operations. PSEG LI is managed by PSEG employees working in a separate Management Company. These employees report to PSEG Corp. executives, rather than to PSE&G executives.[6] The services exchanged directly between PSE&G and PSEG LI are relatively immaterial, totaling $3.7 million in billings from PSE&G to PSEG LI over three years, and less than $1 million from PSEG LI to PSE&G during the same period.
2. PSEG Services provides certain centralized management and administrative services to both PSE&G and PSEG LI. By comparable measures of operating and financial size, PSE&G is about two and one-half times the size of PSEG LI; however, during the years 2018 through 2020 PSEG Services charged PSE&G approximately ten times more for services than it charged PSEG LI. We

[5] However, our analysis and testing of this area, relative to its size, was limited by time constraints. There were hundreds of vendors and over 50,000 lines of billing detail included in Schedule 2 Part 2 convenience payments during the review period. We focused our effort on the largest vendors and payments, as well as analysis of the underlying activities that caused the vendor expenses to be incurred, which were predominantly utility focused.

[6] One exception to this was that PSE&G's President had oversight responsibility for the Long Island utility during the year 2019. This dual responsibility was rescinded in 2020.

found many of the administrative services provided to PSE&G by PSEG Services were provided to PSEG LI by employees of the Long Island utility. Our analysis showed that PSEG LI maintained the proper levels of staffing to support these services internally, and that PSEG LI conducted and managed the services independent of PSEG Services.[7] Although providing similar administrative services in separate organizations reduces opportunities for scale economies that might be available from sharing, it also reduces opportunities for cross-subsidies between the organizations. In some cases, it is possible that differences between PSE&G and PSEG LI systems, policies and procedures would limit opportunities for economies even to the extent the services were provided by the same service company administrative departments.[8]

3. As suggested in the previous finding, we did not find evidence of cross-subsidies flowing from PSE&G through services shared by PSE&G and PSEG LI. However, as discussed in a separate finding above, we believe that the current allocation methodology under allocated corporate enterprise costs to PSEG LI and correspondingly over-allocated to PSE&G and Power during our review period.
4. Analysis of service company cost allocations show that the costs for service 1189, IT Cybersecurity, were not allocated to PSEG LI prior to 2020. PSEG stated that it found PSEG LI benefited from this service and corrected the allocation in 2020. Based on the amounts incurred during the review period, we estimate PSEG LI was under-allocated about $1 million for the years 2018 and 2019, while PSE&G and Power were over-allocated approximately $600,000 and $400,000, respectively, during the same two year period.

Allocation of Shared Site Project Costs to Transmission and Distribution

1. Shared site projects are utility construction projects which incur costs assignable to both distribution and transmission. PSE&G relies on several controls to ensure costs are assigned to the correct business unit's balance sheet. PSE&G uses FERC's seven-factor test to objectively classify assets as either transmission or distribution. In order to ensure correct cost assignment both transmission and distribution components of a shared project each have separate WBS elements (orders) to which costs are assigned. Finally, Project Cost Managers are responsible for reviewing project costs to ensure they are correctly assigned.

Recommendations

3.1 PSEG should reform the Enterprise Corporate allocator to implement a uniform set of inputs for all PSEG operating subsidiaries and document the calculation methodology in the CAM. Any adjustments to the inputs and the impacts of such adjustments, or the basis for not making such

[7] In commenting on our draft report, PSEG stated the many PSEG LI administrative employees report to PSEG Service Company management, which PSEG asserts enable some economies of scale. We have not analyzed the economies of scale that may result from PSEG LI to PSEG Services reporting relationships.

[8] In commenting on our draft report, PSEG stated that services provided by PSEG Services to PSEG LI recently became even more limited as a result of the Operator Services Agreement renegotiated with LIPA in April 2022.

adjustments, such as to the O&M expense component of the allocator, should be documented in the CAM and submitted for review by the BPU. Specifically:

a. The zero-value used for PSEG LI's assets should be replaced by the utility's actual net fixed asset (or gross plant) input value. Allocators that rely on measures of size to distribute non-attributable corporate costs are inherently arbitrary in that they cannot be linked to cost objectives based on cost causation. This does not mean they cannot be objective, systematic and rational. However, it is neither systematic or rational to calculate an allocator based on measures of size that, for one reason or another, either do not apply to or are determined not to be useful for all of the allocator's significant cost objectives. In this particular case, there is no reason that PSEG Long Island's net fixed assets should not contribute to its "weight" in drawing PSEG's corporate enterprise costs. PSEG supports the Long Island utility's assets in all material respects. PSEG manages, operates and maintains the assets and performs asset planning. If PSEG's stated reason for excluding Long Island's assets from the allocator's calculation, that it does not hold the title to the assets, overcomes the asset management, operation, maintenance and other activities supported by PSEG Corporation, then the basis for using assets as a measure of relative corporate support in the allocator is flawed, because it cannot be applied in a balanced fashion to the significant subsidiaries supported. Regardless of the measures selected, the Enterprise Corporate allocator should be based on measures of size that are characteristic of and can be used for all subsidiary cost objectives, with the exception of subsidiaries that are small enough that the difference between using or not using a particular component would be immaterial. Leaving assets out of the allocator lowers PSEG LI's allocation of corporate enterprise costs by nearly a third, and improperly shifts corporate enterprise costs to PSE&G and Power, but primarily to PSE&G as Power shrinks.

b. The Plan headcount factors used in the enterprise allocator should be replaced with actual employee headcounts. The Plan-based (authorized) subsidiary headcounts used to calculate the enterprise factor's headcount component materially exceeded actual headcounts for PSE&G and Power, but not for PSEG LI. For example, PSE&G's Plan headcount was more that 7% above actual headcount throughout the three-year review period, while PSEG LI's actual headcount was within about 2% of Plan. This caused the allocator to assign relatively less corporate cost to PSEG LI and relatively more to PSE&G and Power than would have been the case had actual employee counts been used. Actual headcount is an accurate measure of the relative level of support provided by corporate activities to the employees of each subsidiary and is preferable to authorized employee levels, particularly when Plan levels contain several hundred authorized positions that never seem to get filled for one subsidiary, but not for another.

c. Adjustments to financial statement O&M expense for use in the enterprise allocator should be documented and explained. There are significant adjustments made to financial statement O&M expense for use in the Enterprise Corporate allocator. For example, in 2020 nearly 48% of PSE&G's O&M expense was adjusted out for allocation purposes, and more

than 42% was adjusted out for PSEG LI. Neither the basis nor the reasons for the adjustments are explained anywhere in PSEG Services' CAM. It is not clear that the adjustments render a better "apple-to-apples" comparison of O&M expense across subsidiaries. To the extent any adjustments to published, verifiable O&M expense amounts are made in the allocator, they should be supported by the objective of making the figures more comparable across all subsidiary cost objectives. The logic behind any adjustments to O&M used for allocation purposes should be fully explained and documented in the CAM.

3.2 The service company catalog should be updated and documentation improved. The service company catalog should be reviewed to ensure it covers all services which are or are authorized to be provided. All obsolete services should be removed. An additional column of information should be added to better explain how the services are allocated; for example, descriptions of the transactional bases for services should be added. The service company activities included in services should be better documented in some cases. For example, instead of stating simply that a service is intended to include "enterprise level" activities, the service definition should provide examples of the types of work that qualify as enterprise level in the context of the department providing the service and the activities performed.

3.3 The Cost Allocation Manual should be updated to add, or a supplemental document should be developed to provide, an understandable description of how costs are allocated to business units within PSE&G; in particular, how PSEG Services' costs are distributed to UbUs that comprise the foundation of state-level electric and gas distribution revenue requirements and rates. The CAM was not designed to explain how service company costs attributable to multiple PSE&G UbUs are distributed to the business units. The CAM does not explain the basis for allocations to UbUs or why some service company Customer Operations, Electric Operations and Asset Management and Centralized Services costs are or are not attributable to UbUs such as Appliance Services or Transmission. Instead, the CAM contains a technical discussion of the means of allocation within the utility (for example, what "surcharging," "assessment" and "fixed percentage allocators" are and how they are calculated.) While this technical information is fine, as far as it goes, it does not explain the basis for the allocation of various common service company activities or why they are considered attributable to some UbUs, but not others. One way to accomplish a service-level documentation of the basis for cost allocation to UbUs would be to add the information to the service company catalog discussed above. Alternatively, the company should develop supplemental documentation that should be referenced in the CAM that provides this information.

3.4 PSEG Services should conduct and document a review of all significant common cost allocations to UbUs. Overland reviewed a limited number of allocations of service company costs within PSE&G and found mistakes had been made in the application of allocation percentages. In addition, services which appear to have been common to all UbUs served by operating organizations such as Customer Operations and Electric Operations were not allocated to all of the UbUs served by those organizations. It is likely that these problems are due to the "wall" between information available for utility FLoBs in the service company's accounting system and UbU information available in the utility's accounting system. We recommend a complete review

of the links between service company services and utility UbUs and the basis and selection of UbU cost objectives for all services common to more than one UbU.

3.5 At the time of our audit the Service Agreement between PSEG Services and PSE&G was outdated. The agreement should accurately reflect all current service and allocation relationships. PSEG stated that the agreement we reviewed, which had not updated since 2003, was updated in 2022. Going forward, the Company should periodically review the agreement for material changes and update the agreement to reflect details and applicable changes through an addendum, or as appropriate, to update the entire agreement. The Service Agreement establishes basic terms for service company staffing, service accounting and utility payment, a service company working capital fund, record keeping and PSE&G access to records. It provides for a service company Board of Directors with approval responsibility for cost allocation methods. Overland did not review the 2022 update and it is not clear that it was comprehensive or addressed the problems the led to our recommendation. Although service and charging method descriptions are generic enough that many still apply, certain services and allocation descriptions in Agreement Schedule 1 have been changed pursuant to notice to the BPU. For example, Schedule item 9 describes the allocation basis for General PSEG Management services (corporate enterprise services) as being "assigned using a number of allocation methodologies [which] include but are not limited to . . . Modified Massachusetts formula, Revenue, Earnings and Capital Expenditures and Headcount." It is Overland's understanding that enterprise cost allocation formulas other than the currently used three-factor formula composed of net assets, headcount and operating expense were abandoned after 2009.

PSEG Services Corporation

PSEG Services has approximately 1,400 employees who provide centralized administrative and management services on behalf of PSEG Corp's operating subsidiaries. Apart from energy purchases with a connection to PSEG Power, PSEG Services is PSE&G's largest and most important affiliate relationship. In 2020 PSEG Services distributed approximately $525 million to operating subsidiaries on a fully distributed cost (FDC) basis. Although FDC includes a cost of capital component, PSEG Services does not mark up prices for the services it provides. It has no net income at the end of the year or retained earnings on its balance sheet. Most of the $325 million it annually charges to PSE&G ultimately becomes part of the regulated cost of providing utility service. As such, it is important for the NJBPU to ensure that PSEG Services is not cross-subsidizing other PSEG subsidiaries by overcharging or over allocating its costs to the New Jersey utility.

During the three-year period we reviewed in detail, PSEG Services distributed approximately $972 million (63%) of its total $1.54 billion total cost distribution to PSE&G. A high-level view of PSEG Services' cost distributions for the period 2018 through 2020 is shown below.

Table 3-1 –PSEG Services - Summary of Cost Distributions

PSEG Services - Summary of Cost Distributions 2018-2020					
Year	Enterprise / Energy Holdings / Servco	Long Island	Power	PSE&G	Total
2018	4,588,687	29,060,885	144,207,885	336,967,323	514,824,779
	1%	6%	28%	65%	100%
2019	4,786,568	33,882,345	151,656,363	307,805,741	498,131,017
	1%	7%	30%	62%	100%
2020	5,412,609	39,042,523	153,705,004	326,937,340	525,097,476
	1%	7%	29%	62%	100%
Review Period Totals	**14,787,863**	**101,985,752**	**449,569,252**	**971,710,404**	**1,538,053,272**
	1%	**7%**	**29%**	**63%**	**100%**
Response to OC-954.					

In addition to amounts distributed as shown in the table, PSE&G also reimbursed PSEG Services for approximately $1.3 billion in convenience payments, an amount significantly exceeding the $972 million in costs PSEG Services charges for centralized services it provided to PSE&G. Convenience payments are reimbursements to PSEG Services for bills from outside vendors which PSEG Services processes and pays on PSE&G's behalf.

PSEG's internal cost allocation process is multi-layered. Its ultimate impact on New Jersey's retail utility customers is the result of costs distributed to the utility, followed by further distributions of these costs within PSE&G to its UBUs. Our primary audit objective was to determine whether allocation procedures produced reasonable cost distributions to PSE&G's electric and gas distribution customers. We focused primarily on determining the following:

- Whether the costs incurred by PSEG Services are responsibly managed and whether the provision of services to multiple subsidiaries from a centralized organization results in lower costs for PSE&G and its customers than if PSE&G performed the services for itself.
- Whether the accounting system and accounting procedures are sufficient to facilitate proper cost distribution to subsidiaries.
- Whether PSEG Corp. has incentives to maximize or minimize the distribution of costs to specific cost objectives (specific operating companies and business units) within its corporate structure.
- How budgets (annual plans) affect or determine cost distributions and whether procedures provide PSE&G some level of control in this process over the type and quantity of shared services it must purchase.
- Whether PSEG Services' costs are distributed between the New Jersey utility and PSEG's other subsidiaries (primarily Power and PSEG LI) in approximately the same proportion as the relative benefits each subsidiary receives from the services.

- Whether PSEG Services' costs assigned or allocated to PSE&G are reasonably distributed to UbUs within PSE&G.

PSEG Services Organization

PSEG Services is organized into Senior Leadership Team (SLT) organizations, each of which contains its own departments and cost centers. The table below provides a high-level view of PSEG Services' staffing organization from the end of 2018 to June 30, 2021.[9] A more detailed view of service company staffing, showing headcount at the department level, is included in Attachment 3-1.

Table 3-2 – PSEG Services Staff Organization

PSEG Services Staff Organization December 2018 through June 2021					
Executive-Level Organization	**Cost Centers**	**Employee Headcount**			
		EoY 2018	**EoY 2019**	**EoY 2020**	**6/30/2021**
Financial Services (Accounting, Finance, Strategy & Corp. Development)	22	298	278	265	256
Human Resources	3	103	94	100	108
General Counsel (Law, Compliance, Corporate Security, Claims, Regional Transmission Org.)	15	418	404	126	121
Service Company Operations (IT, Nuclear Security (post-2019), Treasury, Real Estate, Procurement, HQ Services, Communications, Survey & Mapping)	38	421	490	850	842
State Government Affairs	4	48	48	47	46
Other (Offshore Wind, Long Island Cust. Ops. & Initiatives, Corp. Executives)	8	8	13	9	34
Total Service Company Headcount	**90**	**1296**	**1327**	**1397**	**1407**
Response to OC-940. The number of cost centers varied from year to year.					

During the review period PSEG Services reduced employees in several departments. Despite these reductions overall headcount grew by 111 employees due to the transfer of a department from PSEG Power, the insourcing of information technology services that were previously performed by a vendor, and the formation of new departments. Significant staffing changes between December 2018 and July 2021 included:

[9] The large reduction in General Counsel headcount, and the corresponding increase in Service Company Operations headcount in 2020, is primarily due to the transfer of the Nuclear Security department from the General Counsel SLT to the Service Company Operations SLT.

Changes that reduced service company headcount (67 positions eliminated):

- Reduction in General Counsel positions. The Nuclear Security department was transferred within the service company from the General Counsel SLT to the Service Company Operations SLT, producing no change in total headcount. Apart from this, departments within the General Counsel organization reduced headcount by approximately 25 positions between the end of 2018 and the middle of 2021.
- Reduction in Financial Services positions. Departments in the Financial Services organization reduced headcount by 42 positions between the end of 2018 and the middle of 2021.

Changes that increased service company headcount (181 positions added):

- Insourcing of information technology services. During the course of the review period PSEG Services insourced certain computer applications and desktop management activities that had been performed by an outside vendor, resulting in the addition of 95 service company employees between the end of 2018 and the middle of 2021.
- Transfer of the Laboratory Testing function from Power to Services in 2020. The Laboratory Testing function had 84 employees at the end of 2019 when it was still part of PSEG Power. After transferring to the service company in 2020, the department, now called Engineering and Operations Support, had 75 employees at the end of 2020 and 69 employees as of June 30, 2021.
- Addition of a Regional Transmission Organization (RTO) Strategy department. PSEG Services added an RTO department in 2020, composed of 10 employees from PSE&G and Power (6 new service company employees) and from PSEG Services' General Counsel organization (4 employee transfers within the service company).
- Addition of an Offshore Wind Development department. This department was added in 2021. It was staffed with two employees transferred from other service company departments, 11 employees transferred from Power and seven employees transferred from PSE&G.

In addition to the changes noted above, the Nuclear Security department, which accounts for approximately 20 percent of the service company's total workforce, was transferred from Power to PSEG Services early in 2018. If it had not been transferred, the overall share of total service company costs distributed to PSE&G would be about 4% higher (66% for 2020 instead of 62%), and Power's share would be lower by an equivalent percentage (25% for 2020 instead of 29%).[10]

[10] PSEG Services' security headcount increased significantly early in 2018 with the transfer of the 270 employee Nuclear Security organization from Power. In Data Request OC-1320 we asked why the transfer occurred, given Nuclear Security's ongoing 100% dedication to Power. PSEG cited 10 benefits from placing the organization in the service company, including "greater industry credibility from nationally recognized security leadership," "superior law enforcement and regulatory alliances," "allow Nuclear executive management to focus on operations and other matters," "leverage best practices," "provide venues for employee advancement" and others. While nuclear and corporate security are both in the service company, each are managed by separate organizations under different Senior Leadership Teams Of the 10 benefits asserted,

PSEG Services Cost Distributions

PSEG Services distributed about $500 million annually to operating subsidiaries during our three-year review period. Costs were distributed primarily to PSE&G, PSEG Power and PSEG Long Island. Service company departments each have a set of orders that employees may charge either for their own time, or for the costs of vendors that work for the service company. The costs charged to orders translate to services, which represent the work performed for the benefit of the operating subsidiaries. A service may consist of a set of activities performed by employees or by contractors, or in some cases, the costs of facilities or capital or activities that cannot be more directly assigned or allocated (which are often identified as "baseline" services). As described in the CAM, before distribution to subsidiaries, the costs of individual units of service, such as an hour of an employee's time, receive a full allocation of costs (the hourly cost of salary, incentive compensation, employee benefits and payroll taxes). The fully distributed costs of services are then assigned or allocated to operating companies, and, through a separate process to business units within each operating company.[11] For example:

- When an employee in PSEG Services' Accounting department charges time to service 1006, Dedicated Utility Support, the cost is directly assigned to PSE&G, and within PSE&G, to the "Utility Level" segment of the Delivery Company. "Utility Level" costs such as utility accounting are common to and allocated to UBUs within PSE&G.
- When a contractor working under the oversight of the service company's Information Technology department bills the service company for work involving desktop computers, it becomes part of a bundled pool of hardware and software support costs collected in service 1184, Premium Desktop Support. The costs of this service are distributed to operating subsidiaries and their business units based on the number of "premium desktop [computers.]"
- When an employee in the service company's Risk Management department charges time to service 1863, Enterprise Risk Management, the cost is allocated among the operating subsidiaries and their business units using a size-based Enterprise Corporate allocator. This allocator is calculated based on an average of subsidiary O&M expense, headcount and assets.

The table below summarizes the service company costs distributed to operating subsidiaries during the review period. Although PSEG Services provided approximately 240 services during this period, as the table shows, only a few dozen of these accounted for most of the cost distributions. The 32 services listed individually in the table accounted for approximately two-thirds of the costs distributed.

the only one that appears to depend on placement in the service company instead of in Power is that of providing executive management in the Nuclear business unit the freedom from having to worry about managing a security function. Nuclear Security is not a shared cost, and it is 100% dedicated to Power.

[11] PSE&G's Utility Business Units include Electric Distribution, Gas Distribution, Transmission, Appliance Services and Affiliates.

Table 3-3 – PSEG Services Corp. – Summary of Cost Distributions

PSEG Services Corp. - Summary of Cost Distributions
Calendar Years 2018 through 2020

Executive Organization	Service	Distribution Method	Service Co. Costs Distributed To:				
			Enterprise / Holdings / Servco	Long Island	Power	PSE&G	Total
Financial Services	AC-P-Corp. Acctg. / Tax	Directly Assigned	980,884	685,695	4,017,745	3,675,355	9,359,678
	AC-P-Dedicated Power Support	Directly Assigned	28,433		14,130,767		14,159,199
	AC-P-E-Corp. Acctg. / Tax	Enterprise Alloc.	-	4,082,075	7,544,986	15,160,788	26,787,849
	AC-P-PT-Corp. Acctg. / Tax	Directly Assigned	179,407	25,183	9,502,719	7,978,578	17,685,887
	CO-P-E-SC Finance	Enterprise Alloc.	-	1,722,896	2,932,053	6,291,204	10,946,154
	MI-T-PT-Insurable Risk	Pass-Thru	-	1,639,018	14,324,684	20,754,820	36,718,523
	PF-T-Power Dedicated Finance	Directly Assigned	21,140		29,641,350		29,662,490
	TF-P-PSE&G Dedicated Finance	Prof Hourly	31,455	254,093		11,438,913	11,724,461
	TR-T-Treasury Mgmt Svcs	Various	841,225	213,386	4,419,925	5,935,497	11,410,033
	All Others	Various	2,197,848	5,807,052	3,600,512	56,457,202	68,062,615
Financial Services Totals			**4,280,391**	**14,429,398**	**90,114,741**	**127,692,358**	**236,516,889**
			2%	**6%**	**38%**	**54%**	**100%**
General Counsel	CL-P-Claims Prof Svcs	Directly Assigned	-	302,224		7,426,485	7,728,709
	CS-T-E-Corp Secretary Svcs	Enterprise Alloc.	-	1,336,071	2,376,088	5,186,928	8,899,087
	LE-P-E-Law Enterprise	Enterprise Alloc.	-	1,194,456	2,073,257	4,369,654	7,637,368
	LE-P-Regulatory	Directly Assigned	394,634	421,505	1,971,804	8,892,052	11,679,996
	NS-T-Nucl Security	Directly Assigned	-		63,075,493		63,075,493
	SS-P-Security Planning Ops & BIM	Directly Assigned	5,587	60,696	780,344	6,625,476	7,472,103
	SS-T-E-Security Planning & Ops	Enterprise Alloc.	-	1,127,729	1,999,648	4,206,659	7,334,036
	SS-T-Security Command Center	Attributable Alloc.	-		1,038,215	7,658,811	8,697,026
	All Others	Various	1,338,719	5,605,549	24,203,035	63,385,523	94,532,826
General Counsel Totals			**1,738,940**	**10,048,229**	**97,517,885**	**107,751,590**	**217,056,644**
			1%	**5%**	**45%**	**50%**	**100%**
Human Resources	HR-P-Manager Support Services	Directly Assigned	8,618	149,642	5,148,417	3,942,665	9,249,342
	HR-T-HR Baseline Svcs- MAST &	Attributable Alloc.	-	6,410,284	5,619,729	18,269,494	30,299,507
	All Others	Various	45,608	3,810,424	7,990,675	17,501,978	29,348,685
Human Resources Totals			**54,226**	**10,370,351**	**18,758,821**	**39,714,137**	**68,897,534**
			0%	**15%**	**27%**	**58%**	**100%**
Service Co. Operations - Information Technology	IT- T-SC Overhead	Residual Alloc.	2,478,192	2,720,772	15,462,648	23,179,008	43,840,620
	IT-T-C-IT Client Projects-CAP	Directly Assigned	90,545		9,393,861	91,419,559	100,903,965
	IT-T-Corporate BaseLine	Indirect Attribution	-	14,632,697	57,386,597	130,341,171	202,360,465
	IT-T-Cust Ops App Sppt Baseline	Indirect Attribution	-			35,860,801	35,860,801
	IT-T-PT-Basic Telecom Svcs	Directly Assigned	17,177	404	1,415,823	21,355,817	22,789,221
	All Others	Various	2,337,447	14,585,152	56,962,844	92,143,890	166,029,333
Servco Ops - Information Technology Totals			**4,923,361**	**31,939,025**	**140,621,772**	**394,300,247**	**571,784,405**
			1%	**6%**	**25%**	**69%**	**100%**
Other Service Co. Operations	BL-T-Building Services	Attributable Alloc.	66,980	25,587	6,166,881	37,141,073	43,400,522
	FC-P-PT-Corporate Facilities	Directly Assigned	-	-	3,827,602	46,334,728	50,162,330
	HQ-T-SC Overhead	Residual Alloc.	2,433,033	3,707,798	14,133,833	30,338,510	50,613,174
	SC-P-Procurement	Directly Assigned	178,863	3,454,641	18,199,325	11,923,456	33,756,285
	All Others	Various	522,864	5,028,284	18,602,648	76,628,227	100,782,024
Other Service Co. Operations Totals			**3,201,740**	**12,216,310**	**60,930,290**	**202,365,994**	**278,714,334**
			1%	**4%**	**22%**	**73%**	**100%**
State Govt. Affairs & LI Dedicated Total	SG-P-C-State Government Aff	Directly Assigned	-		260	11,358,591	11,358,851
	SG-P-State Government Aff	Directly Assigned	1,789		687,726	4,754,969	5,444,485
	All Others	Various	31,493	4,319,430	2,814,015	4,302,272	11,467,210
State Govt. Affairs & Long Island Dedicated Totals			**33,283**	**4,319,430**	**3,502,001**	**20,415,832**	**28,270,546**
			0%	**15%**	**12%**	**72%**	**100%**
PSEG Exec Office & Misc Acctg.	EO-T-E-Executive Svcs	Enterprise Alloc.	-	14,926,116	26,602,178	56,876,471	98,404,765
	WC-T-Working Capital Interest	Residual Alloc.	227,793	4,560,874	22,998,095	37,365,977	65,152,739
	All Others	Various	274,628	(823,981)	(11,476,531)	(14,772,201)	(26,744,584)
PSEG Exec Office/Misc Acctg. Totals			**555,922**	**18,663,009**	**38,123,742**	**79,470,247**	**136,812,920**
			0%	**14%**	**28%**	**58%**	**100%**
PSEG Services Corp. Totals			**14,787,863**	**101,985,752**	**449,569,252**	**971,710,404**	**1,538,053,272**
			1%	**7%**	**29%**	**63%**	**100%**

Responses to OC-954, OC-1200.

Analysis of Service Company Cost Distributions

Overland analyzed service company costs and cost distributions at the service level. A condensed version of the output from this analysis is shown in Attachment 2-2. We evaluated costs, methods of distribution and the cost objectives (operating subsidiaries and subsidiary lines of business (UbUs) to which the costs were distributed). We also performed an analysis of corporate-level enterprise costs and their allocation. Enterprise costs are corporate-level costs not considered to be assignable or allocable to subsidiaries based on cost-causation. PSEG Services allocated approximately $230 million in non-attributable enterprise costs over the three-year review period. Using service company cost data,[12] we evaluated the reasonableness of cost distributions among operating subsidiaries and within PSE&G's UbUs based on the nature of the services and the distribution method.

The accounting procedures that collect and distribute service company costs are complex and are in some respects unique to PSEG due to PSEG's legacy, custom SAP configuration. Costs are collected in staff and contractor cost centers, which align with service company departments. Each department has a set of services. Each service represents a general set of activities performed for subsidiaries and is the primary determinant for cost assignment. Within the structure of departments and services, employees assign their time and the costs of outside service providers to various orders and "work breakdown structures" (WBSs).[13] A service may have several orders, each of which may establish a unique cost direction. Orders and work breakdown structures settle to "product and services cost centers" (services) which contain fully distributed costs to be billed based on units such as professional hours, number of items processed, etc. PSEG Services uses fully distributed standard costing (e.g. standard fully loaded labor rates) to charge services to subsidiaries, which adds complexity to the process, because "residual" amounts (the difference between standard and actual costs) must also be accounted for and allocated. The combined procedures for gathering and distributing costs to operating subsidiaries is referred to internally as the service company billing engine, and the main system for processing is SAP, with a custom configuration.

Although it contains a significant amount of detailed information, in Overland's opinion the CAM, which is intended to document cost collection, accounting and distribution processes, is not, apart from a few pages at the beginning, designed in a manner that facilitates a holistic understanding of these processes.[14] To evaluate the service company's collection and distribution of costs, we focused on:

- Collection of costs at the service level and the identification of the subsidiaries benefiting from the services. We considered whether services were generally aligned correctly with the subsidiaries benefiting from them.

[12] Responses to OC-0954, 1200, and 0028.
[13] "Orders" can be thought of as a bucket into which cost is collected for the purpose of classification or allocation. "Work breakdown structures" and "cost objects" may be referred to generically as orders. Within the SAP accounting system, orders and work breakdown structures can be thought of as buckets into which costs are collected for analysis or further processing.
[14] This appears to be due to the complexity of the process as well as the way the CAM is written.

- The methods and procedures used to assign or allocate the costs. For non-attributable, size-based enterprise cost allocations, in addition to reviewing the allocation methodology we evaluated the financial and operating data used to calculate the allocations.
- The overall reasonableness of cost distributions for each service, considering the services performed, and the size and scope of operations of the benefiting operating subsidiaries.

Service company costs are further assigned or allocated to business units within each subsidiary. Within PSE&G service company costs are ultimately distributed to PSE&G's Electric Distribution, Gas Distribution, Electric Transmission, Appliance Services and Affiliates UbUs. We evaluated the distribution of service company costs within PSE&G, as discussed separately below.

Service Company Planning and Budgeting

The service company's budgeting process has both "top-down" and "bottom-up" elements.[15] The process begins with a review of historical data, both financial and headcount, to look for trends and set goals for the Plan year. This same historical data is used to budget cost distributions to the subsidiaries and their UbUs, including FloBs.[16]

Vice presidents in charge of the service company's SLT organizations (Financial Services, General Counsel, Service Company Operations, Human Resources and State Government Affairs) "own" the expense budgets for the departments within their control. The service company's Finance department works with representatives from each of these executive organizations to develop budgets. Departmental budgets are generally controlled at the service-company level, with a focus on overall cost control. As approximately 70% of costs are ultimately driven by labor, whether internal or from an outside provider, employee headcount and the trade-off between internal and outsourced services appears to be one of the primary focal points for budgetary cost control. The operating subsidiaries' input into budgeting the demand for the services they consume has diminished over the past decade as the process has evolved to one of service company-level cost control.[17] However, certain services are demand-based, and although they remain highly predictable based on headcount and on-going operational methods, the operating companies theoretically have discretion over the nature and volume of the services they receive and must pay for.

The budget is developed between July and September of the year prior to implementation, with 90% of the work done by October. The following table shows the correlation between budgeted and actual expenses over the three-year period 2018 through 2020. As the table demonstrates, the service company's budget estimates are an accurate indicator of overall incurred costs, particularly for PSE&G and its Delivery and Transmission lines of business.

[15] Interview of Martin Shames, Director Service Company Finance, on September 14, 2021.
[16] PSE&G has five UBUs which are its ultimate cost objectives: Electric Distribution, Gas Distribution, Appliance Services, Transmission and Affiliate. Forecasting lines of business (FLoBs) are intermediate distribution points and the ultimate organizational cost objectives for the service company. Cost distributions to FLoBs are driven by work order/WBS element.
[17] Interview of Martin Shames, Director Service Company Finance, on September 14, 2021.

Table 3-4 – PSEG Services Cost Distributions

PSEG Services Cost Distributions Budget vs. Actual, 2018 through 2020			
Company / Consolidated Line of Business	**Actual Pct. of Budget**	**Budget (Plan)**	**Actual**
PSE&G			
Delivery		881,508,219	885,414,141
Transmission		89,311,854	86,296,264
Total PSE&G	100.1%	970,820,073	971,710,405
Power			
PSEG Energy Res and Trade		70,396,656	56,931,582
PSEG Energy Solutions LLC		2,328,568	797,983
PSEG Fossil LLC		29,181,478	25,254,321
PSEG Nuclear LLC		204,502,395	160,742,319
PSEG Power		218,777,264	202,385,114
PSEG Power Ventures LLC		4,659,930	3,457,932
Total Power	84.8%	529,846,291	449,569,251
PSEG Long Island			
Long Island Electric Utility		47,904,424	58,542,280
PSEG Long Island LLC		42,647,094	43,443,472
Total PSEG Long Island	112.6%	90,551,518	101,985,752
Other			
Public Service Enterprise		292,943	668,350
Holdings		6,417,806	7,383,699
PSEG Services Corp.		4,306,332	6,735,814
Total Other		11,017,081	14,787,863
Total PSEG Services Distributions	96.0%	**1,602,234,963**	**1,538,053,271**
Response to OC-0954.			

Sale of the Fossil Business

In August 2021 PSEG entered into an agreement to sell its remaining natural gas power plants to ArcLight Capital for approximately $2 billion, part of a plan to exit the fossil generation business. The sale was completed on February 18, 2022. This sale is discussed at more length elsewhere in this audit report. It is noted here because of its effect on PSEG Services. Based on the latest information available during the data collection phase of our audit, following are the likely impacts of the sale on PSEG Services and cost distributions to PSE&G:

- Savings to PSEG Services resulting from the sale were estimated at $32 million annually beginning in 2022, with an additional $6 million beginning in 2024**,** due primarily to staffing

reductions associated with employees providing power plant-related services.[18] It does not appear these savings will directly affect PSE&G.

- The sale of the Fossil business has significantly reduced the size of PSEG's second largest subsidiary, Power. In doing so it has shifted the distribution of corporate-level enterprise costs, which are allocated directly or indirectly based on measures of corporate size, away from Power and toward PSE&G. PSE&G's overall allocation of corporate enterprise costs, which is based on three size-based factors (net fixed assets, Plan headcount and O&M expense during the review period) will increase from an average of 57% during the review period to 66% in 2022.[19] PSE&G's share of residual service company costs will also increase, from 58% in 2020 to 65% in 2022.[20] It is not clear that any significant reduction in total corporate enterprise costs (corporate executive, corporate secretary and similar costs) will result from the sale of Power Fossil.

PSEG Services' Cost Impact on PSE&G

We evaluated two factors in considering the impact of the service company on PSE&G's costs:

- The extent to which centralized services costs are appropriately managed and contained, given that subsidiary operating companies have relatively little direct control over the costs the service company distributes to them.
- The extent to which PSE&G and other PSEG subsidiaries benefit from economies of scale generated by centralized services.

Service Company Cost Management

Cost control is fundamental to ensuring that PSE&G's regulated customers receive centralized services at a reasonable price. We found PSEG adequately controls PSEG Services' costs. A focus on cost control is evidenced by a comparison of cost distributions in 2018 with 2020. Adjusted for the substitution of internal labor for previously externally sourced services in the Information Technology department, overall headcount was flat between December 2018 and December 2020, despite the transfer of a 70-employee department from Power and the formation of two new departments (RTO Strategy and Offshore Wind). With approximately the same labor inputs, the total distributed cost for 2020, $525 million, was only $10 million (1.9%) higher than in 2018, $515 million.

In addition to this historical data, Executive Officers Group (EOG) planning documents also show an effort is made to hold service company costs as flat as possible from year to year.[21] For example, in

[18] Response to OC-1366 Attachment PSEG Services Corp. – October EOG Update, October 25, 2021 (Restricted).

[19] Responses to OC-0023 and 1394. The basis for the asset component will also change, from Net Fixed Assets to Plant in Service.

[20] Response to OC-1554.

[21] Response to OC-1045 Attachment PSEG Services Corporation – May EOG update and Strategic Alternatives Review update, May 24, 2021 (Restricted).

October 2021 PSEG Services forecasted a "normalized" compound annual cost growth rate (CAGR) of 2.8% for the period 2022-2025 and reported a realized "normalized" CAGR of 0.4% for the years 2016 through 2021.[22]

Scale Economies from Centralization

The primary argument for allowing regulated utilities to share management and administrative services with affiliates is that centralization produces scale economies that can be shared by the entities served. Scale economies provide obvious benefits to the individual utilities in a multi-jurisdictional utility holding company with several large utility subsidiaries. However, in PSEG's case, PSE&G currently accounts for much of PSEG Corp's overall scale and it uses and pays for a majority of the services provided by PSEG Services. As such, and in part due to reasons discussed below, the scale economies currently available to PSE&G from centralization are small compared with what would be available in a holding company with several large utility subsidiaries. PSEG asserts that changes to the Service Company functions approved in June of 2022 will increase economies of scale in the next decade, however, this remains to be seen.

During the 2018-2020 review period, services provided to PSE&G comprised approximately two-thirds of the service company's efforts. The Long Island utility, which is about one-third the size of PSE&G, is run by a separate management team with its own supporting administrative staff designed to minimize its need for PSEG Services.[23] Although the utility is approximately one-third the size of PSE&G, during our review period PSEG LI was charged for only about one-tenth the centralized services charged to PSE&G, although PSEG Services could scale up to serve PSEG LI as it serves PSE&G if the OSA permitted it.[24] The only other PSEG subsidiary with substantial scale, Power, has shrunk, having completed the sale of its fossil business early in 2022.

With PSEG's non-utility business limited primarily to nuclear power, most of PSEG Services' activities are currently focused on utility matters. Given that PSEG LI already has many of its own administrative functions, PSEG Services is currently scaled primarily to serve PSE&G, meaning it produces relatively small scale-based savings for the New Jersey utility compared with having PSE&G provide the services for itself. We estimate that unless and until other non-utility businesses scale up, PSE&G will absorb around 70%, and perhaps as much as 75%, of PSEG Services' costs. It may be 70% of a smaller pie, given that PSEG Services' costs are well managed, as noted above. As its share of PSEG Services increases, PSE&G is also likely to absorb a higher percentage of certain costs that cannot be avoided by cost

[22] Response to OC-1366 Attachment PSEG Services Corporation – October EOG Update, October 25, 2021 (Restricted), page 5. This view of service company costs appears to exclude the cost of working capital interest, which is a calculation made for regulatory purposes.

[23] It should be noted that PSEG has an incentive to minimize the allocation of many shared costs to Long Island, as they cannot be passed through to Long Island's customer revenue requirements under the Operator Services Agreement between PSEG and the Long Island Power Authority. Costs that cannot be passed through must be absorbed by PSEG shareholders. Amendments to the OSA in 2022 also require that more administrative and management functions be performed within PSEG-LI than historically, further reducing opportunities for centralized service scale economies.

[24] This might involve using existing service company employees to serve both utilities (which would generate scale economies for PSE&G) and transferring some PSEG LI administrative employees and services into PSEG Services.

containment; most notably, the cost of shared corporate-level executive management, which is unlikely to be reduced because of a change that caused a subsidiary to shrink. [25,26]

PSEG Services Cost Assignment and Allocation Methods

During the three-year review period, PSEG Services distributed $1.54 billion in costs to operating subsidiaries through 238 separate services, in the following amounts:

- PSE&G - $971.7 million through 203 services
- PSEG Power - $449.6 million through 188 services
- PSEG Long Island - $102.0 million through 140 services
- PSEG Energy Holdings - $7.4 million through 59 services
- PSEG Services - $6.7 million through 16 services
- PSEG Enterprise - $0.7 million through 31 services

The following table summarizes total and New Jersey utility-distributed costs by type of distribution for the three-year detailed review period.

[25] The implications of a smaller, more regulated entity on the level of executive compensation is outside the scope of this review.

[26] In comments to our draft report, PSEG noted that it filed a petition to amend the Service Company Agreement to add two new categories of service: Engineering and Design and Construction Support, along with the intention to transfer approximately 500 PSE&G employees to the service company. This is being done to facilitate the provision of engineering and construction support services for PSEG's new, non-regulated offshore wind business. While this may increase the scale economy potential of PSEG Services Corp., the overall impact on PSE&G of transferring a substantial number of its engineering and construction employees out of the utility to work on building a new offshore wind business remains to be seen.

Table 3-5 – PSEG Services Cost Distributions by Method

PSEG Services Cost Distributions by Method Calendar Years 2018 through 2020				
Cost Distribution Method	Total Servco Distributions		Distributions to PSE&G	
	Amount	Method Pct of Total Distributions	Amount	Utility Pct of Amounts Distributed
Direct Assignments				
Professional Hourly (Labor)	289,075,267	18.8%	180,366,967	62.4%
Pass Through (Contractor & Other Non-Labor)	304,971,333	19.8%	255,119,338	83.7%
"Transactional" Nuclear Security Costs directly assigned to Power and the Nuclear business unit	63,075,493	4.1%		0.0%
Total Directly Assigned	**657,122,093**	**42.7%**	**435,486,305**	**66.3%**
Attributable Allocations				
Directly Attributable Transactional	515,301,410	33.5%	326,938,239	63.4%
Indirectly Attributable Residual	137,426,894	8.9%	78,225,112	56.9%
Total Attributable Allocated	**652,728,304**	**42.4%**	**405,163,351**	**62.1%**
Unattributable Allocations				
Enterprise Corporate Allocations	228,202,875	14.8%	131,060,748	57.4%
Total Cost Distributions	**1,538,053,272**	**100.0%**	**971,710,404**	**63.2%**

Response to OC-28 (service catalog) and OC-954 (Service Co. cost data).
* Transactional costs are deemed by Overland to be directly attributable.
**Residually-allocated costs are deemed by Overland to be indirectly attributable.

Analysis of Service-Level Cost Distributions

We found PSEG Services distributes costs based on activities performed and the subsidiaries that it determines the activities benefit. Activities are collected in approximately 240 service-based cost categories. Within individual services there are often multiple orders (WBSs) that allow the assignment of costs to specific operating subsidiaries, or to a cost pool for allocation to multiple subsidiaries. It was not possible to perform a detailed analysis of the activities and allocation methods used to distribute costs in each of 240 individual services. However, we performed an overall analysis of service-level cost distributions by breaking out costs and cost distributions for each of the three years in the review period. Our analysis considered the following:

- The nature of activities and types of costs included in each service.
- The cost objectives (subsidiaries and, for the utility, the UbUs) to which service-level costs were distributed.
- The methods used to distribute costs.
- Cost distributions: specifically, whether the relative levels of cost distributed to each cost objective appeared reasonable.

A condensed printout of our analysis worksheet, showing the distribution of costs to subsidiaries for each service bundled for the three-year review period, is shown in Attachment 3-2. Summarized findings are as follows:

- Overall, the distribution of service company costs between PSE&G and its affiliates during the 2018-2020 review period appeared reasonable. Costs distributed to PSEG LI appeared low after considering the Long Island utility's size compared with PSE&G. We conducted a separate analysis of PSEG LI's operations, organization and costs and compared it with the services charged by PSEG Services. This is discussed in a separate section below.
- Based on service descriptions, the methodologies used to distribute costs to cost objectives appeared reasonable. Enterprise cost distributions (comprising approximately 15% of service company costs) to PSEG LI using the Enterprise Corporate allocator are an exception to this finding, as discussed below.

Analysis of Unattributable Corporate Enterprise Costs and Allocations

Corporate enterprise costs consist of the costs of administrative and management functions deemed to benefit PSEG Inc. as a whole. These costs cannot be directly charged or allocated to subsidiaries using methods reflecting cost causation or direct cost responsibility. Examples include the executive offices of the CEO and COO, and the Corporate Secretary function. During the 2018-2020 period, between 13% and 16% of PSEG Services' total costs were classified as enterprise costs and distributed using an allocator based on relative subsidiary size. We performed an analysis of these costs and the formula used to allocate them.

Service Company Enterprise Costs

Most of the costs of corporate executives such as the CEO, CFO, COO and Corporate Secretary, all of whom are predominantly focused on corporate activities, are distributed primarily using a subsidiary size-based multi-factor allocation method we refer to as Enterprise Corporate. The high-level methodology for the allocator was approved by the NJBPU a number of years ago. In addition to corporate executive services, some PSEG Services' departments provide corporate services that cannot be attributed to individual operating subsidiaries based on cost causation.

Our analysis found that PSEG Services established enterprise-allocated services for the departments and areas we would expect to see. We found the percentage of total service company costs designated as corporate (and therefore unattributable), averaged slightly below 15% for the three-year review period, reflecting an effort to ensure that service company costs are directly charged or allocated using cost-causative methods when possible. The table below summarizes enterprise level services and their allocation to subsidiary categories during the review period.[27]

[27] Many of these have companion services focused on individual subsidiaries.

Table 3-6 – PSEG Services – Corporate Enterprise Allocations by Service Company Department

PSEG Services - Corporate Enterprise Allocations by Service Company Department 2018 through 2020				
Servco Departments	Service Co. Enterprise Cost Amounts			
	PSE&G	Power	PSEG LI	Total
Executive	56,876,471	26,602,178	14,926,116	98,404,765
Corporate Accounting & Tax	18,146,101	8,950,224	4,900,778	31,997,103
Law	6,359,532	3,012,825	1,739,433	11,111,790
Service Company Finance	6,291,204	2,932,053	1,722,896	10,946,154
Corporate Secretary	5,186,928	2,376,088	1,336,071	8,899,087
Int. Audit - Int. Control Pgm. Mgt.	4,413,291	2,013,525	1,212,052	7,638,867
Security Planning and Operations	4,206,659	1,999,648	1,127,729	7,334,036
Public Affairs	3,858,489	1,916,127	1,073,629	6,848,245
Compliance	3,376,335	1,762,389	924,331	6,063,055
Corporate Communications	3,166,467	1,488,295	865,722	5,520,484
Process Improvement	2,882,496	1,339,898	790,795	5,013,189
State Government Affairs	3,764,813	1,763,100	1,029,355	6,557,268
Human Resources	2,068,467	990,683	563,696	3,622,846
Corporate Responsibility	1,657,513	781,942	452,857	2,892,312
Investor Relations	1,489,911	712,057	384,549	2,586,517
Enterprise Risk Mgmt	1,102,317	506,951	301,828	1,911,096
Enterprise Planning	1,061,209	558,529	242,032	1,861,770
Other Corporate Services	5,152,546	2,431,982	1,409,763	8,994,292
Total	**131,060,748**	**62,138,495**	**35,003,633**	**228,202,875**
3-Year Avg. Allocation Pcts.	**57.43%**	**27.23%**	**15.34%**	**100.00%**
Response to OC-0954.				

Enterprise Cost Allocations

Enterprise costs have until recently been allocated based on an average of three measures of relative subsidiary size: net fixed assets, Plan headcount, and O&M expense. This Enterprise Corporate allocator was calculated with the same three input factors between 2009 and 2021.[28] In 2022 PSEG changed the net fixed asset component of the allocator to plant in service.[29]

PSEG allocates corporate enterprise costs at two levels. The Enterprise Corporate allocator distributes corporate costs to PSEG's operating subsidiaries. Within Power and PSE&G, unattributable costs (which include both corporate-level and subsidiary-level costs) are allocated to each subsidiary's UbUs.[30] Calculations of the corporate level allocator during the review period are discussed in this section, while

[28] Prior to 2009 PSEG used three separate and different methods to distribute enterprise costs: a Modified Massachusetts Formula (revenue, labor and net fixed assets), a "Gross Revenues, Earnings and Capital Expenditures" allocator and a headcount allocator.

[29] Response to OC-1394.

[30] For example, the Enterprise Utility allocator is used to distribute corporate and utility-level enterprise costs to business units within PSE&G.

PSE&G's Enterprise Utility allocator, used to distribute service company costs among UbUs, is discussed in a separate section below.

Table 3-7 – PSEG Services – Corporate-Level Enterprise Allocator Calculations – Calendar Years 2018-2020

PSEG Services - Corporate-Level Enterprise Allocator Calculations - Calendar Years 2018-2020 ($ Millions)									
2018 Final Business Plan	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**	**Total**	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**
Net Fixed Assets	25,096	8,686	31	-	**33,813**	74%	26%	0%	0%
Headcount	7,627	2,586	-	2,453	**12,666**	60%	20%	0%	19%
O&M	798	984	10	563	**2,355**	34%	42%	0%	24%
Average Percentage (Rounded)						**56%**	**29%**	**0%**	**14%**
2019 Final Business Plan	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**	**Total**	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**
Net Fixed Assets	27,323	8,730	30	-	**36,083**	76%	24%	0%	0%
Headcount	7,558	2,153	-	2,583	**12,294**	61%	18%	0%	21%
O&M	797	906	7	575	**2,285**	35%	40%	0%	25%
Average Percentage (Rounded)						**57%**	**27%**	**0%**	**15%**
2020 Final Business Plan	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**	**Total**	**PSE&G**	**PSEG Power**	**Energy Holdings**	**PSEG LI**
Net Fixed Assets	29,239	8,077	29	-	**37,345**	78%	22%	0%	0%
Headcount	7,557	2,067	-	2,594	**12,218**	62%	17%	0%	21%
O&M	839	813	14	617	**2,283**	37%	36%	1%	27%
Average Percentage (Rounded)						**59%**	**25%**	**0%**	**16%**

Response to OC-0023.

Percentage allocations for both PSE&G and PSEG LI increased during the period because of the shrinkage of Power due to the sale of its power plants and PSEG Fossil. PSEG stated that it expects this trend may change over the longer term due to the approved changes to the Service Company and planned transfer of employees, as noted above.

Exclusion of Long Island Net Fixed Assets from the Enterprise Corporate Allocator

As the table above shows, PSEG used zero for the net fixed asset value for PSEG LI. PSEG states this is because the assets are owned by the Long Island Power Authority.[31] We estimate this increased PSE&G's overall share of enterprise costs from 53% to 59% during the review period and added about $13.5 million to PSE&G's allocated corporate-level enterprise costs. The use of zero as a net fixed asset figure for PSEG LI is not documented in the CAM. PSEG stated it did not need the NJBPU's approval to alter the formula to omit the Long Island assets.[32]

[31] Response to OC-1051.
[32] Response to OC-1544.

Overland believes that what PSEG does for Long Island's assets (planning, managing, operating and constructing them), is much more connected to the benefits Long Island receives from corporate management than whether PSEG holds the title to the assets.

Adjustments to Enterprise-Corporate Factor Inputs

The net fixed asset, headcount and O&M input amounts for all subsidiaries except PSEG LI are sourced from the Company's Enterprise (or Cognos) Planning Model. Amounts for Long Island are sourced from the Long Island Planning Model.[33] The amounts reflect the budget for the upcoming year, are rounded to the nearest whole percentage, and are not "trued up" to actual amounts at the end of the year.

PSEG makes several adjustments to the Enterprise Corporate allocator's O&M factor inputs and uses Plan values instead of actual values for the headcount factors. Neither of these are described in the CAM, and PSEG stated it did not need NJBPU approval to adjust the allocator's inputs.[34] To test the reasonableness of the plan amounts used as calculation inputs, we compared them with actual financial and headcount data for the year 2020. We asked PSEG to reconcile differences between the Enterprise Corporate's factor inputs for O&M and employees and actual figures from audited financial data and internally provided employee headcount data. This is summarized in the table below.

PSEG removes service company costs from subsidiary-level O&M before calculating the Enterprise Corporate factor.[35] We noted that the service company charges removed from financial statement O&M did not match planned or actual 2020 service company cost distributions to the subsidiaries. For example, PSEG Services allocated approximately $326 million to PSE&G in 2020 but removed only $283 million in adjusting the Enterprise Corporate allocator's O&M input. PSEG stated this was "the result of different extraction methods from SAP."[36]

[33] Response to OC-0023.

[34] Response to OC-1051.

[35] Service company costs are probably adjusted out of the factor's O&M component to avoid circularity (allocation of corporate costs based on an allocator that includes corporate costs.) However, such circularity could be avoided by removing the 15% of service company costs that are allocated with the Enterprise-Corporate factor. There is no need to remove all service company costs, many of which are directly assigned and really no different from O&M incurred directly by the subsidiaries.

[36] Response to OC-1542. The explanation for the different extraction methods is technical. PSEG describes the amount used to adjust the allocator as an "extract taken from SAP prior to all allocations, settlements and assessments." It is possible that service company charges to PSE&G's capital accounts explain much of the difference.

Table 3-8 – 2020 Enterprise-Corporate Allocator Input Values Reconciled with Actual Financial & Operating Data

2020 Enterprise-Corporate Allocator Input Values Reconciled with Actual Financial & Operating Data				
O&M Expense (1)	**PSE&G**	**Power**	**PSEG LI**	**Data Response Stated Basis for Adjusting Actual Data**
Financial Statement (Form 10K) O&M	1,614	964	1,064	
Subtract Clause O&M	(490)			Limited management control
Subtract Service Company Charges	(283)	(156)	(19)	Excluded from formula for all companies
Subtract Storm Costs			(389)	Similar to PSE&G storm cost deferrals
Subtract LIPA Managed Costs			(83)	PSEG Mgt Fee & LIPA operating costs (managed by LIPA)
Add PSEG LI Mgt Co. Costs			12	Would not be included in LIPA's 10K
O&M Plan to O&M Actual Variance	(2)	5	32	
Enterprise Allocator O&M Values	839	813	617	
Headcount	**Actual**	**Plan Value (Used in Allocator)**	**Variance**	**Data Response Stated Basis for Actual to Plan Variance**
PSE&G	7,049	7,557	508	Vacancies due to hiring delays
Power	1,797	2,067	270	Eliminated 150 system maintenance positions and moved 71 lab testing jobs to the service company.
Long Island	2,545	2,594	49	Year end actuals include about 30 unplanned T&D positions (2)
Response to OC-1205. Note 1: Dollars in millions. Note 2: The stated year end addition of 30 unplanned positions to actuals does not help reconcile the two values. It means the Plan value (2,594) would have been further from actual (2,515) had the 30 unplanned positions not been added at year end.				

In Overland's opinion, the various adjustments PSEG makes to actual enterprise input data (the use of Plan instead of actual headcount and the removal of O&M over which subsidiaries are deemed to have less "management control"), are not well documented and should be re-examined. The adjustments change the calculation from what is stated in the CAM and they are not approved by the BPU. Because they are not documented in the CAM they can be changed at any time, which may introduce capriciousness into the allocation process. In addition, undocumented adjustments which can change to suit circumstances introduce variability with which an allocator could theoretically be manipulated to obtain desired outcomes.

2022 Enterprise Corporate Allocator Changes

The 2022 Enterprise Corporate allocator shifts corporate costs to PSE&G and away from Power, primarily due to the sale of Power's Fossil business unit. At the beginning of the review period PSE&G's share of the Enterprise Corporate allocation was 56%. In 2020 it was 59%. In 2022 it will be 66%. The 2022 calculation is shown in the following table.

Table 3-9 – PSE&G – Enterprise Corporate Allocator - 2022

PSE&G - Enterprise Corporate Allocator - 2022 ($ Millions Except Headcount)										
2020 Business Plan	PSE&G	PSEG Power	Energy Holdings	Long Island	Total		PSE&G	PSEG Power	Energy Holdings	Long Island
Plant in Service	40,321	3,666	-		**43,987**		92%	8%	0%	0%
Headcount	7,675	1,378	-	2,557	**11,610**		66%	12%	0%	22%
O&M	834	548	5	658	**2,045**		41%	27%	0%	32%
Average Percentage (Rounded)							**66%**	**16%**	**0%**	**18%**
Response to OC-1394.										

Beginning in 2022 PSEG has changed the net fixed asset component of the formula to plant in service. PSEG LI's asset factor, now based on plant in service, will continue to be zero, with an 8% allocation to Power (having been shed of its Fossil unit), and a 92% allocation to PSE&G. PSEG states that it is changing to plant in service "to align with the A&G cost allocation methodology included in the transmission formula rate settlement agreement between PSEG, the New Jersey Board of Public Utilities and the New Jersey Division of Rate Counsel as approved by the FERC, effective August 1, 2021." However, Overland notes that if alignment with the FERC settlement were the actual goal PSEG would also have to change the headcount component of the formula to salaries, which it has not done.[37]

Distribution of Service Company Cost to PSE&G's Utility Business Units

PSE&G is composed of five revenue-producing Utility Business Units (UbUs). The costs distributed to its three primary regulated units (Electric Distribution, Gas Distribution and Transmission) are the foundation for the PSE&G's regulated revenue requirements, and ultimately the utility's electric and gas distribution and FERC-regulated transmission rates. This section of the chapter covers the further distribution of costs charged to PSE&G from PSEG Services to PSE&G's UbUs. Separately, it covers the issue of allocation of costs on shared site projects to transmission and distribution assets.

PSEG's CAM contains about 10 pages of disparate details describing various types of utility costs ("T&D labor," "gas distribution non-productive," "vehicle depreciation," etc.) and various methods for internal charging and allocation ("assessments," "surcharging," "fixed percentage allocations," etc.)[38] However, the CAM contains only a brief summary describing the overall cost distribution process. The CAM is primarily designed to document the high-level allocation methodology from PSEG Services to subsidiaries and contains almost nothing describing how specific services are linked to PSE&G's UbUs. It states that PSE&G is composed of organizations which perform activities that support the UbUs and that the "organizations employ direct charging and indirect cost allocation processes for the work they

[37] Petition for Approval of Settlement Agreement, Attachment 2 to the Settlement Agreement, Attachment H-10B, Formula Rate implementation Protocols, Filed July 14, 2021. The protocols state "In lieu of using a Wages and Salaries allocator to recover A&G costs, PSE&G will adapt a three-factor allocation methodology that it uses for state-regulated distribution rates, gross fixed assets, O&M and salaries."

[38] PSEG CAM, Section VIII – PSE&G Cost Allocations, pp.117-127 of the .pdf document.

perform [to distribute costs to UbUs.]" [39] At a high level, the process is summarized in the following table:

Table 3-10 – Relationships Between PSE&G Organizations and Utility Business Units

Relationships Between PSE&G Organizations and Utility Business Units		
Organizations Perform Activities and Incur Costs	**Supporting Five Utility Business Units**	**Org. Activities Are Attached to Orders & WBS Elements Which Distribute Costs to the UbUs Through:**
Asset Management	Electric Distribution	Direct Charge
Appliance Service		
Customer Operations	Gas Distribution	Assessments
Electric Operations		
Gas Operations	Transmission	
Projects and Construction		Surcharging
Renewables	Appliance Services	
Smart Operating Tech		
Service Corporation	Renewable & DSM	Fixed Percentages
Power		
Response to OC-15, 2020 Cost Allocation Manual.		

We did not perform a detailed review of PSE&G's entire internal cost distribution process. However, we reviewed the distribution of *service company* costs to UbUs. These cost distributions are important in that they determine the impact of service company costs on PSE&G's electric and gas utility customers.

We asked PSEG to provide service company cost data showing the relationship between PSEG Services' Forecasting Lines of Business (FLoBs) and PSE&G's UbUs.[40] As explained below, there is no direct allocation relationship between a service FLoB and a UbU; however, FLoBs are a convenient way of categorizing service company costs into organizational units and cost pools, and they are similar to the PSE&G "organizations" used as a basis for categorizing utility costs shown in the table above. FLoBs are used for management, and not for accounting purposes. Accounting is driven, instead, by WBSs charged for the work. PSEG Services described its use of FLoBs as follows:

[39] PSEG CAM, Section VIII – PSE&G Cost Allocations, p.116 of 127 of the .pdf document.

[40] PSEG provided the FLoB-to-UbU data for 2018 and 2019 in Response to OC-1371. Because there is no direct accounting relationship between a service company FLoB and a PSE&G UbU, and because FLoBs are not used for accounting purposes, the process of compiling the data was manual and time consuming due in large part to the legacy custom SAP configuration. In order to expedite the process, PSEG asked if the data response could be limited to two of the three years originally requested.

> Forecasting LOB is a management-reporting concept used by Service Company Finance in order to try to estimate the impacts of their costs to the Utility Business Units. It does not represent ultimate Business Unit/LOB within the Utility receiving the costs.[41]

The data response expounds on the accounting relationship between service company costs and UbUs, noting that it is not determined by costs distributed to FLoBs, but at a much more detailed level:

> Service Company costs are posted to orders or Work Breakdown Structures (WBSs) within PSE&G. Each order or WBS has a specific "settlement rule" which drives the ultimate BU/LOB in PSE&G that will receive the costs. These orders/WBS elements and their settlement rules are reviewed periodically to ensure the allocations are reflective of the work performed. Periodic reviews are iterative rather than formal. In many cases, there are multiple orders/WBS within a Forecasting LOB and each can have different settlement rules. As a result, there is no fixed relationship between the Forecasting LOB and the ultimate BU/LOB where the costs settle**.** The costs would need to be traced from the individual orders/WBS.[42]

Service Company Forecasting Lines of Business

PSEG Services uses its billing engine, including the custom configuration of SAP, to distribute costs to operating subsidiaries and to UbUs within the subsidiaries. Within the utility, there are 17 utility FLoBs representing PSE&G's key organizations, as well as corporate enterprise and utility common FLoBs benefiting the utility as a whole. As noted above, FLoBs are used as an after-billing management tool to estimate the impact of service company costs to UbUs, but are not used in the accounting processes which allocate the costs. Thus, the distribution of costs to a FLoB is not dispositive of its allocation to UbUs within PSE&G. The table below shows service company departmental cost distributions to PSE&G FLoBs for the combined years 2018 and 2019.

[41] Response to OC-1534.
[42] Response to OC-1534.

Table 3-11 – PSEG Services' Departmental Cost Distributions to PSE&G Forecasting Lines of Business, 2018 and 2019

PSEG Services' Departmental Cost Distributions to PSE&G Forecasting Lines of Business, 2018 and 2019											
Servco Department	Appliance Service	Asset Mgt & Centralized Svcs	Customer Operations	Delivery Projects and Construction	Electric Operations	Enterprise-Utility	Gas Operations	Transmission	Utility Level	Others (2)	Totals
Accounting Services						12,111,726			13,477,279	-	25,589,005
Building Services	13,699	7,626,385	8,514,660	2,879,610	1,711,881	40,644	1,680,968	1,085,414	21,581,005	2,086,185	47,220,451
Corporate Facilities		5,070,584	7,339,204		17,845,230	(191)	8,764,724	1,856,236	3,973,944		44,849,731
Properties&Survey Mapping		57,459	155,932	45,849	835,584		563,337	8,365,399	3,970,179	7,447	14,001,185
Cost of Capital									25,057,796	-	25,057,796
Human Resources	2,497,884	2,356,649	3,914,135	2,940,022	4,757,270	1,719,268	3,971,274	147,107	2,206,420	1,027,798	25,537,826
Information Technology	22,943,391	46,728,807	81,412,440	9,947,969	48,622,545		24,802,924	12,609,913	15,875,329	1,719,202	264,662,520
Law	85,661	651,937	2,406,235	315,255	6,093,304	4,793,270	2,303,681	7,612,182	9,593,769	840,485	34,695,777
Other Security	188,958	1,187,528	1,657,694	291,496	4,075,336	2,953,395	3,247,001	5,351,344	144,638	78,800	19,176,188
Procurement	455,289	1,446,965	737,786	525,022	2,904,953		1,461,287	5,954,201	616,192	627,892	14,729,588
PSE&G Dedicated Finance			106,631						17,207,604	-	17,314,235
PSEG Executive Office			107,910			33,696,696			624	-	33,805,230
Service Co. Misc Accounting		(3,214,942)							(3,862,376)	-	(7,077,318)
State Governmental Affairs		8,475	663,655		1,311,281	2,379,029	3,658,979	4,211,369	1,586,230	95,747	13,914,764
Treasury Mgt. Services		41,328	462,288		7,537,196	159,237	4,321,908	58,700	5,794,206	6,833,451	25,208,314
Other Departments	688,692	1,258,387	1,379,532	526,627	3,534,612	24,122,600	2,453,577	3,491,265	7,887,842	558,793	45,901,928
Totals	**26,873,573**	**63,219,562**	**108,858,102**	**17,471,849**	**99,229,192**	**81,975,673**	**57,229,660**	**50,743,130**	**125,110,679**	**13,875,799**	**644,587,219**

Response to OC-1371.
Note: Includes Electric Delivery VP, Energy Acquisition & Technology, Renewables, Retail Settlement, Transmission Business Strategy, Utility Executive Office and Utility Support Common.

Linking Service Company Costs with Utility Business Units

PSE&G's UbUs are its individual revenue-producing businesses. Cost distributions to UbUs occur through an accounting process within the utility, driven through orders and WBSs that are charged by Service Company employees. In order to see how service company cost data flowed to UbUs we requested data showing FLoB cost distributions linked to UbU cost distributions for the 2018-2020 review period. Because PSEG's SAP system configuration cannot link order-level cost information between service company FLoBs and PSE&G's UbUs, the data we requested had to be developed manually by PSEG's Director, SAP Strategy and Planning. Because of the time required to do this, Overland agreed to limit the data response to a two-year period, 2018 and 2019.

The table below shows the relationship between service company FLoBs and UbUs for 2018 and 2019 combined. We focused our analysis on FLoBs where significant costs were distributed to multiple UbUs. These are highlighted in yellow and they account for approximately 75% of service company costs distributed to PSE&G during the two-year period.

Table 3-12 – Distribution of PSEG Services' Costs from Forecasting Lines of Business to PSE&G's Utility Business Units

Distribution of PSEG Services' Costs from Forecasting Lines of Business to PSE&G's Utility Business Units 2018 & 2019 Combined											
Forecasting Line of Business	Electric Distribution		Gas Distribution		Appliance Services		Transmission		Affiliates		Totals
	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Appliance Service	9,865	0%	110,111	0%	26,753,597	100%	-	0%	-	0%	26,873,573
Asset Mgt & Centralized Svcs	**28,100,938**	**44%**	**26,130,246**	**41%**	**2,732,228**	**4%**	**6,217,787**	**10%**	**175,188**	**0%**	**63,356,386**
Customer Operations	**59,384,289**	**55%**	**46,232,061**	**42%**	**3,214,583**	**3%**	**27,168**	**0%**	**-**	**0%**	**108,858,102**
Delivery Projects and Construction	428,381	2%	107,393	1%	-	0%	16,936,012	97%	64	0%	17,471,849
Electric Delivery VP	63,326	100%	-	0%	-	0%	-	0%	-	0%	63,326
Electric Operations	**85,928,329**	**87%**	**39,805**	**0%**	**-**	**0%**	**12,920,033**	**13%**	**341,025**	**0%**	**99,229,192**
Energy Acquisition and Technology	116,105	38%	99,548	33%	-	0%	86,008	29%	-	0%	301,661
Enterprise-Utility	**28,186,567**	**34%**	**25,034,261**	**31%**	**5,296,739**	**6%**	**23,458,108**	**29%**	**-**	**0%**	**81,975,673**
Gas Operations	1,137,732	2%	56,087,776	98%	-	0%	1,791	0%	2,361	0%	57,229,660
Renewables and Energy Solutions	4,114,969	92%	344,428	8%	-	0%	-	0%	-	0%	4,459,397
Retail Settlement & 3rd Party Supplier	121,705	18%	129,858	19%	-	0%	430,289	63%	-	0%	681,852
Transmission	175,087	0%	114,043	0%	-	0%	50,453,991	99%	10	0%	50,743,130
Transmission Business Strategy	-	0%	-	0%	-	0%	6,884,134	100%	-	0%	6,884,134
Utility Executive Office	405,992	27%	369,520	25%	69,368	5%	404,168	27%	229,112	15%	1,478,160
Utility Level	**44,852,842**	**36%**	**39,216,320**	**31%**	**7,847,811**	**6%**	**33,190,800**	**27%**	**2,906**	**0%**	**125,110,679**
Utility Support Common	22,602	40%	33,689	60%	-	0%	-	0%	-	0%	56,291
Totals	**253,048,728**	**39%**	**194,049,058**	**30%**	**45,914,325**	**7%**	**151,010,288**	**23%**	**750,665**	**0%**	**644,773,064**

Response to OC-1371.

Service company cost distributions to FLoBs and PSE&G's distribution to UbUs occur through separate processes, allocations are through accounting process (via orders and WBSs) to UbUs and FLoBs are used as a management process to estimate impacts by department. The common denominator, which both processes share but which can only be used to *manually* trace service company costs to UbUs, is the order or WBS element. As odd as it may seem more than two decades into the 21st century, there is currently no program or report that ties PSEG's service company and utility accounting processes together such that the data in the table above can be easily or automatically generated. This is because the service company's SAP billing engine, a "custom written Advanced Business Application Program" developed around 20 years ago, does not align directly with PSE&G's or other operating subsidiaries' accounting processes. As described by PSEG Services' Finance Director, it is useful to think of the existence of an accounting "data wall" between the service company's billing engine and PSE&G's internal process for further distributing billed service company costs to UbUs.[43,44] We asked whether there were plans to improve the transparency between service company and operating subsidiary accounting. The response was as follows:

> At this point, PSEG is developing business cases to replace the SAP system. Enhanced transparency and / or trace back of costs is on our working list for the replacement. A

[43] Interview of Martin Shames, Director Services Corporation Finance, and Richard Aicher, Director SAP Strategy & Planning, on November 16, 2021.

[44] In Response to OC-1533-C, PSEG Services states that the "most significant issue" with being able to connect service company data with operating company accounting is that "on the operating company side of the ledger we can identify the total cost for each product and service but cannot see the break-down of general ledger components (labor, material, outside services, etc.)."

placeholder of $150 million has been put into our long-term business plan but no project has been approved.[45]

During a subsequent interview discussion, PSEG Services' Director of Service Company Finance indicated that SAP has notified PSEG that it will cease providing support for the technology in its current accounting system in approximately 2030. As the Company approaches this "deadline," PSEG Finance will develop a business case for a new Enterprise Resource Planning / Accounting system, possibly using a company other than SAP. $150 million is the current estimated cost for such a replacement.[46]

Analysis of Service Company Cost Distributions to UbUs

We reviewed the relationships between service company FLoBs and PSE&G's UbUs and the basis of impacts to the largest five FLoBs. These accounted for approximately three-fourths of PSEG Services' cost distributions to PSE&G in 2018 and 2019. As discussed above, service company costs are posted to orders or WBS elements, each of which has a specific settlement rule that ultimately drives costs to UbUs. There can be multiple orders/WBSs that impact an FLoB and each can have different UbU settlement rules. As such, there is no fixed relationship between FLoBs and the UbUs to which costs settle. The only way to align FLoB costs with UbUs is through individual orders and WBS elements.[47]

The lack of a programmed relationship between service company FLoBs and PSE&G UbUs within the SAP system is the practical result of having a wall between the two accounting processes, as noted above. Because of this, the FLoB / UbU cost relationships shown in the summary table above, as well as the tables below, were *manually* developed by PSEG Services' Director of Service Company Finance and appear to include *estimates* of the cost distributions resulting from certain complex "assessment" and "surcharge" processes.[48] The following points summarize the issues that emerged from our analysis of UbU cost distributions.

- Lack of Documentation of Basis for Allocations and Choice of Benefiting UbUs – The distribution of PSE&G's service company costs to UbUs is complex and involves various allocators applied for more than 200 services through a large number of orders and WBS elements. A few "percentage based" allocators, including different versions of the Enterprise – Utility allocator (each with distinct groups of cost objectives), a headcount allocator and a customer allocator,

[45] Response to OC-1533-D.

[46] Interview of Martin Shames, Director Services Corporation Finance, and Richard Aicher, Director SAP Strategy & Planning, on December 21, 2021.

[47] Response to OC-1534.

[48] When we followed up our initial analysis of the data provided in Response to OC-1371 with additional data requests, in a few cases the responses indicated that the manual process required to develop the data resulted in some errors to the cost allocation percentages present for a few of our sampled centralized services. We have not attempted to correct these, as it would only correct the items we sampled and asked about, which would be time-consuming and would not likely produce an overall 100% correct result (it is likely there are other errors in items we did not sample). We believe the cost distributions shown in our tables are, overall, a reasonably accurate reflection of service company cost distributions to UbUs in 2018 and 2019.

appear to account for a significant percentage of total cost distributions to UbUs. However, there is no documentation in the CAM or elsewhere explaining the basis for applying these allocators to the applicable cost pools or why they are applied to specific centralized services.[49] In some respects, the process for distributing costs to UbUs appears alchemical, lacking clear rules for determining which UbUs benefit from individual FLoB / centralized service combinations. A lack of documented rules may improve PSE&G's accounting flexibility, but it also increases opportunities for designing allocations to meet desired outcomes, something which should be of particular concern to the BPU given that cost distributions to UbUs are a foundational component to the establishment of recovery for a portion of Service Company services in electric and gas revenue requirements and rates.

- A Relatively Large Share of Service Company Costs To PSE&G Are Considered Unattributable to Utility Business Units[50] – A sizable percentage, perhaps 40%, of the service company costs charged to PSE&G are considered unattributable to UbUs using measures of cost causation. These costs are allocated among UbUs using one of several versions of the size-based Enterprise Utility allocator. Service company costs charged to the Enterprise Utility UbUs, which are unattributable to subsidiaries at the *corporate* level, are expected to be (and are) also unattributable at the *utility* level and are allocated to UbUs with the Enterprise Utility allocator. In addition, most service company costs in the Utility Level FLoB (attributable to the "utility as a whole") are also allocated using the Enterprise Utility allocator, as we would expect. However, certain costs attributed to Customer Operations, Electric Operations and Asset Management FLoBs are also allocated to UbUs using versions of the Enterprise-Utility allocator.[51] It would take a more in-depth review of intra-utility cost allocations to determine whether some of these costs could be directly assigned or allocated using cost-causative activity-based measures. It is likely that the lack of a direct accounting link between FLoB distributions in the service company and UbU distributions in the utility limits the ability to identify cost-causative distributions of these costs to UbUs.

- Issues with Enterprise Utility Allocator Inputs - We found several issues with the O&M Expense and headcount inputs used to calculate the Enterprise Utility allocator. These include:
  - One version of the 2018 Enterprise Utility allocator used to allocate certain Electric Operations services was based on a much higher value ($189 million) for Transmission O&M expense than other versions of the allocator, which used a value of $129 million.[52]
  - Due to a mistake in 2018, which PSEG stated it self-detected and corrected in 2019, there were significant shifts in UbU headcounts used in the Enterprise-Utility allocator. Appliance

[49] For service company cost distributions to subsidiaries, the service company catalog partially fulfills this role.

[50] Unattributable costs cannot be linked to cost objectives based on cost-causation.

[51] Different versions of the Enterprise allocator are used for costs in the Customer Operations, Electric Operations and Asset Management FLoBs. Each were based on the same three-factor allocation inputs, but applied to different sets of cost objectives. For example, the Customer Operations version were based on net fixed assets, O&M expense and headcount, but applied only for the Electric Distribution, Gas Distribution and Appliance Services business units.

[52] Data for Transmission O&M provided in worksheets in Responses to OC-1535 and 1537 compared with data provided in Response to OC-1052.

Services headcount declined from 917 in 2018 to 345 in 2019, decreasing Appliance Services' share of the Enterprise Utility allocator's headcount component from 12% to 5%. Transmission headcount more than doubled, from 814 in 2018 to 1,712 in 2019, increasing Transmission's share of the headcount component of the allocator from 10% to 23%.[53,54]

- PSEG's Selection of UbUs Benefiting from Service Company Services – In some cases the basis for PSE&G's selection of benefiting business units is unclear or appears to omit UbUs that may benefit from a service. Examples include:
  - Service company Human Resources services attributable to the Asset Management and Centralized Services FLoB were distributed to UbUs using the Enterprise Utility allocator, but only among the Electric Distribution, Gas Distribution and Transmission UbUs. When we asked why Appliance Services was omitted from these distributions, PSEG stated "in aggregate Appliance Service business receives only about 3% to 3.5% of total Asset Management organizations' non-service company associated costs, therefore it was determined not to allocate 6% of the costs based on the utility allocation formula. This assumption will be revisited with respect to the upcoming cost plan."[55] We find the logic behind this decision remains unclear.
  - Some centralized services attributable to the Customer Operations FLoB were allocated to three UbUs (Electric Distribution, Gas Distribution and Appliance Services), while others were distributed only to Electric Distribution and Gas Distribution. PSEG pointed out that Appliance Services would not get an allocation of "groups / teams (such as Meter Reading) which receive service company costs but do not perform any Appliance Service work."[56] However, it is unclear why such a "no allocation to Appliance Services because meter reading" rule would apply to service company services such as Corporate Facilities, Property Insurance, Continuous Improvement or the Information Technology department's Customer Operations Application Support Baseline professional and pass-through services or capitalized IT Client Projects services.[57] The audit concern is similar to that described for the previous example.
  - Electric Operations primarily serves the Electric Distribution and Transmission UbUs. Some centralized services attributable to Electric Operations were divided 60%/40% between Electric Distribution and Transmission, while others were split approximately or exactly 90%/10%. However, a number of services were assigned entirely to Electric Distribution, including, but not limited to Human Resources Labor-Management Relations, HR Baseline

[53] Data provided in Responses to OC-1052, 1535 and 1537.

[54] In commenting on our draft report, PSEG stated that because headcount is only one of three factors in the Enterprise formula, the correction of this error did not significantly affect the relative distribution of cost between the Transmission and Appliance UbUs. While this statement appears reasonable, we did not attempt to independently verify with our own analysis.

[55] Response to OC-1539-B.

[56] Response to OC-1534-A.

[57] The Information Technology services noted here accounted for $23.6 million out of the $54.4 million distributed to UbUs from the Customer Operations FLoB in 2019.

NJ, Internal Audit Professional Services, Information Technology Customer Operations Support Baseline, Legal Environmental, Legal Litigation, Insurable Risk, Property Insurance, Procurement, Corporate Properties Professional Services and Treasury Operations.[58] It is unclear why none of these centralized administrative services were considered to be also attributable to Transmission.

- Electric Operations Information Technology Electric Application Support Baseline service was distributed 60% Electric Distribution and 40% Transmission, while most other Electric Operations IT services were distributed approximately 90% Electric Distribution and 10% Transmission. It is unclear why the Electric Application Support Baseline service would be singled out for a dramatically different distribution to Transmission.

The discussion which follows provides tables showing distributions of PSEG Services costs to PSEG's UbU impacting the five largest FLoBs (in cost terms) for the combined years 2018 and 2019 and summarizes the content of our analysis.

Asset Management and Centralized Services

In 2018 and 2019, PSE&G's Asset Management and Centralized Services organization included district-level procurement and materials management, fleet maintenance, asset management and utility technology functions. In 2020 about half of the 738 employees in the organization (procurement, materials management and fleet maintenance functions) were moved to a new intra-utility organization, Transportation and Centralized Services. The following table shows the distribution of Asset Management-attributable service company costs to UbUs.

Table 3-13 – Allocation of Service Company Charges from the Asset Management & Centralized Services Forecasting Line of Business to Utility Business Units

Allocation of Service Company Charges from the Asset Mgt. & Centralized Svcs Forecasting Line of Business to Utility Business Units 2018 & 2019 Combined												
Servco Department	Services	Electric Distribution		Gas Distribution		Appliance Svcs		Transmission		Affiliates		Total
		Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Building Svcs.	5 Building services	3,105,762	40.7%	2,816,119	36.9%	371	0.0%	1,704,126	22.3%	-	0.0%	7,626,378
Corp.Facilities	5 Facilities services	1,858,415	36.7%	1,337,470	26.4%	1,487,064	29.3%	345,803	6.8%	41,832	0.8%	5,070,584
Human Resources	9 HR services	975,999	41.4%	892,539	37.9%		0.0%	488,111	20.7%	-	0.0%	2,356,649
Info Technology	Capitalized PC/MDT Install	4,033,782	35.2%	7,038,540	61.4%	-	0.0%	399,440	3.5%	-	0.0%	11,471,762
	Capitalized Client Projects	12,389,638	59.6%	8,336,601	40.1%	-	0.0%	68,585	0.3%	-	0.0%	20,794,824
	IT Corporate Baseline	3,733,883	39.4%	3,460,103	36.5%	1,086,398	11.5%	1,086,398	11.5%	118,257	1.2%	9,485,039
Servco Misc. Accting.	Gain on Asset Sale	(1,157,379)	36.0%	(964,483)	30.0%	(225,046)	7.0%	(868,034)	27.0%	-	0.0%	(3,214,942)
Other Depts.	42 Other Services	3,160,838	32.4%	3,213,357	32.9%	383,441	3.9%	2,993,358	30.7%	15,099	0.2%	9,766,093
Totals	**65 Services**	**28,100,938**	**44.4%**	**26,130,246**	**41.2%**	**2,732,228**	**4.3%**	**6,217,787**	**9.8%**	**175,188**	**0.3%**	**63,356,387**

Response to OC-1371.

[58] In commenting on our draft report, PSEG stated that billing for service company charges is largely determined by the order or WBS that service company employees charge their time to.

We selected the following services attributed by PSEG to the Asset Management FLoB and requested information to assess the basis for allocation to UbUs:

- FC-P-PT-Corporate Facilities – These are facilities maintenance costs passed through from the service company to the utility, including building operations costs, utilities and "one-time projects."[59] In 2019 the costs were allocated approximately 43% Electric Distribution, 21% Gas Distribution, 24% Appliance Services and 2% Transmission. PSEG stated that the costs were billed through five organizations and buildings: Materials Management, Training, Fleet, Environmental Health & Safety and Training. It stated that the UbU allocations were based on the aggregate costs billed to each building and the work supported each year by the buildings.
- BL-T-Building Services - This is internal rent for the Newark General Office building, including labor and tenant services, building operating costs, real estate taxes, utilities, common and vacant space. PSEG stated that Asset Management employees are located in the building that supports several UbUs, but not Appliance Services. 2018 allocations were based on UbU headcount excluding Appliance Services. 2019 costs were allocated using a version of the Enterprise-Utility allocator excluding Appliance Services.[60] Per our analysis of costs based on FLoBs, the change in the allocator, which added net fixed assets and O&M expense, skewed the costs toward Transmission, which comprises 49% of all utility assets. In addition, the Transmission headcount figure used in the allocation more than doubled, from 814 employees in 2018 to 1,712 employees in 2019. The addition of Transmission net fixed assets, together with a doubling of Transmission headcount contributed to a near tripling of the percentage of Building Services costs allocated to Transmission (12% in 2018, 31% in 2019).
- Human Resources Services - 2018 allocations of Asset Management-attributable Human Resources to UbUs were based on headcount excluding Appliance Services. 2019 allocations were based on using the Enterprise-Utility allocator (an average of headcount, O&M expense and net fixed assets), again excluding Appliance Services.[61] We asked why none of the Human Resources services attributable to the Asset Management FLoB were attributable to the Appliance Services UbU.[62] PSEG responded that "in aggregate Appliance Service business receives only about 3% to 3.5% of total Asset Management organizations' non-service company associated costs, therefore it was determined not to allocate 6% of the costs based on the utility allocation formula. This assumption will be revisited with respect to the upcoming cost plan."

Customer Operations

PSE&G's Customer Operations organization comprises 38 utility costs centers with approximately 1,300 of PSE&G's 7,150 employees. The utility organization consists mainly of district-level customer inquiry, billing, credit and collection and operations support staff that primarily support PSE&G's Electric

[59] Response to OC-1538-A.

[60] Response to OC-1538-B Attachment OC_1538_utility formula less AS 2018 and 2019-PSEG (Confidential).

[61] Response to OC-1539-A.

[62] Note that the table shows significant portions of Facilities and Information Technology Corporate Baseline were attributable to Appliance Services.

Distribution, Gas Distribution and Appliance Services UbUs. The Customer Operations FLoB contains service company costs which also support all PSE&G UbUs except Transmission. UbU cost distributions are summarized in the following table.

Table 3-14 – Allocation of Service Company Charges from the Customer Operations Forecasting Line of Business to Utility Business Units

Allocation of Service Company Charges from the Customer Operations Forecasting Line of Business to Utility Business Units 2018 & 2019 Combined												
Servco Department	Services	Electric Distribution		Gas Distribution		Appliance Svcs		Transmission		Affiliates		Total
		Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Building Svcs.	5 Building services	4,604,579	54.1%	3,492,699	41.0%	417,382	4.9%	-	0.0%	-	0.0%	8,514,660
Corp.Facilities	5 Facilities services	4,036,562	55.0%	3,302,642	45.0%	-	0.0%	-	0.0%	-	0.0%	7,339,204
Human Resources	10 HR services	2,084,954	53.3%	1,598,623	40.8%	230,558	5.9%	-	0.0%	-	0.0%	3,914,135
Info Technology	Basic Telecom	3,696,424	47.9%	2,900,759	37.6%	1,120,414	14.5%	-	0.0%	-	0.0%	7,717,597
	Capitalized Client Projects	16,720,987	54.6%	13,892,873	45.4%	-	0.0%	-	0.0%	-	0.0%	30,613,860
	Customer Operations Support Baseline	8,036,149	55.0%	6,575,031	45.0%	-	0.0%	-	0.0%	-	0.0%	14,611,180
	Corporate Baseline	10,308,010	53.9%	7,806,844	40.8%	975,877	5.1%	23,261	0.1%	-	0.0%	19,113,992
Law	8 Legal services	1,299,057	54.0%	966,891	40.2%	140,286	5.8%		0.0%	-	0.0%	2,406,234
Other Depts.	46 Other Services	8,597,567	58.8%	5,695,699	38.9%	330,066	2.3%	3,907	0.0%	-	0.0%	14,627,239
Totals	**78 Services**	**59,384,289**	**54.6%**	**46,232,061**	**42.5%**	**3,214,583**	**3.0%**	**27,168**	**0.0%**	**-**	**0.0%**	**108,858,101**
Response to OC-1371.												

Many of the service company services attributed to the Customer Operations FLoB were distributed to UbUs using one of the following two allocators.

- Electric and Gas "Fixed Percentage" Customer Allocator – This allocator was used to divide service company costs such as corporate facilities, information technology applications support and capitalized client projects attributable to Customer Operations among PSE&G's UbUs. The allocator distributed costs 55% to Electric Distribution and 45% to Gas Distribution from at least 2018 through 2021. PSEG stated the allocator was used for activities that supported electric and gas customer services but did not support Appliance Services.[63] Overland found the allocation percentages were consistent with the number of electric and gas customers during the 2018-2020 period.[64]

[63] Response to OC-1534-B. Testing this assertion would have required an additional level of analysis, which time constraints prohibited. However, we note that data from the Response to OC-1371 shows that a range of centralized services we would assume would be common to all business units benefiting from Customer Operations, including Information Technology Client Projects, IT Security, IT Standard Desktop Support, Corporate Facilities, Procurement, Telecommunications and State Government Affairs, were distributed only to Electric and Gas Distribution, and Appliance Services was omitted from the cost objectives.

[64] Response to OC-1215.

- Electric, Gas and Appliance "Assessment" Allocator - The second predominant allocator for the Customer Operations FLoB divided service company costs from departments such as Communications, Executive Services, Human Resources, Legal and Governmental Affairs between the Electric Distribution, Gas Distribution and Appliance Services UbUs.[65] In 2019, for example, this allocator distributed costs 53.2% to Electric Distribution, 41.1% to Gas Distribution and 5.8% to Appliance Services, and distributed slightly different percentages to these UbUs in 2018. In response to a data request, the Company stated that "support from Customer Operations to Appliance Services is driven mainly by an Assessment Process . . . which takes a pool of costs for a department and allocates them to the work performed by that department based on a cost driver."[66] The data response did not address the cost driver used for this allocator but stated that bargaining unit labor dollars are the "usual cost driver."
- Building Services – The amount of building services attributed to PSE&G's Customer Operations organization almost tripled between 2018 and 2019, from $1,965,419 to $5,819,981. PSEG stated this was because Customer Operations moved out of leased locations and into the Company's Newark General Office.[67]
- Corporate Facilities – Corporate Facilities costs attributed to Customer Operations decreased more than 75% between 2018 and 2019, from $5,255,999 to $1,304,729 in 2019. PSEG stated this was due to the transfer of lease costs from the service company into PSE&G, due to the implementation of a new lease accounting standard, ASC 842 in 2019.[68]

Electric Operations

PSE&G's Electric Operations organization primarily serves the Electric Distribution and Transmission UbUs. Based on 2020 labor-driven benefits allocations (discussed below in the Convenience Payments section of this chapter), we can estimate that the approximate labor split for this utility organization during the review period was around 80% Electric Distribution / 20% Transmission. Electric Operations underwent a reorganization between 2018 and 2019. By the end of 2019 it consisted primarily of divisional staff, consisting of approximately 1,800 employees focused primarily on distribution operations, and Electric T&D Projects and Construction, consisting of approximately 860 employees engaged in distribution construction, engineering, environmental and transmission construction, maintenance and strategy development.[69] The table below summarizes service company cost distributions to UbUs for 2018 and 2019.

[65] In 2018 the distribution was 53.4% ED, 40.6% GD and 6.0% AS. In 2019 it was slightly different: 53.2% ED, 41.1% GD and 5.8% AS.

[66] Response to OC-1534-B.

[67] Response to OC-1548-A.

[68] Response to OC-1548-C.

[69] Distribution procurement and fleet maintenance functions were added in 2020, but are not relevant to our review, which was confined to 2018 and 2019.

Table 3-15 – Allocation of Service Company Charges from the Electric Operations Forecasting Line of Business to Utility Business Units

Allocation of Service Company Charges from the Electric Operations Forecasting Line of Business to Utility Business Units 2018 & 2019 Combined												
Servco Department	Services	Electric Distribution		Gas Distribution		Appliance Svcs		Transmission		Affiliates		Total
		Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Claims	Claims Professional Svc.	1,979,442	100.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	1,979,442
Corp.Facilities	4 Facilities Svcs	15,486,581	86.8%	2,310	0.0%	-	0.0%	2,345,083	13.1%	11,256	0.1%	17,845,230
Human Resources	9 HR Services	3,322,923	69.8%	-	0.0%	-	0.0%	1,434,346	30.2%	-	0.0%	4,757,269
Info Technology	Basic Telecom	3,263,250	90.0%	7,402	0.2%	-	0.0%	338,142	9.3%	17,672	0.5%	3,626,466
	Capitalized Client Projects	3,863,601		-	0.0%	-	0.0%	3,962	0.1%	-	0.0%	3,867,563
	Cust.Ops Support Baseline	2,974,464		-	0.0%	-	0.0%	-	0.0%	-	0.0%	2,974,464
	Elec.Delivery Application Support Baseline	6,032,656	57.9%	-	0.0%	-	0.0%	4,394,482	42.1%	-	0.0%	10,427,138
	IT Corporate Baseline	18,379,659	90.2%	7,726	0.0%	-	0.0%	1,890,630	9.3%	106,170	0.5%	20,384,185
Law	11 Legal services	6,093,304	100.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	6,093,304
Law Security	4 Security services	4,075,336		-	0.0%	-	0.0%	-	0.0%	-	0.0%	4,075,336
Treasury Mgt.	2 Treasury svcs (Insurance)	7,537,196		-	0.0%	-	0.0%	-	0.0%	-	0.0%	7,537,196
Other Depts.	41 Other Services	12,919,917	82.5%	22,367	0.1%	-	0.0%	2,513,388	16.0%	205,927	1.3%	15,661,599
Totals	**79 Services**	**85,928,329**	**86.6%**	**39,805**	**0.0%**	**-**	**0.0%**	**12,920,033**	**13.0%**	**341,025**	**0.3%**	**99,229,192**
Response to OC-1371.												

We found several potential issues with the distribution of service company costs to UbUs in 2018 and 2019. These included the following.

- It is unclear why the Information Technology Electric Application Support Baseline service was allocated approximately 60% Electric Distribution and 40% Transmission when most other IT services, including the IT Corporate Baseline, were split approximately 90% Electric Distribution and 10% Transmission.
- It is unclear why centralized services with substantial charges to PSE&G, including Human Resources Labor-Management Relations, the HR Baseline NJ, Internal Audit Professional Services, Information Technology Customer Operations Support Baseline, Legal Environmental, Legal Litigation, Insurable Risk, Property Insurance, Procurement, Corporate Properties Professional Services, Treasury Operations and others were 100% assignable to Electric Distribution, with nothing allocated to Transmission.[70]
- PSEG appears to have missed updating orders to account for allocation changes in some cases, and states that it has begun process improvements to address this. For example, PSEG notes that 2019 values for the Enterprise Utility allocator were not applied as they should have been to the Information Technology Application Support Baseline service. After acknowledging this, PSEG stated that "we have since 2020 put in place a process to force an annual review of these types of allocations." [71]

[70] In commenting on our draft report, PSEG stated that "some work is not comprised of organizational support but rather is work for a specific income statement charged through an order or WBS."

[71] Response to OC-1537-A and B.

Enterprise – Utility

As discussed above, PSEG Services allocates unattributable corporate costs benefiting PSEG Corporation as a whole to operating subsidiaries using the Enterprise Corporate allocator. Once allocated to PSE&G, the costs are further distributed to PSE&G's UbUs using the same fixed percentage allocator, but based on the net fixed assets, O&M expense and budgeted headcount of the individual UbUs. Unlike the corporate-level enterprise allocator, PSEG stated that the utility level allocator does not require approval of the NJBPU.[72] The Enterprise Utility cost pool is shown below, arranged by impacts to FLoBs. The distribution among UbUs is a blended rate for 2018 and 2019 combined.

Table 3-16 – Allocation of Service Company Charges from the PSE&G Enterprise Forecasting Line of Business to Utility Business Units

Allocation of Service Company Charges from the PSE&G Enterprise Forecasting Line of Business to Utility Business Units 2018 & 2019 Combined												
Servco Department	Services	Electric Distribution		Gas Distribution		Appliance Svcs		Transmission		Affiliates		Total
		Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Accounting	2 Accounting svcs.	4,169,168	34.4%	3,697,202	30.5%	784,136	6.5%	3,461,219	28.6%	-	0.0%	12,111,725
Compliance	4 Compliance svcs	1,006,910	34.0%	906,507	30.7%	187,762	6.3%	856,305	29.0%	-	0.0%	2,957,484
Communications	2 Communications svcs	899,605	34.4%	799,236	30.5%	169,022	6.5%	749,052	28.6%	-	0.0%	2,616,915
Corp. Secretary	Corporate Secretary Svcs.	1,184,901	34.5%	1,048,022	30.5%	223,183	6.5%	979,582	28.5%	-	0.0%	3,435,688
Corp. Strategy / Planning	4 Corp Strategy / Planning services	1,390,814	34.2%	1,242,545	30.6%	260,492	6.4%	1,168,410	28.8%	-	0.0%	4,062,261
Law	3 Legal Enterprise svcs.	1,650,386	34.4%	1,463,044	30.5%	310,465	6.5%	1,369,374	28.6%	-	0.0%	4,793,269
Executive	Executive Services	11,586,538	34.4%	10,290,433	30.5%	2,177,345	6.5%	9,642,380	28.6%	-	0.0%	33,696,696
Other Depts.	42 Other Services	6,298,245	34.4%	5,587,272	30.5%	1,184,334	6.5%	5,231,786	28.6%	-	0.0%	18,301,637
Totals		**28,186,567**	**34.4%**	**25,034,261**	**30.5%**	**5,296,739**	**6.5%**	**23,458,108**	**28.6%**		**0.0%**	**81,975,675**
Response to OC-1371.												

Calculations of PSE&G's Enterprise-Utility allocator during the review period were as follows:

[72] Response to OC-1545.

Table 3-17 – PSE&G – Utility Business Unit Enterprise Allocator Calculations – Calendar Years 2018-2020

PSE&G - Utility Business Unit Enterprise Allocator Calculations - Calendar Years 2018-2020 ($ Millions)										
2018 Final Business Plan	**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**	**Total**		**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**
Net Fixed Assets	6,950	5,730	12,041	-	**24,721**		28%	23%	49%	0%
Headcount	3,239	2,946	814	917	**7,916**		41%	37%	10%	12%
O&M	325	250	129	104	**808**		40%	31%	16%	13%
Average Percentage (Rounded)							**36%**	**30%**	**25%**	**8%**
2019 Final Business Plan	**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**	**Total**		**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**
Net Fixed Assets	7,190	6,458	13,084		**26,732**		27%	24%	49%	0%
Headcount	2,686	2,744	1,712	345	**7,487**		36%	37%	23%	5%
O&M	306	253	134	108	**801**		38%	32%	17%	13%
Average Percentage (Rounded)							**34%**	**31%**	**30%**	**6%**
2020 Final Business Plan	**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**	**Total**		**Electric Dist.**	**Gas Dist.**	**Eletric Trans.**	**Appliance Svcs**
Net Fixed Assets	7,563	7,118	14,182	-	**28,863**		26%	25%	49%	0%
Headcount	2,621	3,007	1,696	385	**7,709**		34%	39%	22%	5%
O&M	329	275	141	115	**860**		38%	32%	16%	13%
Average Percentage (Rounded)							**33%**	**32%**	**29%**	**6%**
Response to OC-1052.										

Based on our review we made the following observations:

- The Enterprise Utility allocator is used to distribute nearly all of the costs attributable to the Enterprise Utility and Utility Level FLoBs. In 2018 and 2019 the allocator was used to distribute $186 million (nearly 90%) of the *combined* costs of the Enterprise-Utility and Utility Level FLoBs to UbUs. This included $82 million (100%) of the Enterprise-Utility FLoB, and $104 million (84%) of the Utility Level FLoB.
- Other versions of the Enterprise-Utility allocator were used to distribute certain PSE&G costs attributed to other FLoBs (Electric Operations, Asset Management and Customer Operations). Instead of allocating to all of the four UbUs shown in the table above, the other versions employed more limited sets of cost objectives, such as Electric Distribution and Transmission for certain costs attributed to the Electric Operations FLoB.
- We noted that the allocator inputs used to distribute enterprise costs *within* PSE&G do not match inputs used in the corporate allocator used to distribute enterprise costs among operating subsidiaries:

Table 3-18 – Comparison of Allocator Inputs – Corporate and PSE&G-Level Enterprise Allocators

Comparison of Allocator Inputs - Corporate and PSE&G-Level Enterprise Allocators -Calendar Year 2019 ($ Millions)				
Input	Used within PSE&G	Corporate Level	Difference	
			Amt	Pct
Net Fixed Assets	26,732	27,323	-591	-2%
Headcount	7,487	7,557	-70	-1%
O&M	801	797	4	0%
Responses to OC-23 and OC-1052.				

PSEG stated that "the difference is due to the timing of when the numbers [were] compiled. The data [for the Enterprise Corporate allocator] was pulled after the plan was completed. The numbers for [the Enterprise Utility allocator were] compiled toward the end of the planning process.[73]

- The number of employees assigned to the Transmission and Appliance Services UbUs for enterprise allocation purposes changed dramatically between 2018 and 2019. The number of Transmission employees more than doubled, increasing from 814 to 1,712. The number of employees classified as Appliance Services declined by more than half, from 917 to 345. The overall effect was to increase the share of enterprise costs allocated to the Transmission UbU from 25% to 30% and lower the share of costs allocated to Appliance Services from 8% to 6%.

  In explaining this, PSEG stated that "in developing the numbers for the 2018 report, a mistake was made in that only the O&M labor by UbU was used. This resulted in large swings noted for Appliance and Transmission." PSEG stated that the 2018 Transmission headcount of 814 should have been 1,513 and that the 2018 Appliance Services headcount should have been 367 instead of 917. The Company further stated that "improvements to documentation of the source data has been ongoing, including the development of a sign-off process expected to be implemented in 2022."[74] The headcount shift within PSE&G toward Transmission is curious when compared with organizational data showing PSE&G Transmission had 718 employees in 2018, *declining* to just 675 employees in mid-2021, while it shows PSE&G Delivery had 6,600 employees in 2018, declining slightly to 6,458 employees in mid-2021.[75,76]

[73] Response to OC-1543.

[74] Response to OC-1546.

[75] Based on an evaluation of PSE&G organizational data by Company Code, provided in Response to OC-0940. The organizational data, unlike the data used for allocation purposes, shows the relative percentages of Delivery and Transmission employees were stable throughout the period from 2018 through mid-2021.

[76] In commenting on our draft report, PSEG asserted that this difference is "because the headcount allocator is based on the final plan result of the work being done as calculated by labor dollars and is not based on organization hierarchy or headcount" and "organizational headcounts do not reflect the work ultimately performed." PSEG further stated, "the headcount identified in other discovery responses as Transmission are for organizations which do not necessarily allocate 100% of their costs to the Transmission UbU." Overland has not analyzed this new information, and we cannot assess the reasonableness of substituting a factor based on the "result of work being done as calculated by labor dollars" for the more straightforward organizational headcounts used in many of PSEG's other allocation processes.

- The Appliance Services UbU does not have assets of its own. Instead, it uses assets owned by other UbUs, mainly Gas Distribution, to conduct its operations. Unlike with the headcount component of the allocator, it does not appear any assets are allocated to Appliance Services for the purpose of allocating utility enterprise costs. The mismatch between UbU asset ownership and usage likely causes an over-allocation of enterprise costs (and some Utility Level costs, discussed below) to the Gas Distribution UbU and a corresponding under-allocation to Appliance Services.

Utility Level, Utility Executive Office and Utility Support Common

The Utility Level and the much smaller Utility Executive Office and Utility Support Common FLoBs are used to evaluate impacts of service company costs attributable to PSE&G (and costs incurred by PSE&G) that are not considered attributable to specific UbUs or groups of UbUs.[77,78] The table below summarizes impacts of costs from the Utility Level FLoB of allocations to UbUs.

Table 3-19 – Allocation of Service Company Charges from the Utility Level Forecasting Line of Business to Utility Business Units

Allocation of Service Company Charges from the Utility Level Forecasting Line of Business to Utility Business Units 2018 & 2019 Combined												
Servco Department	Services	Electric Distribution		Gas Distribution		Appliance Svcs		Transmission		Affiliates		Total
		Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	Amt.	Pct.	
Accounting	4 Accounting svcs.	4,644,953	34.5%	4,112,139	30.5%	808,637	6.0%	3,911,550	29.0%	-	0.0%	13,477,279
Building Svcs	2 Building svcs	7,455,526	34.5%	6,578,847	30.5%	1,294,860	6.0%	6,251,772	29.0%	-	0.0%	21,581,005
Communications	Communications Professional Svcs.	892,622	34.7%	784,305	30.4%	154,549	6.0%	744,346	28.9%	-	0.0%	2,575,822
Corp. Facilities	5 Corp. Facilities svcs	1,354,673	100.0%		0.0%		0.0%		0.0%	-	0.0%	1,354,673
Corp.Properties	Treasury Operations	1,345,118	34.1%	1,207,079	30.6%	236,493	6.0%	1,152,862	29.2%	-	0.0%	3,941,552
Cost of Capital	Working Capital Interest	8,665,882	34.6%	7,635,647	30.5%	1,503,468	6.0%	7,252,799	28.9%	-	0.0%	25,057,796
Info Tech.	Servco Overhead	5,462,274	34.6%	4,803,536	30.5%	946,328	6.0%	4,559,991	28.9%	-	0.0%	15,772,129
Law	14 Legal services	3,570,006	37.2%	2,906,508	30.3%	538,791	5.6%	2,578,462	26.9%	-	0.0%	9,593,767
Utility-Dedicated Finance	2 PSE&G Finance Services	7,435,973	43.2%	6,407,220	37.2%	891,627	5.2%	2,469,879	14.4%	2,906	0.0%	17,207,605
Other Depts.	42 Other Services	4,025,815	27.7%	4,781,039	32.9%	1,473,058	10.1%	4,269,139	29.3%	-	0.0%	14,549,051
Totals		**44,852,842**	**35.9%**	**39,216,320**	**31.3%**	**7,847,811**	**6.3%**	**33,190,800**	**26.5%**	**2,906**	**0.0%**	**125,110,679**
Response to OC-1371.												

[77] Response to OC-1532-A. The data response states "Utility Executive Office, Utility Level and Utility Common are used somewhat interchangeable. These [forecasting] LOBs capture cost that PSEG Services Corporation can identify as attributable to PSE&G but the work is not [utility] LOB specific or a specific LOB cannot be identified."

[78] According to Response to OC-1532-B, the main difference between Utility Level and Utility Executive Office allocations in 2019 was caused by PSE&G's President having management oversight of PSEG LI in that year, which resulted in a 23% allocation of the amounts to the "Affiliate" UbU. Review of this allocator's worksheet showed that it is the Enterprise-Utility allocator with Long Island's headcount and O&M added to it.

Most service company costs assigned to the Utility Level FLoB ($104 million of $125 million for 2018 and 2019) were allocated to PSE&G's UbUs using the Enterprise Utility allocation method and percentages discussed above. A relatively small number of services were allocated differently. We asked about the following service exceptions:[79]

- TF-P-Rates and Revenue Requirements – PSEG stated this service is provided by the Revenue Requirements group, which it states does not deal with transmission issues. It was allocated with the Enterprise Utility allocator, but with Transmission removed as a cost objective.
- TF-P-PSE&G Dedicated Finance – PSEG stated work classified under this service is performed by Utility Finance, which comprises several separate groups which support various Vice Presidents and utility income statements. There were eight separate orders charged by Utility Finance employees. Overland assumes this means each order could have its own allocation method, but we note that the individual methods and basis are not documented in the data response.
- TF-P-C-PSE&G Dedicated Finance – The company notes that the calculation of this capital-directed service affects 13,000 WBS elements and is allocated to capital using a surcharging methodology.

Convenience Payments

Convenience payments are expenses from vendor-provided services that are processed and paid centrally by PSEG Services on behalf of PSEG's operating subsidiaries. PSEG Services is reimbursed for the payments through monthly billings to the subsidiaries. In some cases, vendor invoices are paid by the service company and passed through to operating subsidiaries, in other cases payments are grouped into categories, such as employee medical benefits, and billed under the individual category. Although they are not affiliate transactions *per se*, convenience payments involve significant amounts of money and can require allocations to distribute payment amounts among subsidiaries.[80] Allocations may be calculated by the vendor based on information provided to it, or they may be done by PSEG Services. The table below summarizes convenience payments for the three-year period 2018 through 2020.

[79] Response to OC-1540.

[80] The total amount of convenience payments billed during the 2018-2020 review period, $1.54 billion, was nearly the same as the costs incurred by PSEG Services for services provided and charged to subsidiaries during the period, also $1.54 billion.

Table 3-20 – Convenience Payments Made by PSEG Services On Behalf of Subsidiaries

Convenience Payments Made by PSEG Services On Behalf of Subsidiaries			
Subsidiary	**2018**	**2019**	**2020**
PSE&G	399,154,781	431,941,093	470,901,727
PSEG Power	85,340,408	76,151,312	72,448,739
PSEG Long Island	1,858,859	1,510,746	1,433,257
PSEG Energy Holdings	139,808	200,877	1,412,718
Total Payments	**486,493,856**	**509,804,028**	**546,196,441**
Response to OC-0027.			

Of the $1.5 billion in total convenience payments made during the review period, slightly more than $1.3 billion (84%) was billed to PSE&G.

We reviewed PSEG Services monthly bills to the operating subsidiaries to understand the services and products involved, how allocations among subsidiaries were made, and to determine that procedures in place were sufficient to ensure that amounts owed by operating subsidiaries were accurately reflected in monthly service company bills. We analyzed service company bills and classified convenience payments by category (vendor or type of payment) and operating subsidiary billed. We selected the largest categories from PSEG Services' billing schedules 2, parts 1 and 2, and evaluated the nature of the amounts billed and how they were divided among operating subsidiaries.

Types of Convenience Payments

Convenience payments are billed on three separate service company billing schedules. PSEG Services describes these as follows:[81]

- Schedule 1 – Miscellaneous activity between the service company and operating subsidiaries, including "fleet and other expenses" managed by the operating companies. The amounts on schedule 1 are relatively immaterial in comparison to those on Schedule 2.
- Schedule 2, Part 1 – Payments for the costs of fringe benefits managed by PSEG Services' Human Resources department on behalf of the operating subsidiaries.
- Schedule 2, Part 2 – All other convenience payments, including outside services, and remediation adjustment clause payments for manufactured gas plant sites.

Following is a summary of convenience payments by billing schedule and subsidiary.

[81] Response to OC-0027.

Table 3-21 – PSEG Services Convenience Payments by Schedule & Subsidiary, 2018 through 2020

PSEG Services Convenience Payments by Schedule & Subsidiary, 2018 through 2020						
Schedule	**Description**	**Energy Holdings**	**Long Island**	**Power**	**PSE&G**	**Totals**
Sch. 1	Fleet & Misc Exps.	9,680	1,091,373	5,806,306	(84,049)	6,823,310
Sch. 2 Pt. 1	Fringe Benefits	1,122	1,781,969	100,461,486	316,129,275	418,373,852
Sch. 2 Pt. 2	Other Conv. Pmts.	1,748,901	2,003,927	127,672,663	985,952,376	1,117,377,867
Totals		**1,759,703**	**4,877,269**	**233,940,455**	**1,301,997,602**	**1,542,575,029**
Response to OC-677.						

Billing detail for convenience payments during the review period consisted of tens of thousands of lines of system data. As noted above, we focused primarily on intercompany billing Schedule 2, which accounted for more than 99% of total convenience payment charges during the review period.

Schedule 2, Part 1 – Active Employee Fringe Benefits

This includes employee benefit expenses which are managed and paid by PSEG Services on behalf of the operating subsidiaries.[82] It consists of medical and dental benefits expenses for active employees of PSE&G, Power and PSEG LI Management Co. (but not benefits for the Long Island utility, PSEG LI Servco). The table below summarizes benefit bills from PSEG Services for the 2018-2020 review period.

Table 3-22 – Schedule 2, Part 1 Convenience Payments by Operating Subsidiary, 2018 - 2020

Schedule 2, Part 1 Convenience Payments By Operating Subsidiary, 2018-2020							
Category	**LI Mgt. Co.**		**Power**		**PSE&G**		**Totals**
	Bill Amts.	**Per EE-Yr.**	**Bill Amts.**	**Per EE-Yr.**	**Bill Amts.**	**Per EE-Yr.**	
Benefits - Dental	62,084	1,592	3,456,767	581	10,973,115	510	14,491,966
Benefits - Medical	1,529,120	39,208	86,207,503	14,484	271,312,884	12,620	359,049,507
Benefits - Others	13,312	341	760,859	128	2,491,633	116	3,265,804
Benefits-L/T Disability	17,122	439	982,152	165	3,131,852	146	4,131,126
Benefits-Life Insurance	38,640	991	2,193,059	368	6,796,582	316	9,028,281
Benfts-Outside Srvcs	121,116	3,106	6,875,896	1,155	21,839,021	1,016	28,836,033
All Other	576	15	(14,748)	(2)	(415,812)	(19)	(429,984)
Totals	**1,781,970**	**45,692**	**100,461,488**	**16,879**	**316,129,275**	**14,705**	**418,372,733**
Responses to OC-0677 (Bill Amounts) and OC-0940 (Average Subsidiary Employees).							

As a test of reasonableness, we calculated the cost of fringe benefits per employee, using average employees at years end 2018, 2019 and 2020. As the table shows, PSE&G's average fringe benefits costs per employee compares favorably with Power and PSEG LI Management Co. We reviewed the two largest categories of expense, Benefits – Medical and Benefits – Outside Services, which account for 93% of the total benefits expense. For each category we compared the relative distribution of benefits cost between PSE&G and Power with relative headcount levels during the review period.

[82] Response to OC-0027.

- "Benefits – Medical" – The Company stated that this was "medical, prescription drug claims expense and third-party claims administration expense."[83] In response to a request to describe how it is allocated among operating subsidiaries, the Company stated "Aon . . . allocates projected costs based on each operating company's employee medical plan enrollment headcount."[84] The medical benefits expenses in the above table mainly cover PSE&G and Power and were split approximately 76% PSE&G / 24% Power during the review period. For these same two subsidiaries, average headcount during the review period was split approximately 79% PSE&G / 21% Power.[85] As such, the allocation appears reasonable, especially for PSE&G, which was charged a lower share of benefits expense than its employee count would indicate (a lower medical expense per employee).

  Although its medical expenses are not included on Convenience Payment Schedule 2, Part 1, PSEG stated that the service company also pays, and its Corporate Benefits department also manages, the PSEG LI Servco's medical plan.[86] Given that it is a separate plan from that of PSEG, we would not expect to see its expenses included in the chart above.

- "Benefits – Outside Services" – The Company stated this consists of "expenses for services such as administration for health and welfare plans / programs, consulting / compliance and employee communications."[87] Vendors, services and amounts during the review period were as follows:

Table 3-23 – Convenience Payment Schedule 2, Part 1, Benefits – Outside Services, 2018-2020

Convenience Payment Schedule 2, Part 1, Benefits - Outside Services, 2018-2020					
Vendor	**Service Description**	**2018**	**2019**	**2020**	**Total**
Aon Consulting	None provided	1,873,019	2,020,079	2,869,099	6,762,197
Sedgwick	Administer Workers Comp & S.T. Disability Plans	1,948,754	1,739,301	2,293,062	5,981,117
Alight / Tempo Holdings	"Total Benefits Administration"	2,874,016	2,282,323		5,156,339
Willis Tower Watson	"Total Benefits Administration"			3,496,657	3,496,657
Total		**6,695,789**	**6,041,703**	**8,658,818**	**21,396,310**
Response to OC-1530-B.					

[83] Response to OC-1529-A.
[84] Response to OC-1529-B.
[85] Analysis of employee data from Response to OC-0940.
[86] Response to OC-1529-C.
[87] Response to OC-1530-A.

PSEG stated that outside services benefits expenses are allocated based on headcount. The 76% / 24% division between PSE&G and Power is roughly comparable to our calculated average headcount split of 79% PSE&G / 21% Power during the period December 2018 – June 2021 and appears reasonable.[88]

Distribution of Employee Benefits Payments Within PSE&G

PSE&G includes a Delivery Company (comprised of Electric Distribution, Gas Distribution and Appliance Services UbUs) and a Transmission Company (comprised of the Transmission UbU). As a whole, PSE&G was charged for between $103 million and $107 million in employee benefits convenience payments. In 2018 and 2019 approximately 14% of the payments were charged to the Transmission Company, while in 2020 none were charged to Transmission. In addition, in 2018 and 2019, the payments were further divided among several categories within the Delivery Company, while in 2020 they were entirely assigned to the category "Fringe Benefits – Utility."

Table 3-24 – Distribution of Employee Benefits Convenience Payments to PSE&G's Consolidated Line of Business 2018-2020

Distribution of Employee Benefits Convenience Payments to PSE&G's Consolidated Line of Business, 2018-2020				
Company	**2018**	**2019**	**2020**	**Totals**
Delivery Company	91,668,618	91,611,412	103,619,875	286,899,905
Transmission Company	13,574,932	15,654,438	-	29,229,370
Total	105,243,550	107,265,850	103,619,875	316,129,275
Response to OC-0677.				

In response to a data request, PSEG stated that the multiple orders that had been used for fringe benefits were consolidated into one order beginning in 2020 and that this was done because it "allowed for greater flexibility to responding to Utility reorganizations."[89] The response stated that benefits were further allocated to business units in all years based on internal labor. The ultimate PSE&G business unit allocation in 2020 was as shown in the following table. The 2020 distribution between Delivery and Transmission was approximately 78% / 22%, compared with 87% / 13% in 2018 and 2019.[90]

[88] Power has been reducing headcount. It is likely that if we had measured average headcount from January 2018 through December 2020 it would have been closer to 75% PSE&G / 24% Power.

[89] Response to OC-1531-A.

[90] Overland did not determine why Transmission's share of PSE&G's benefits convenience payments increased by almost 50% in 2020. It may or may not be related in some way to the large percentage increase in Transmission headcount used in the Enterprise Utility allocator (discussed above) in 2019 and 2020 compared with previous years.

Table 3-25 – Distribution of Employee Benefits to UbUs for 2020

Distribution of Employee Benefits to UbUs for 2020	
Business Unit	**Benefits Allocation**
Electric Distribution	36,634,202
Gas Distribution	39,451,470
Appliance Services	4,409,590
Transmission	22,049,574
Renewables	640,506
Affiliates	434,531
Total	**103,619,873**
Source: OC-1531-B.	

Schedule 2, Part 2 – Other Convenience Payments

This intercompany schedule contains bills to reimburse the service company for payments made for various products and services. A majority of the $1.1 billion billed during the review period can be consolidated into approximately a dozen vendor payment categories, as shown below.

Table 3-26 – Schedule 2, Part 2 Convenience Payments By Operating Subsidiary, 2018-2020

Schedule 2, Part 2 Convenience Payments By Operating Subsidiary, 2018-2020					
Billing Detail Description Field	**Energy Holdings**	**Long Island**	**Power**	**PSE&G**	**Total**
ESPP Withholding		279,055	8,779,374	26,374,367	35,432,796
GR/IR	725,294	513,832	27,373,905	104,776,577	133,389,608
G-Regl Assets (Envir				141,236,523	141,236,523
HORIZON BLUE CROSS BLUE SHIELD OF				10,372,586	10,372,586
HORIZON BLUE CROSS OF NJ				90,348,102	90,348,102
J P MORGAN	3,945	91,494	17,550,374	151,427,307	169,073,120
MEDCO HEALTH SOLUTIONS, INC.				137,645,464	137,645,464
Pay. Dedn - Thrift/Savings/Loans		355,341	29,684,794	78,719,952	108,760,087
Pay-Ded Med Self Ins		140,258	19,102,242	62,726,546	81,969,046
SEDGWICK CLAIMS MANAGEMENT SERVICES			6,387,821	16,846,108	23,233,928
WILLIS TOWERS WATSON US LLC		7,253	1,547,675	20,276,810	21,831,738
All Others	1,019,662	616,696	17,246,482	145,202,037	164,084,877
Grand Total	**1,748,902**	**2,003,929**	**127,672,666**	**985,952,377**	**1,117,377,874**
Source: Consolidation of Service Co. Monthly Bills to Operating Subs. From Response to OC-0677.					

- ESPP Withholding – This is an abbreviation for Employee Stock Purchase Plan payroll withholdings. PSEG stated that amounts charged to individual operating companies are based on amounts that employees of each company contribute to the plan.[91]
- GR/IR – This is an abbreviation for "goods received / invoice received." It is a notation made in SAP recording the fact that vendors have shipped or provided and billed for a product or service.

[91] Response to OC-1218.

Expenses from hundreds of different vendors contain this description rather than a vendor name. We selected and inquired about one of the larger items from this category, an amount of $2,792,204 posted in January 2020, to determine whether it was properly billed to PSE&G's Delivery Company (DC10). The Company stated that the selected item was software purchased from Locusview Solutions, Inc. related to a capital project within PSE&G's Delivery Company.[92]

- G-Regl Assets Envir - These are costs of remediating contaminated manufactured gas plant sites. The costs are incurred by PSEG Services (Work Breakdown Structure elements assigned to the service company) but are attributable to PSE&G's Remediation Adjustment Clause (RAC). PSEG stated that the entries for convenience payments move the costs from PSEG Services to PSE&G's Delivery Company, which is the only subsidiary to which they are attributable.[93]

- Horizon Blue Cross – This vendor provides retired employee health insurance costs. The Company stated that these expenses are consolidated at PSE&G and allocated to each of the operating companies, based on a calculation made by consulting firm Aon.[94] For 2020, Aon calculated PSE&G's share of these payments to be 88.25%, with 11.75% attributable to other operating subsidiaries.[95] Other Post-Employment Benefit (OPEB) convenience payments and their allocation to operating subsidiaries is discussed in additional detail below.

- JP Morgan - Payments designated as JP Morgan are charges for employee credit (purchasing) cards.[96] PSE&G's payments for card purchases averaged about $5 million per month. According to the data response, the bank has information which relates individual purchasing cards to PSEG operating companies. PSEG provided the first three pages of an 874-page p-card invoice from JP Morgan for December 2020. We were able to trace the invoice totals for PSE&G Delivery and Transmission companies to PSE&G's billing from PSEG Services for the same month.

- Medco Health Solutions – Medco is a prescription drug insurance provider for retired employees. We asked why the charges for Medco were attributed only to PSE&G. PSEG stated that the expenses are consolidated at PSE&G and allocated to each of the operating companies by consulting firm Aon.[97] It further stated that Aon calculates the expected benefit payments by employee and assigned the payments to the operating company of the individual at retirement.[98] For 2020, Aon calculated PSE&G's share of these payments to be 88.25%, with 11.75% attributable to other operating subsidiaries.[99] Other Post-Employment Benefit (OPEB)

[92] Response to OC-1201.

[93] Response to OC-1219. The data response states that the costs continue to be charged to the service company even though the Environmental Department that manages the remediation process has moved to PSE&G. It states that a review was performed to evaluate the impact of changing the WBS elements from Company IS10 (PSEG Services) to DC10 (PSE&G Delivery Co.), but it was determined the implementation costs of doing so would outweigh the benefits.

[94] Response to OC-1221.

[95] Response to OC-1527.

[96] Response to OC-1220.

[97] Response to OC-1222.

[98] Response to OC-1528-A.

[99] Response to OC-1527.

convenience payments and their allocation to operating subsidiaries is discussed in additional detail below.

- Pay Dedn – Thrift / Savings / Loans – This contains contributions for employee 401K plans.[100] PSEG stated that amounts assigned to each operating subsidiary are based on employee payroll deductions, and that each subsidiary is charged based on amounts employees contributed to the plan.[101] No vendors are involved.
- Pay Ded – Med Self Ins – This is related to employee deductions charged by PSEG for employees enrolled in the medical insurance plan.[102] Amounts for individual operating subsidiaries are based on the payroll deductions for each company's employees. No vendors are involved.
- Sedgwick Claims Management – manages and administers workers compensation claims, disability and employee leave. The vendor assigns amounts billed to operating subsidiaries based on employees and their claims. A PSEG-generated SAP system classification form shows the Sedgwick bill for November 2020 was assigned mainly to PSE&G and Power, with a small amount to PSEG Services, presumably based on cost assignment information provided by the vendor. Sedgwick does not administer claims for PSEG LI.[103]
- Willis Towers Watson (WTW) – This consists of administrative fees for insurers Horizon, Aetna, Cigna and others paid by WTW on PSEG's behalf.[104]

Analysis of OPEB-Related Convenience Payments

As discussed above, vendors Medco and Horizon Blue Cross provide health prescription drugs and health insurance coverage to retired PSEG employees (Other Post-Employment Benefits, or OPEBs). During the three-year review period, billings by PSEG Services to PSE&G totaled $238.4 million, of which $74.6 million was billed in 2020. Although provided to retirees from several PSEG operating subsidiaries, PSEG Services charges the entire bill to PSE&G.[105] PSE&G then bills affiliates based on their share of OPEBs as determined by consulting firm Aon. For 2020, the stated breakdown determined by Aon was 88.25% PSE&G with the remaining 11.75% distributed among other affiliates.[106]

Using this information, we calculated the 2020 amount that it appeared PSE&G should have billed to its affiliates for Medco and Horizon Blue Cross was approximately $8 million (approximately 11.75% of $74.6 million), assuming there were no other vendors paid in the OPEB category). We compared this with actual affiliate billings of approximately $5 million and calculated an unexplained difference and

[100] Presumably, although not stated by the Company, it represents PSEG's matching contribution to employees' 401Ks.

[101] Response to OC-1224.

[102] Response to OC-1225.

[103] Response to OC-1223.

[104] Response to OC-1226.

[105] Responses to OC-1221 and 1222. Even though paid on a centralized basis by the service company, the Company stated that these OPEB vendor payments are "consolidated at PSE&G" and "during the month end [billing] process allocated to each of the operating companies."

[106] Response to OC-1527.

apparent underbilling to affiliates of approximately $3 million. In reviewing our draft report, PSEG revised our calculations, without comment, to show an unexplained difference and apparent affiliate underbilling of only about $1 million. While not disputing PSEG's alternative calculation, Overland notes that we have not attempted to analyze it to determine whether it should supersede our original analysis.

PSEG Long Island

PSEG Corp. manages and operates the Long Island Power Authority's (LIPA's) electric utility on Long Island, NY. This 1.1 million customer electric utility is managed through PSEG LI. This section of the chapter covers PSEG LI and its affiliate relationships with PSEG Corporation, PSEG Services and PSE&G.[107] It also discusses the PSEG LI organization and the relationship between PSEG and LIPA, which is defined and governed primarily by an Amended and Restated Operator Services Agreement (OSA) dated December 31, 2013 that PSEG stated was recently re-negotiated and amended as of April of 2022.[108]

During the review period, direct transactions between PSE&G and PSEG LI were relatively immaterial. These are further discussed in Chapter 2. The more significant affiliate relationship between the two utilities is indirect, through PSEG Services and the processes through which certain centralized services are shared between the two utilities.[109]

PSEG Long Island Organization

PSEG LI operates the Long Island Power Authority's (LIPA's) electric transmission and distribution (T&D) utility system on Long Island, New York. It consists of two legal entities. PSEG Long Island LLC (Management Company) consists of a senior leadership staff of 14 executives (as of June 30, 2021) who manage the Long Island utility. This staff includes the President and COO, Managing Director of Electric Operations, Managing Director and Vice President of Construction and Operations Services, Managing Director and Vice President of Power Markets, and several directors (customer operations, external affairs, corporate communications, information technology and procurement).[110] The costs of senior management and certain governance functions are captured in the Management Company and are not passed through to client LIPA under the OSA. Instead, they are recouped primarily through a Management Fee, discussed below.

[107] PSEG Long Island consists of a management organization, PSEG Long Island LLC, and its legal subsidiary, PSEG Long Island Utility Servco, LLC. Throughout this chapter we refer to the combination of these companies as PSEG LI, except where a distinction is warranted.

[108] Response to OC-0017; https://www.lipower.org/reformedcontract/.

[109] In commenting on our draft report, PSEG noted that amendments made in the 2022 renegotiated OSA increase the functional separation between PSEG -LI and PSEG Services, moving more support functions within PSEG-LI.

[110] According to employee data provided in Response to OC-0940, PSEG Long Island LLC had 13 employees at the end of 2018, 12 at the end of 2019, 14 at the end of 2020 and 14 as of June 30, 2021.

The organization responsible for the electric utility's day to day operations is the Long Island Electric Utility ServCo (PSEG LI Servco or LI utility). PSEG LI ServCo is a legal subsidiary of PSEG LI LLC.[111] It consists of approximately 2,500 utility management and bargaining unit employees, many of whom were already employees of the utility when PSEG took over its operation from National Grid in January 2014. As the operator, PSEG acquired both operational responsibility as well as the utility's employees. The table below summarizes the PSEG LI organization by company (Management Co. and Servco) and functional organization.

Table 3-27 – PSEG Long Island Organization and Headcount

PSEG Long Island's Organization and Headcount				
Company and Organization	**EOY 2018**	**EOY 2019**	**EOY 2020**	**6/30/2021**
PSEG Long Island LLC (Management Co.)				
Long Island Business Services	4	3	4	4
Long Island Construction & Ops Services	1	2	2	2
Long Island Customer Operations	3	3	3	3
Long Island T&D Operations	2	2	2	2
President, COO & VP Renewables	3	2	3	3
Total Management Co.	**13**	**12**	**14**	**14**
PSEG Long Island Electric Utility (Servco)				
Office of the President	67	73	76	77
Long Island Business Services	181	221	229	222
Long Island Construction & Ops Services	208	217	221	216
Long Island Customer Operations	762	770	773	738
Long Island T&D Operations	1,178	1,209	1,232	1,221
Total Utility (Servco)	**2,396**	**2,490**	**2,531**	**2,474**
Combined Mgt. Co & Servco Totals	**2,409**	**2,502**	**2,545**	**2,488**

Response to OC-0940.

PSEG LI's Administrative Services

One of the fundamental differences between the New Jersey and Long Island utilities is the way administrative services are organized. Most utility administrative functions are provided to PSE&G by PSEG Services. However, for Long Island many of these functions are performed by employees of LI Servco. Administrative departments maintained within LI Servco's Business Services organization which could be provided by PSEG Services include the following departments and employees, as of June 30, 2021:

- Accounting – 33
- Business Center - 7

[111] Response to OC-0013.

- IT (Applications Support, Corporate Data Center, IT Operations and IT Support) – 88
- Legal and Claims – 26
- Performance Excellence – 6
- Planning & Budget - 17
- Procurement - 23
- Rates & Load Forecasting – 6
- Security – 15

The LI Servco's Office of the President also contains administrative functions for which equivalent services are provided to PSE&G by PSEG Services. This organization contains the following departments and employees as of June 30, 2021:

- Corporate Communications - 8
- Human Resources - 16
- Internal Audit - 5
- Power Markets - 38
- Public Affairs - 10

The Power Markets organization is responsible for resource planning and strategy, power portfolio management, load research and forecasting, and power market policy.

We asked PSEG why many of the administrative functions performed for PSE&G and Power by PSEG Services are performed for Long Island by PSEG LI. PSEG stated that when it assumed management of Long Island operations there was a Business Support Center already in place in Long Island. PSEG stated that it "left this organization significantly in place as it was providing the needed support at an effective cost."[112] We also asked whether PSEG has performed any analysis to consider or quantify the economies of scale lost by housing utility administrative functions in two separate organizations (PSEG Services and PSEG LI). PSEG stated it has not reviewed potential economies of scale, except that "on a case-by-case basis," it had evaluated certain functions and in some cases eliminated the dedicated support from PSEG Long Island and "leveraged the centralized services of PSEG Services Corporation."[113] PSEG cited Cash Management and Compensation Governance as examples, and further stated that "many [PSEG LI] administrative functions report either directly or indirectly to functional management in PSEG Services to enable some synergies between the two organizations." PSEG noted that going forward, pursuant to negotiations resulting in the 2022 Amendment to the OSA, more functions will be performed within PSEG-LI with increased separation and independence of PSEG-LI from PSEG's other businesses.

[112] Response to OC-1549-A.
[113] Response to OC-1549-B

Relationship Between PSEG Long Island and the Long Island Power Authority

The relationship between PSEG LI and LIPA during the period of our review was defined by the Amended and Restated Operations Services Agreement (A&R OSA) between the two entities, dated December 31, 2013. Key components of the 2013 A&R OSA included the following:

- The term of the agreement is 12 years beginning January 1, 2014 (i.e., until December 31, 2026). Depending on the level of performance during the first 10 years, the 12-year term of the agreement can be extended to 20 years.
- LIPA owns the T&D system.
- PSEG LI operates and maintains the T&D system, including:
    - All electric transmission, distribution and load serving activities, including day to day operations, engineering and records maintenance, preparation of capital plans and long and short-range T&D planning forecasts to determine needed capital improvements, performance of capital improvements, maintenance of the system, and all expansions and replacements to meet the requirements of the Electric Resource Plan.
    - Customer services functions relating to provision of electric service, including customer satisfaction, customer contact, marketing and sales, billing system maintenance, and managing the rates, tariffs and load forecasting functions.
    - Finance, accounting, budgeting, financial forecasting, treasury operations and certain internal audit functions.
    - "General activities," including senior management, information technology, human resources, procurement (including insurance), emergency response, continuous improvement, communications, environmental, health and safety, fleet management, government relations, customer and public relations, performance measurement and reporting, facilities and records management, regulatory and legal services,
    - Administration and management of LIPA's interest in the Nine Mile Point 2 nuclear power plant, and representation of LIPA's interests before energy markets regulatory groups, including NERC, NYISO, ISO-NE, NPCC and PJM.

PSEG is compensated for operating LIPA's utility in two ways:

- Reimbursement for the cost of operations – LIPA reimburses PSEG directly for the costs of operating the utility. Costs reimbursable under the terms of the OSA are called "pass through" expenses and consist of nearly all of the costs incurred by the LI Servco. In general, all expenses required to run the utility, including the costs of utility employee salaries and benefits and costs paid to vendors on behalf of LIPA, are reimbursed. However, PSEG's corporate-level costs, including the costs of the utility's senior management, are not reimbursed by LIPA, and are intended to be covered by the Management Fee.

- Management Fee – PSEG earns a fee for managing and operating the Long Island utility. It consists of a fixed component and an incentive component. Both components start with base amounts under the 2014 OSA which are adjusted annually for inflation. The incentive component is dependent on meeting a set of performance criteria. Due to Tropical Storm Isaias, PSEG LI did not successfully meet performance criteria in 2020, and therefore was not paid the incentive portion of its fee.[114,115] The table below summarizes management fee payments from 2014 through 2020.[116]

Table 3-28 – PSEG Long Island – Management Fees Paid Under the Operator Services Agreement

PSEG Long Island - Management Fees Paid Under the Operator Services Agreement			
Year	**Fixed**	**Incentive**	**Total**
2014	38,490,965	5,479,926	43,970,891
2015	38,610,050	5,207,570	43,817,620
2016	62,135,840	9,232,997	71,368,837
2017	63,445,769	9,516,865	72,962,634
2018	64,436,105	9,665,416	74,101,521
2019	65,457,276	9,818,591	75,275,867
2020	66,886,725	-	66,886,725
Response to OC-1401.			

Review of PSEG Services Charges to PSEG Long Island

The table below summarizes service company charges to PSEG LI by department. Charges to the LI Servco were directly reimbursed as pass through expenses under the agreement, while charges to the Management Company were not passed through to LIPA.[117] Costs incurred by the Management Company are considered to be compensated through the Management Fee discussed above.

[114] Interview of Scott Jennings, SVP Corporate Planning and Utility Finance, Martin Shames, Director Service Company Finance, and Shawn Leyden, VP and Deputy General Counsel, on November 30, 2021.

[115] Performance issues triggered by Isaias led to a LIPA lawsuit against PSEG LI, and the renegotiation of the Operator Services Agreement, which is effective as of April, 2022. PSEG LI is subject to a significantly more performance scrutiny under the new agreement. The number of performance criteria tracked under the old agreement was approximately two dozen metrics. Under the new agreement, PSEG LI must track a total of 96 performance measures. Future incentive payments will depend on meeting this new set of performance measures.

[116] The base-level fixed and incentive components of the Management Fee are established in the A&R OSA, Article 5, Section 5.1 (B)(1), which states: "The fixed component of the Management Service Fee expressed in 2011 Dollars, shall be (i) $36.3 million, annually, for each of the 2014 and 2015 Contract Years and (ii) $58 million, annually, for each Contract Year thereafter, prorated as appropriate for a partial Contract Year" and Section 5.1(C)(1), which states "An amount of (1) $5.44 million, annually, for each of the 2014 and 2015 Contract Years and (ii) $8.7 million, annually, for each Contract Year thereafter, in each case expressed in 2011 Dollars and prorated as appropriate for a partial Contract Year, shall comprise the "Incentive Compensation Pool" to be earned based on favorable performance related to the Performance Metrics." (See Response to OC-0017.)

[117] Interview of Scott Jennings, SVP Corporate Planning and Utility Finance, Martin Shames, Director Service Company Finance, and Shawn Leyden, VP and Deputy General Counsel, on November 30, 2021. Confirmed in Response to OC-1551.

Table 3-29 – PSEG Services Company Charges to PSEG Long Island By Department

PSEG Services Company Charges to PSEG Long Island By Department Calendar Years 2018-2020			
PSEG Services Department	**PSEG LI Servco (Utility Operations)**	**PSEG LI Management Co.**	**Total**
Accounting Services	395,159	5,216,497	5,611,655
Building Services	2,067,046	1,690,693	3,757,739
Claims	302,224		302,224
Compliance	247,792	1,771,082	2,018,874
Continuous Improvement	73,263	847,412	920,675
Corporate Citizenship & Culture	274,876	489,140	764,016
Corporate Communications	235,107	1,121,078	1,356,185
Corporate Development	89,566		89,566
Corporate Facilities		72,972	72,972
Corporate Planning		224,447	224,447
Corp. Properties & Survey Mapping	401		401
Corporate Secretary		1,341,021	1,341,021
Corporate Strategy		51,527	51,527
Corporate Strategy & Planning	19,787	1,758,773	1,778,560
Cost of Capital		4,560,874	4,560,874
Enterprise Risk Management	1,147,555	301,828	1,449,384
Environmental Policy	23,000	134,385	157,385
Federal Affairs & Policy		1,083,931	1,083,931
Human Resources	9,576,743	793,607	10,370,351
Information Technology	30,613,479	1,325,546	31,939,025
Internal Audit Services	346,506	1,212,052	1,558,558
Investor Relations		384,549	384,549
Law	1,507,368	2,283,080	3,790,448
Other Security	96,344	1,251,331	1,347,675
Payroll Services	690,547	5,702	696,249
Procurement	4,643,739	4,334	4,648,073
PSE&G Dedicated Finance	171,677	90,996	262,674
PSEG Executive Office		16,546,088	16,546,088
PSEG LI Dedicated Support	1,790,223	50,168	1,840,391
PSEG LI FEMA	1,449,684		1,449,684
RTO Strategy		6,672	6,672
Service Company Misc Accounting	1,212,776	(3,656,729)	(2,443,953)
State Governmental Affairs		1,029,355	1,029,355
Treasury Management Services	1,567,419	1,451,060	3,018,479
Others	89,967	72,972	162,939
Totals	**58,542,280**	**43,443,472**	**101,985,752**
Response to OC-954.			

From the perspective the NJBPU, the key concern with PSEG Services' provision of services to the Long Island utility is the potential for PSE&G to cross subsidize Long Island through the distribution of service company costs by over-allocating utility-focused services to New Jersey with a corresponding under-allocation to Long Island. To evaluate this, we considered the relative distribution of PSEG Services' costs between PSE&G and PSEG LI in comparison to measures of each utility's size during the audit period. We attempted to select comparable measures of operational and financial size for comparison.[118] We compared this with relative cost distributions from PSEG Services for the three-year review period. These comparisons are summarized in the table below.

Table 3-30 – PSE&G and PSEG Long Island Relative Utility Size Compared with Service Co. Cost

PSE&G and PSEG Long Island
Relative Utility Size Compared with Service Co. Cost Distributions

Measures of Relative Size	Amounts		LI Pct. Of
	PSE&G	PSEG LI	PSE&G
Operating Size			
Unique Customers	2,617,668	1,100,000	42.0%
2020 Avg Employees	7,090	2,511	35.4%
Financial Size (Dollars In Millions)			
Total Assets 12/31/20	35,581	15,476	43.5%
Gross PP&E 12/31/20	36,300	13,302	36.6%
Net PP&E 12/31/20	29,151	10,314	35.4%
Operating Revenue 2020	6,608	3,901	59.0%
Op. & Maint. Exp 2020	1,614	674	41.8%
Service Company Cost Distributions (Dollars In Thousands)			
2018	336,967	29,061	8.6%
2019	307,806	33,882	11.0%
2020	326,937	39,043	11.9%
Review Period Total	971,710	101,986	10.5%

Sources: 2021 PSEG Form 10K, LIPA 2020 Year End Financial Statements, Response to OC-940 (Headcount Analysis), Response to OC-954 (Service Co. Cost Distributions), Response to OC-1215 (PSE&G's Total Unique Customers (Gas Only + Electric Only + Gas & Elecric Both)

The table shows that by comparable operational and financial measures PSEG LI is around 40 percent the size of PSE&G.[119] However, of the $1.1 billion in services provided by PSEG Services to the combined utilities during the review period, less than one-tenth were provided to Long Island. The costs distributed to PSEG LI appear to be less than a third of what the relative sizes of the two utilities would

[118] For example, we compared PSEG LI's electric customers with PSE&G's total unique customers, as opposed to the sum of PSE&G's total electric and gas customers, which would have counted approximately 1.45 million combined electric and gas customers twice. We avoided operational measures such as electric circuit miles and gas main miles because they are not comparable between the utilities. We avoided distilled, sometimes volatile measures of financial size such as net income.
[119] Attachment 1 provides a PSEG Services department-level view of the cost distributions summarized in the table.

suggest is reasonable, assuming they shared the same utility-focused services. This became the focus of our analysis.

Analysis of Centralized Services Used by PSEG LI

To evaluate the reasonableness of PSEG Services' relative cost distributions to PSEG LI and PSE&G, we considered two primary issues:

- Whether PSEG LI benefited from, but was not properly charged for, utility-focused services provided by PSEG Services. Since PSEG Services distributed the costs of shared utility services to PSE&G as well as PSEG LI, under-charging PSEG LI suggests a possibility of over-charging PSE&G.
- Whether non-attributable corporate enterprise costs were properly allocated among all PSEG Corp. subsidiaries, including PSEG LI. The allocation of corporate enterprise costs between PSEG LI and other subsidiaries is covered in a separate section above. As discussed above in the section on enterprise cost allocations, Overland believes the Enterprise Corporate allocator, as it was calculated during the review period, undercharged PSEG LI and correspondingly overcharged PSEG's other subsidiaries.

The table above shows the percentage of service company costs distributed to PSEG LI appears disproportionately low when compared with PSE&G. Our service-level analysis of PSEG Services showed this is due to a substantial number of services that PSEG Services either does not provide to PSEG LI or provides in insignificant amounts.

To determine whether PSEG LI directly benefited from centralized services provided by PSEG Services but not properly charged to Long Island, we selected a sample of 25 centralized services provided to PSE&G which were not provided in any significant quantity to PSEG LI. We asked PSEG to identify the organization that provided the equivalent services to PSEG LI. The following table shows the selected services provided to PSE&G by the service company and, in all but one case, the PSEG LI department that the Company indicated provided the equivalent service to PSEG LI.

Table 3-31 – PSEG Services – Selected Centralized Utility Services – Costs Distributed to PSE&G vs. PSEG Long Island

PSEG Services - Selected Centralized Utility Services - Costs Distributed to PSE&G vs. PSEG Long Island								
ID	Service Title	2018-2020 Amount	Percentage Charged to			Service Provided to PSEG LI By:		
			PSE&G	PSEG LI	Others	Company	Cost Ctrs	Department
2130	Process Improvement	1,875,342	90%	2%	8%	PSEG Services	2130	Process Improvement
1953	Strategic Communications Planning	6,645,858	62%	3%	35%	PSEG LI Servco	5032	Communications
1955	Company Newsletters	1,267,151	69%	1%	30%	PSEG LI Servco	5032	Communications
1344	Corporate Properties Mgt.	9,844,403	99%	0%	1%	PSEG LI Servco	5562, 5592 & 5594	Facilities, Legal & Claims
2034	Environmental Policy	1,459,807	59%	3%	37%	PSEG LI Servco	5172	Environmental Staff
1638	Electric Distribution IT Apps.	18,061,869	100%	0%	0%	PSEG LI Servco	5536 & 5538	Corp. Data Ctr & IT Support
1226	Mobile Data Terminal Support	6,529,627	100%	0%	0%	PSEG LI Servco	5532	IT Operations
1999	NERC/CIP Regulatory Compliance	1,621,033	100%	0%	0%	PSEG LI Servco	5178	NERC/CIP Staff
1182	Basic Telecommunications	22,789,221	94%	0%	6%	PSEG LI Servco	5532	IT Operations
1213	Wireless communications	7,225,811	94%	0%	6%	PSEG LI Servco	5532	IT Operations
1545	Mobile Data Terminal Install	19,266,510	80%	0%	12%	PSEG LI Servco	5532	IT Operations
1939	Customer Ops. IT Apps.	4,472,296	100%	0%	0%	PSEG LI Servco	5532, 5534 & 5538	IT Ops, Application Svcs, IT Supt.
1940	Electric Delivery IT Apps.	1,594,546	100%	0%	0%	PSEG LI Servco	5532, 5534 & 5538	IT Ops, Application Svcs, IT Supt.
2039	Internal Audit Int. Cont. & Risk Mgt.	9,685,217	49%	3%	48%	PSEG LI Servco	5052	Internal Audit
1251	Legal Advisory Svcs - Compliance	3,785,240	24%	0%	76%	PSEG LI Servco	5172, 5592 & 5594	Environmental, Legal & Claims
2117	Paralegal Services	2,531,556	85%	0%	15%	PSEG LI Servco	5592 & 5594	Legal
1260 & 1268	Legal - State Regulatory	16,267,993	80%	3%	17%	PSEG LI Servco	5580	Legal
1985	Security Planning & Ops. Supt.	7,472,103	89%	1%	10%	PSEG LI Servco	5580	Corporate Security
1907	Claims Recovery	4,330,796	99%	1%	0%	PSEG LI Servco	5580	Corporate Security
1853	Security Guard Svcs	5,724,478	79%	0%	21%	PSEG LI Servco	5580	Corporate Security
1876	Security Command Svcs	8,697,026	88%	0%	12%	PSEG LI Servco	5580	Corporate Security
2016	Procurement - Capital-related	11,585,463	81%	0%	19%	PSEG LI Servco	5552	Procurement
2012	Tariff Administration	7,581,532	99%	0%	1%	PSEG LI Servco	5518	Rates & Load Forecasting
1980 & 1983	State Govt Affairs Advocacy	16,803,336	96%	0%	4%	PSEG LI Servco	5042	"State Govt Affairs Staff"
Responses to OC-0954, OC-0955, OC-1095.								

We analyzed the departments indicated in the Company's data response to determine whether staffing was sufficient to account for the services needed by a utility with over a million customers. We also analyzed the reporting relationships to determine whether the activities were managed by PSEG LI and whether and how they were overseen by managers and executives in PSEG Services.

The data from our analysis is shown in Attachment 2-3. It shows that PSEG LI's departments appear to have sufficient staffing to provide services equivalent to those provided by PSEG Services to PSE&G. We also found the departments are, in nearly every case, headed by a manager who is also an employee of PSEG LI. For about half the departments the manager reports to an employee within the PSEG LI organization (usually in the Management Co.). In about half the cases, the PSEG LI department is overseen by a manager or executive in PSEG Services. Based on this, it does not appear likely that the services are provided by PSEG Services to PSEG LI, or that PSEG LI directly benefits from centralized services they are not receiving. In other words, even though PSEG LI is charged for a disproportionately

small share of centralized services costs, it does not appear PSEG Services is facilitating cross-subsidies by over-charging PSE&G and under-charging PSEG LI.

Information Technology Cybersecurity Costs

Our analysis of service company service-level costs (discussed in a section above) showed that service 1189 – IT Cybersecurity was not charged to PSEG LI prior to 2020. In 2020, 21% of the total cost was distributed to Long Island. Cost distributions for this service during the review period were as follows:

Table 3-32 – PSEG Services Cost Distributions for Service 1189 – IT Cybersecurity

PSEG Services Cost Distributions for Service 1189 - IT Cybersecurity				
Year	PSE&G	Power	PSEG LI	Total
2018	1,663,932	1,198,128	-	2,862,060
2019	1,575,600	1,135,764	-	2,711,364
2020	2,874,240	1,034,410	941,189	4,849,839
Response to OC-0954.				

PSEG stated it performed a billing review in 2020, during which it was discovered that PSEG LI was benefiting from but not being billed for the service. This was corrected in 2020, and the allocation basis was changed from New Jersey phone extensions to Plan headcount.[120] PSEG Services stated that the 2020 overall cost increase was due to several "key initiatives," including "NIST Cyber Security Framework assessment across the company, improvement of threat intelligence, additional incident response capability and better data protection end point."[121]

PSEG LI's Indirect Benefits from PSEG Services

PSEG provided information showing that all but one of the 25 sampled administrative services (Process Improvement) was provided by a PSEG LI department headed by a PSEG LI employee.[122] In some cases the PSEG LI department managers reported to managers in PSEG Services; in other cases, they reported to another employee within PSEG LI. Ultimately, however, all PSEG LI administrative departments report to managers and executives within PSEG Services. Although the services provided to Long Island are segregated, PSEG LI benefits indirectly by having the oversight of PSEG Services. PSEG LI compensates PSEG for this through its allocated share of corporate enterprise costs.

[120] Response to OC-0953.

[121] Response to OC-1552.

[122] Although not stated in the Responses to OC-0995 or 1025, it appears that process improvement services are provided to PSEG LI by six employees in the PSEG LI's Performance Excellence department.

Transactions Between PSE&G and PSEG Long Island

The direct transactional relationship between PSE&G and PSEG Long Island is small. During the three-year review period, affiliate charges by PSE&G to PSEG LI totaled approximately $3.8 million and charges by PSEG LI to PSE&G totaled approximately $292,000.[123] Charges by PSE&G to PSEG LI included "asset management support" and "FEMA Project Support."[124] The small amounts billed by PSEG LI to PSE&G included "renewable program support" and "vendor refunds."

Allocation of Transmission and Distribution Costs on Shared Site Projects

Shared site projects are construction projects involving costs capitalized to both transmission and distribution categories. Transmission and Electric Distribution are separate UbUs, each with their own financial statements. As such, PSE&G's transmission and distribution assets are separately accounted for on their own balance sheets.

Prior to any costs being capitalized on PSE&G's books, a Capital Accounting Determination (CAD) is issued by PSE&G Accounting to direct the assignment of costs to the balance sheet or O&M. Capital costs are collected on WBS elements (capital cost orders). The direct costs of transmission and distribution assets on a shared site project each have their own WBS elements.[125] PSE&G Project Cost Engineers are responsible for reviewing the flow of shared site project costs to the correct WBS element.[126] Generally, the dividing line between distribution and transmission assets is 69kV. Construction work on lines carrying less than 69kV will be capitalized as a distribution asset; construction work on a line carrying 69kV or more will be charged to the transmission balance sheet.[127, 128] More specifically, PSE&G distinguishes transmission and distribution assets under FERC's seven-factor test.[129] The seven factors distinguishing distribution assets from transmission assets are:

- Distribution facilities are usually located in proximity to retail customers.
- Distribution facilities are radial.
- Power flows into distribution systems, and rarely flows out.
- When power enters a distribution system, it is not transported on to some other market.
- Distribution system power is consumed in a relatively restricted geographic area.
- Meters are based at the interface between transmission and local distribution facilities to measure flow into the distribution system.
- Distribution systems are of reduced voltage.

[123] Response to OC-0014, Charges from PSE&G to Affiliates 2018-2020 and Charges to PSE&G by Affiliates.
[124] Supplemental Response to OC-0014.
[125] Response to OC-1209-A.
[126] Response to OC-1209-C.
[127] A small number of "legacy" 69kV circuits, constructed decades ago, are still considered to be distribution assets. See Response to OC-1207-A.
[128] Interview of Esam Khadr, Senior Director PSE&G Electric Delivery Planning, on September 16, 2021.
[129] FERC Order 888.

Indirect and overhead costs attributable to construction are allocated through the surcharge process. Surcharging is a process for distributing the cost of managerial, operational and administrative support labor, and various overheads such as fleet costs, payroll taxes and "IT toolkit" costs. Thus, each unit of direct labor assigned to a construction order (WBS element) receives a distribution of fringe benefits and payroll taxes, and a distribution of the cost of support labor (management, administration and operational support.[130] Overall, based on the procedures as documented by PSE&G, the process for dividing costs on shared site projects appears reasonable.

[130] Response to OC-1113 contains a Surcharge Process document and a document titled "Electric Costing / Surcharging Updates for 2020" which describe this more fully. Prior to 2020, PSE&G used 38 separate electric T&D cost pools to surcharge various costs and allocate overheads. Beginning in 2020, this was simplified to three "statewide / functional" cost pools (administrative and general support, bargaining unit workforce support, and fleet maintenance costs).

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Attachment 3-1

PSEG Services Corp. Staff Organization					
Executive Organization / Department	**Cost Ctrs**	**Number of Employees**			
		EoY 2018	**EoY 2019**	**EoY 2020**	**6/30/2021**
Financial Services					
Accounting Services	7	94	88	83	80
Finance (Energy Hldgs, Power & PSE&G)	4	119	106	106	102
Enterprise Risk Management	1	22	23	22	21
Internal Auditing	1	30	30	27	26
Treasury Services	4	18	17	17	18
Executive Office, Corp. Dev. & Others	5	15	14	10	9
Total Finance, Strategy, Corporate Dev.	22	298	278	265	256
Human Resources					
Executive Office & Human Resources	1	103	94	100	96
Payroll Services and Accounts Payable	2				12
Total Human Resources	3	103	94	100	108
General Counsel					
Claims	1	30	29	30	30
Compliance & Environmental Compliance	2	21	27	30	28
Corporate Security / Business Assurance	1	26	24		
Law & Legal Services	6	55	48	44	42
Nuclear Security	1	273	267		
Regional Transmission Org	1	-	-	13	12
Exec. Office, Corp. Secretary, Bus. Assurance	3	13	9	9	9
Total Law, Compliance, Security & Claims	15	418	404	126	121
SC Operations and Information Technology					
Communications & Advertising	1	26	25	22	22
Corporate Security	1	-	-	26	26
Engineering & Operations Support	1	-	-	75	69
HQ Svcs, Mail, Process Improvements	4	24	25	20	16
IT & Applications Support	18	193	263	279	286
Nuclear Security	1			260	270
Payroll and Accounts Payable	1	10	12	12	
Procurement	1	85	81	77	75
Real Estate, Corp. Property & Land Records	6	59	58	54	54
Treasury Operations	1	11	11	10	10
Exec. Office, SCM Infra, Survey & Mapping	3	13	15	15	14
Total Service Company Operations	38	421	490	850	842
State Government Affairs					
Executive Office	1	2	2	2	2
Corporate Social Responsibility	1	7	7	7	7
Federal Affairs & Policy	1	8	8	10	11
State Govt Affairs	1	31	31	28	26
Total State Govt. Affairs	4	48	48	47	46
Other					
Exec.Offices (Servco, Power, Unspecified)	3	2	5	4	4
Offshore Wind Development				1	26
Long Island Cust.Ops. & Initiatives	3	6	6	4	4
Other	2		2		
Total Other	8	8	13	9	34
PSEG Services Corp. Totals	**90**	**1,296**	**1,327**	**1,397**	**1,407**
Response to OC-940.					

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Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Accounting Services	AC-P-Corp. Acctg. / Tax	1951	9,359,678	10%	43%	7%	39%	Prof Hourly	Federal and state tax filings, tax planning, associated reports and accounting performed for PSEG subsidiaries.
	AC-P-Dedicated Power Support	1011	14,159,199	0%	100%	0%	0%	Prof Hourly	Service dedicated to maintaining the books (above the margin line) of PSEG Power and includes (but not limited to) power revenue accounting, fuel accounting, derivative accounting, fixed asset accounting, and co-owner accounting.
	AC-P-Dedicated Utility Support	1012	9,069,840	0%	0%	0%	100%	Prof Hourly	Service dedicated to maintaining the books (above the margin line) of PSE&G and includes (but not limited to) Utility Revenue Accounting, Fixed Asset Accounting, and FERC Reporting.
	AC-P-E-Corp. Acctg. / Tax	1949	26,787,849	0%	28%	15%	57%	Enterprise	Federal and state tax filings, tax planning, associated reports and accounting performed for PSEG.
	AC-P-E-PT-Corp. Acctg. / Tax	1948	5,209,254	0%	27%	16%	57%	Enterprise	D&T audit and consulting fees, external fees for tax & legal consultants, external reporting printing fees (e.g., 10K), and contractors for PSEG. Also includes services related to SOX compliance testing.
	AC-P-PT-Corp. Acctg. / Tax	1950	17,685,887	1%	54%	0%	45%	Pass-Thru	D&T audit and consulting fees, external fees for tax & legal consultants, external reporting printing fees (e.g., 10K), and contractors for PSEG subsidiaries. Also includes services related to SOX compliance testing.
	AC-P-PT-Dedicated Utility Support	1006	621,009	0%	0%	0%	100%	Pass-Thru	Contractors dedicated to PSE&G accounting.
Accounting Services Total			**82,892,717**	**1%**	**44%**	**7%**	**48%**		
Building Services	BL-T-Building Services	1930	43,400,522	0%	14%	0%	86%	Transaction - Based on building space	Internal rent for building costs including HQ labor and tenant services, building operating costs, real estate taxes, utilities, common and vacant space.
	HQ-P-C-Corp Hdqtrs Svcs	2048	40,309	0%	0%	0%	100%		
	HQ-T-E-PT-Postage	2106	86,467	0%	28%	15%	57%	Enterprise	Postage for Enterprise mailings.
	HQ-T-Intercompany Mail Routes	2107	1,588,764	0%	10%	0%	90%	Transaction - Based on planned mail route costs	Mail Services include pickup and delivery to the Post Office, sorting and delivery of inter-company, US mail, and packages to NJ field locations
	HQ-T-Mail Services	1934	855,402	0%	22%	0%	78%	Transaction - Based on planned mail service costs	Mail Services include pickup and delivery to the Post Office, sorting and delivery of inter-company, US mail, and packages to General Office
	HQ-T-Park Plaza	1925	100,844	0%	25%	0%	75%	Transaction - Not Used for FY 2019. Park Plaza Sold.	Internal rent for Park Plaza costs including operating costs, real estate taxes, utilities. (Not Used - Park Sold)
	HQ-T-PT-Postage	2105	43,976	0%	3%	0%	97%	Pass-Thru	This service includes processing of metered and pre-sort mail, business reply mail and permit mail.
	HQ-T-SC Overhead	2136	50,613,174	5%	28%	7%	60%	Residual Allocation	Service Company departmental space
	HQ-T-Vehicle Parking	2108	1,949,835	0%	12%	1%	88%	Transaction - Per permit issued and parking space available	Manage permit parking in the 40 Mulberry Street garage for assigned company vehicle, department vehicle or personal vehicle required for company business. VP authorization is required.
Building Services Total			**98,679,293**	**3%**	**21%**	**4%**	**72%**		
Claims	CL-P-Claims Prof Svcs	2145	7,728,709	0%	0%	4%	96%	Prof Hourly	Seeks recovery for losses resulting from third party transgressions and for damages to the Company's infrastructure due to criminal acts and negligence
Claims Total			**7,728,709**	**0%**	**0%**	**4%**	**96%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Compliance	CC-P-Compliance	1279	1,972,819	1%	15%	11%	73%	Prof Hourly	Day to day responsibility for implementation of Business Conduct Compliance Program. Assure compliance with state & federal affiliate rules. Provision of Ethics advice and oversight of the compliance program.
	CC-P-E-Compliance	2109	6,063,055	0%	29%	15%	56%	Enterprise	Day to day responsibility for implementation of Business Conduct Compliance Program. Assure compliance with state & federal affiliate rules. Provision of Ethics advice and oversight of the compliance program.
	CC-P-E-PT-Compliance	2110	707,865	0%	28%	15%	56%	Enterprise	External legal counsel for implementation of Business Conduct Compliance Program. Assure compliance with state & federal affiliate rules. Provision of Ethics advice, oversee compliance investigations & certification of compliance program.
	CC-P-PT-Compliance	1900	832,731	0%	0%	51%	49%	Pass-Thru	External legal counsel for implementation of Business Conduct Compliance Program. Assure compliance with state & federal affiliate rules. Provision of Ethics advice, oversee compliance investigations & certification of compliance program.
	CC-T-E-Compl Records Mgmt	2151	1,817,423	0%	26%	16%	58%	Enterprise	Records Management Group supports the businesses of PSEG by providing: • Companywide policy and practices for the management of company records • Guidelines and instructions for the retention and storage of records • Guidelines and form for the destruction of expired records • Services for offsite storage and retrieval of record
	NC-P-NERC CIP	2007	4,609,624	0%	33%	1%	66%	Prof Hourly	Provides NERC policy oversight support impacting PSEG.
Compliance Total			**16,003,517**	**0%**	**27%**	**13%**	**61%**		
Continuous Improvement	PI-P-C-Continuous Improvement	2152	284,106	0%	0%	0%	100%	Prof Hourly	Project support and guidance for process improvement and streamlining - Capital
	PI-P-Continuous Improvement	2130	1,875,342	5%	3%	2%	90%	Prof Hourly	Project support and guidance for process improvement and streamlining
	PI-P-E-Process Improvement	2099	5,013,189	0%	27%	16%	57%	Enterprise	Enterprise process improvements efforts
	PI-P-E-PT-Process Improvement	2104	324,466	0%	26%	16%	58%	Enterprise	External resources related to enterprise process improvements efforts
	PI-P-PT-Continuous Improvement	2131	68,910	46%	0%	54%	0%	Pass-Thru	Used for contractor costs in Continuous Improvement to support operating companies
Continuous Improvement Total			**7,566,013**	**2%**	**20%**	**12%**	**67%**		
Corporate Citizenship & Culture	SG-P-Corp Responsibility	1977	484,388	0%	48%	0%	52%	Prof Hourly	Supports operating companies by implementing programming to support volunteerism and philanthropy with all lines of business.
	SG-P-E-Corp Responsibility	1998	2,892,312	0%	27%	16%	57%	Enterprise	Administers the support of community events and sponsorships that advance the PSEG brand.
	SG-P-E-PT-Corp Responsibility	1997	215,979	0%	27%	16%	57%	Enterprise	Outside Services - Management Consultants retained to administer support of community events, sponsorships and activities
	SG-T-Outreach & Diversity	2091	1,366,061	0%	19%	20%	61%	Transaction - Billed to each individual LOB based on headcount	Corporate Outreach & Diversity initiatives including strategies, college recruiting, Power Up, and affinity groups aimed at attracting a diverse pool of potential talent to PSEG.
Corporate Citizenship & Culture Total			**4,958,741**	**0%**	**27%**	**15%**	**58%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Corporate Communications	CF-P-C-Communications	2004	713,183	0%	0%	0%	100%		
	CF-P-Communications	1953	6,645,858	0%	35%	3%	62%	Prof Hourly	Internal Communications to develop, manage and implement strategic communications plans to support OC/LOB objectives and ensure alignment with overall corporate messages. Speechwriting, development of computer-based presentations/programs.
	CF-P-E-Communications	1952	5,520,484	0%	27%	16%	57%	Enterprise	Internal communications to develop, manage and implement strategic communications plans to support PSEG objectives.
	CF-P-E-PT-Communications	1956	1,619,916	0%	27%	16%	58%	Enterprise	External resources required for external communications for PSEG which includes press relations, speechwriting, external event coordination and Executive support.
	CF-P-PT-C-Communications	2051	8,607	0%	0%	0%	100%	Pass-Thru	External resources required for external communications to support Operating Companies/Lines of Business goals. Services include press relations, speechwriting, external event coordination and executive support.- Capital Projects
	CF-P-PT-Communications	1954	350,295	0%	20%	12%	68%	Pass-Thru	Outside Services to manage and implement strategic internal communications plans of OC/LOB objectives to ensure alignment with overall corporate messages (e.g. Speechwriting, computer presentations, scriptwriting & videos).
	CF-P-PT-External Communications	1052	1,175,227	0%	100%	0%	0%	Pass-Thru	External resources required for external communications to support Operating Companies/Lines of Business goals. Services include press relations, speechwriting, external event coordination and executive support.
	CF-T-Baseline Communications	1955	1,267,151	1%	29%	1%	69%	Transaction - Billed to each individual LOB based on headcount	Compilation and distribution of PSEG Outlook magazine (hard copy), electronic Outlook, Outlook This Morning and LOB specific newsletters.
Corporate Communications Total			**17,300,720**	**0%**	**34%**	**8%**	**58%**		
Corporate Development	CD-P-C-Construction Estimating	2088	1,190,694	0%	0%	0%	100%		
	CD-P-Construction Estimating	2089	1,834,410	0%	95%	5%	0%	Prof Hourly	Provides the OC's (primarily, but not limited to, Power) with analytical support, planning, developing, reviewing, & obtaining Capital Review Committee (CRC) approval for large construction projects.
	CD-P-Corp Dev	1803	1,431,173	82%	18%	0%	0%	Prof Hourly	Supports Corporate Development initiatives of the development, pursuit, and execution of disciplined growth opportunities for a specific Operating Company.
	CD-P-PT-Corp Dev	1804	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Pass-Thru	Outside services for specific deliverables, such as legal fees. Costs are incurred externally for the direct benefit of a specific initiative or client.
	CD-P-Valuation	2090	3,258,000	21%	39%	0%	40%	Prof Hourly	Corporate development initiatives and execution of disciplined growth opportunities for a specific Operating Company.
Corporate Development Total			**7,714,278**	**24%**	**42%**	**1%**	**32%**		
Corporate Facilities	FC-P--C-Corp Fac Capital	2133	1,172,903	1%	0%	0%	99%	Prof Hourly	Facility Related Capital Projects
	FC-P-Corp Fac Admin	2120	3,398,658	0%	0%	0%	100%		
	FC-P-Corp Fac Mech	2135	7,031,470	0%	0%	0%	100%	Prof Hourly	General corrective and preventative building facilities maintenance i.e. carpentry, plumbing, electrical etc.
	FC-P-Corp Fac NucTec	2126	4,026,189	0%	100%	0%	0%	Prof Hourly	Nuclear corrective and preventative building facilities maintenance i.e. HVAC, carpentry, plumbing, electrical etc.
	FC-P-Corp Fac Tech	2125	5,188,579	0%	7%	0%	93%	Prof Hourly	HVAC corrective and preventative building facilities maintenance
	FC-P-PT-Corporate Facilities	2123	50,162,330	0%	8%	0%	92%	Pass-Thru	Facilities maintenance costs including, building operating costs, utilities and one time projects
	FC-T-Corporate Facilities	2127	2,564,393	0%	12%	3%	85%	Prof Hourly	MAST overhead for building facilities maintenance
Corporate Facilities Total			**73,544,523**	**0%**	**12%**	**0%**	**88%**		
Corporate Planning	CO-T-E-Enterprise Planning	1921	1,726,500	0%	30%	13%	57%	Enterprise	SC Bus model/enhancements; strategic initiatives; guidance & assumptions for 1&5 yr plans; OC,SC,EOG & BOD presentations; report & analysis of fcst & results; maintain scorecards, reporting & analysis tools; SAP master data maintenance & cost flows.
Corporate Planning Total			**1,726,500**	**0%**	**30%**	**13%**	**57%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Corporate Properties & Survey Mapping	PR-P-C-Corp Properties Prof Svcs	1344	9,844,403	0%	1%	0%	99%	Prof Hourly	Capital projects: property negotiations including acquisitions and sales to others, conveyancing, maintain lease/license relationship between Company and users of leased property, railroad agreements, property investigation and management.
	PR-P-Corp Properties Prof Svcs	1346	2,878,902	11%	11%	0%	78%	Pass-Thru	'External fees and services to obtain appraisals, title searches and survey work including aerial photogrammetric survey, presentation maps, etc. for other LOB's (Not Currently in Use FY 2021)
	PR-P-PT-Corp Properties Prof Svcs	1345	116,525	2%	6%	0%	92%	Pass-Thru	External fees and services to obtain appraisals, title searches and survey work including aerial photogrammetric survey, presentation maps, etc. (Not Currently in Use FY 2021)
	PR-T-Treasury Operations	2082	8,844,926	0%	3%	0%	97%	Transaction - Based upon the planned demand hours	Professional Time related to the administration of Leases, Taxes, and Contracts on behalf of the Utility and Power Operating Companies
Corporate Properties & Survey Mapping Total			**21,684,756**	**2%**	**3%**	**0%**	**95%**		
Corporate Secretary	CS-P-Legal-C&Fin T	1992	247,428	41%	41%	0%	18%	Prof Hourly	Internal legal advice regarding Issuance and sale of equity & debt securities / redemptions, commercial lending transactions, Corp Governance, Risk Mgmt., financial transactions - derivatives and capital market transactions.
	CS-P-PT-Legal C&F	1995	18,734	0%	0%	0%	100%	Pass-Thru	External legal advice regarding Issuance and sale of equity & debt securities / redemptions, commercial lending transactions, Corp Governance, Risk Mgmt., financial transactions - derivatives and capital market transactions.
	CS-T-E-Corp Secretary Svcs	1097	8,899,087	0%	27%	15%	58%	Enterprise	Internal Resources Utilized to: ·Support Bd of Dir. of PSEG and subs ·Prepare agenda and coordinate Board meetings ·Compile and disseminate information to facilitate informed business decisions ·Produce governance documents and conduct research
	CS-T-E-PT-Corp Secretary	1098	32,994	0%	26%	15%	59%	Enterprise	External expenses (e.g. development & distribution of promotional material) associated with the annual stockholders meeting.
Corporate Secretary Total			**9,198,243**	**1%**	**27%**	**15%**	**57%**		
Corporate Strategy	CO-P-E-Corp. Strategy	1958	194,939	0%	29%	15%	56%	Enterprise	At the request of senior management, prepare special studies on long range or strategic issues. Procure external data and analyses as needed to support the development of strategic plans.
	CO-T-E-PT-Corp. Strategy	1096	148,571	0%	29%	15%	56%	Enterprise	External expenses related to special studies on long range or strategic issues. Procure external data and analyses as needed to support the development of strategic plans.
Corporate Strategy Total			**343,510**	**0%**	**29%**	**15%**	**56%**		
Corporate Strategy & Planning	CO-P-E-Corp. Strategy	1958	5,610	0%	29%	15%	56%	Enterprise	
	CO-P-E-SC Finance	1957	10,946,154	0%	27%	16%	57%	Enterprise	SC Bus model/enhancements; strategic initiatives; guidance & assumptions for 1&5 yr plans;OC,SC,EOG & BOD presentations; report & analysis of fcst & results; maintain scorecards, reporting & analysis tools; SAP master data maintenance & cost flows.
	CO-P-SERVCO Support	2085	19,787	0%	0%	100%	0%		
	CO-T-E-Enterprise Planning	1921	135,270	0%	30%	13%	57%		
	CO-T-E-PT-Corp. Strategy	1096	109,068	0%	27%	16%	57%	Enterprise	External expenses related to special studies on long range or strategic issues. Procure external data and analyses as needed to support the development of strategic plans.
Corporate Strategy & Planning Total			**11,215,889**	**0%**	**27%**	**16%**	**57%**		
Cost of Capital	WC-T-Working Capital Interest	2075	65,152,739	0%	35%	7%	57%	Transactional - Residual (Overall SC Allocation percentages)	Working capital interest expense
Cost of Capital Total			**65,152,739**	**0%**	**35%**	**7%**	**57%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Enterprise Risk Management	FR-P-Compliance (Confirmations and Pricing)	1911	2,658,968	0%	100%	0%	0%	Prof Hourly	Confirmations and Pricing deliverables for ER&T; confirm transactions and entries, update independent price data and monitor trading compliance. Credit reviews for counterparties.
	FR-P-Credit	1913	5,092,294	0%	76%	6%	17%	Prof Hourly	Credit reviews for counterparties.
	FR-P-E-Enterprise Risk Mgmt	1863	1,911,096	0%	27%	16%	58%	Enterprise	IRO activities specific to the Enterprise, such as Risk Management Committee Meetings, SEC filings and Board Meeting presentation materials.
	FR-P-Independent Risk Oversight	1809	6,413,898	1%	86%	13%	0%	Prof Hourly	Identifying, measuring, aggregating, and monitoring the company's risk exposure and compliance with its risk management policies and procedures to a specific Operating Company.
	FR-P-PT-Compliance (Confirmations and Pricing)	1912	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Pass-Thru	Outside services for specific deliverables; such as consulting to automate pricing or confirmations and reports for compliance. Costs are incurred externally for the direct benefit of ER&T.
	FR-P-PT-Credit	1914	19,664	0%	100%	0%	0%	Pass-Thru	External expenses related to credit reviews for counterparties.
	FR-P-PT-Independent Risk Oversight-Power	1847	(70,000)	0%	100%	0%	0%	Pass-Thru	External resources assisting with identifying, measuring, aggregating, and monitoring Power's risk exposure and compliance with its risk management policies and procedures to a specific Operating Company.
Enterprise Risk Management Total			**16,025,919**	**1%**	**78%**	**9%**	**12%**		
Environmental Policy	EC-P-E-Env Policy Enterprise	2033	739,631	0%	28%	15%	57%	Enterprise	Provides advice on complying with environmental laws/regulations and corporate environmental policies. This services provides timely information on how changing regulations may affect the business and assists in resolving issues.
	EC-P-Environmental Policy	2034	1,459,807	3%	37%	0%	59%	Prof Hourly	Creates policies and provides timely information on how changing environmental laws/regulations may affect the business. This service also provides an understanding on how regulations can create a business advantage.
	EC-P-E-PT-Env Audit and Policy Enterprise	2038	150,376	0%	27%	16%	57%	Enterprise	External expenses related to advice on complying with environmental laws/regulations and corporate environmental policies. This services provides timely information on how changing regulations may affect the business and assists in resolving issues.
	EC-P-PT-Environmental Policy	2037	620,030	0%	18%	4%	79%	Pass-Thru	External expenses primarily for business supplies, professional fees and contractor costs associated with supporting Corporate Environmental Strategy.
Environmental Policy Total			**2,969,844**	**2%**	**30%**	**5%**	**63%**		
Federal Affairs & Policy	PB-P-E-PT-Public Affairs	2078	66,032	0%	27%	16%	57%	Enterprise	Outside services, travel & memberships incurred by the department to support issues concerning the overall benefit of PSEG.
	PB-P-E-Public Affairs	2077	6,848,245	0%	28%	16%	56%	Enterprise	Provides policy and public affairs support on key issues impacting the overall direction of PSEG. Represents PSEG before Congress, state legislatures, and the Executive agencies of the Federal and State governments.
	PB-P-Public Affairs	2080	1,117,938	5%	69%	0%	27%		
Federal Affairs & Policy Total			**8,032,215**	**1%**	**34%**	**13%**	**52%**		
Financial Services Contingency / Stretch	FS-T-Financial Srvs Contingency / Stretch	4989	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Transactional	Budget Stretch
Financial Services Contingency / Stretch Total			**-**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**		
General Counsel Contingency/Stretch	LS-T-Legal & Security Contingency/Stretch	4990	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Transactional	Budget Stretch
General Counsel Contingency/Stretch Total			**-**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Human Resources	HR-P-Benefits & Compensation Consulting	1905	972	100%	0%	0%	0%		
	HR-P-E-HR Enterprise	1967	3,622,846	0%	27%	16%	57%	Enterprise	Health & safety and employee relations
	HR-P-Employee Relations	1616	2,076,651	0%	20%	14%	66%	Prof Hourly	Provides an employee advocate to allow employees to raise issues or concerns about their treatment in the workplace, for employee investigations.
	HR-P-E-PT-HR Enterprise	1968	618,911	0%	27%	16%	57%	Enterprise	External expenses related to Health & safety and employee relations
	HR-P-Health & Safety	2148	61,382	0%	22%	16%	62%	Prof Hourly	Create a corporate safety culture and provide subject matter expertise in OSHA compliance and industrial hygiene.
	HR-P-HR Prof On-Demand Services	1969	2,028,961	1%	39%	44%	16%	Prof Hourly	Performance and Development: LOB specific mgmt. of succession planning, leadership dev programs, career pathing Benefits & Compensation Consulting: LOB specific benefit support. Medical Services Consulting: LOB specific medical support.
	HR-P-Labor Mgmt Relations	1172	5,175,314	0%	24%	2%	75%	Prof Hourly	Provides both negotiation support and administration of the collective bargaining agreements for labor unions, and business specific training.
	HR-P-Manager Support Services	1901	9,249,342	0%	56%	2%	43%	Prof Hourly	Provides support to LOB managers for HR policies, procedures & programs.
	HR-P-Performance & Development	1615	3,037	100%	0%	0%	0%		
	HR-P-PT-HR Prof On-Demand Services	1970	2,553,656	0%	34%	12%	54%	Pass-Thru	Outside services costs to support Operating Companies services. Used if there is a specific request by the Operating Companies.
	HR-P-PT-Medical Exam	2153	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Pass-Thru	Contractor Costs for Operating Company for Medical Exams for OpCos
	HR-P-Sourcing & Recruitment Support	1170	1,789,167	1%	51%	0%	47%	Prof Hourly	Provides Internal & external recruitment and selection support.
	HR-T-C-Capital	2058	815,411	0%	0%	0%	100%	Transaction - Actual expense billed 100% to PSE&G	Human Resources Activities and contractor costs related to Capital projects or pandemic related
	HR-T-HR Baseline NJ	2115	2,366,636	0%	24%	0%	76%	Transaction - Based on NJ Headcount. Not charged to PSEG-LI	Benefit Strategy, Comp and Benefits Admin, Disability Management, Medical Services Operations, Talent Acquisition Operations, Diversity, HRIS, EEO, Support of ERISA and SOX, Salary Planning, Incentive Plans, Performance/Development Strategy, HR Management and HR Operations
	HR-T-HR Baseline Services - MAST	1965	6,263,015	0%	27%	23%	50%	Transaction - Based on MAST headcount	MAST: HR Compensation Planning: Includes compensation work such as salary planning, incentive plans, executive compensation, corporate compensation reporting, corporate studies.Performance & development: Management of the succession planning, talent development, engagement, performance management and other talent related programs.
	HR-T-HR Baseline Services - MAST & Union	1966	30,299,507	0%	19%	21%	60%	Transaction - Based on MAST and Bargaining Unit headcount	MAST and Union related: HR Systems & Reporting: Manage the Human Resource Information Systems (HRIS) which includes : Data Integrity, Enterprise Reporting, Org Charts Plus, SAP/BW system support and testing. Medical Services: General medical services such as: workers' compensation case management, disability case management, integrated health & productivity strategy, non-industrial case management, and other general medical administration. Outreach & Diversity: Corporate Outreach & Diversity initiatives including career fairs, diversity partnerships to comply with OFCCP. Recruitment Support: Provides management and back office support of the internal and external hiring processes. It also includes outside services costs for reporting, the applicant tracking system, job boards, and LinkedIn.
	HR-T-Medical Exams	1156	1,252,895	0%	10%	0%	90%	Transaction - Billed based on actual number of exams performed	Provides for managing and administering both regulated and non-regulated medical exams. It also includes the outside services cost for vendors associated with the testing.
	HR-T-Skill Dev	1149	719,833	0%	32%	15%	53%	Transaction - Billed based on Academies participation	This service provides for the leadership development of first line supervisors, managers and directors through a series of corporate academies.
Human Resources Total			**68,897,534**	**0%**	**27%**	**15%**	**58%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Information Technology	IT- T-SC Overhead	2137	43,840,620	6%	35%	6%	53%	Residual	
	IT-T-C-IT Client Projects-CAP	1244	100,903,965	0%	9%	0%	91%		
	IT-T-Copying and Printing-Black & White	1910	2,554,668	0%	50%	0%	50%	Transaction - Print impressions	Provides the capabilities to print (black/white), copy (black/white), and fax information from a centrally managed print service provided to PSEG's business units. It includes maintenance, associated software licensing, support, and all consumables except paper.
	IT-T-Copying and Printing-Color	1917	1,670,467	0%	27%	0%	73%	Transaction - Print impressions	Provides the capabilities to print and copy in color. It includes maintenance, associated software licensing, support, and all consumables except paper
	IT-T-Corporate BaseLine	1938	202,360,465	0%	28%	7%	64%	Transaction - Network Access & Operations (allocated by OC/LOB number of PCs / MDTs), Desktop Support (allocated by OC/LOB number of PCs / MDTs), Help Desk (50% of this total allocated by OC/LOB number of PCs / MDTs and 50% for number of Extensions), Voice Services (allocated by OC/LOB number of Extensions), Enterprise Software & Support (allocated by OC/LOB Headcount and User IDs), Back Office (allocated by following the	The Corporate Baseline provides integral Information Technology related support for all of PSEG Enterprise. The product is based on the fixed infrastructure and related run costs that are shared by all operating companies and lines of business. The Corporate Baseline product is distinguished by seven separate sub-areas each of which each follow a specific and distinct allocation method as described below. - Network Access & Operations (allocated to OC/LOB by number of PCs/MDTs). - Help Desk (allocated to OC/LOB by number of PCs/MDTs). - Desktop Support (allocated to OC/LOB by number of PCs/MDTs). - Voice Services (allocated to OC/LOB by number of extensions). - Enterprise Software & Support (allocated to OC/LOB by Headcount and User IDs). - Back Office (allocated to OC/LOB based on $ amount in other IT products). - Homeland Security / SOX (allocated to OC/LOB based on $ amount in other IT products).
	IT-T-Custom Support	1188	15,757,182	0%	53%	26%	22%	Transaction - based on client demand. Includes Labor & O/S	Resources used to assist in coordination, governance & management, between IT & it's clients; all of which help ensure that IT is best leveraged to meet the business' needs & goals '-Custom Support provides tailored IT services to clients based on unique business requirements. -Clients selecting a custom support agreement have specifically defined service level commitments support by PSEG IT.
	IT-T-Customer Operations Application Sppt Baseline	1637	35,860,801	0%	0%	0%	100%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for Customer Operations (e.g. BPU Complaints, Complex Billing, & Epiphany).
	IT-T-Electric Delivery Application Support Baseline	1638	18,061,869	0%	0%	0%	100%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for Electric Delivery (e.g. Outage Management, and Delivery Work Management).

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Information Technology (cont.)	IT-T-Enhanced Network Support	1216	1,598,700	0%	86%	0%	14%	Transaction - Allocated per circuit	Consists of a private emergency telephone system that connects PSEG Nuclear facilities to several state, county & municipal authorities in NJ &Delaware.
	IT-T-ER&T Application Support Baseline	1644	13,507,009	0%	100%	0%	0%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for ER&T. It enables the ER&T group to find markets for the energy Power generates.
	IT-T-Fossil Application Support Baseline	1642	4,233,804	0%	100%	0%	0%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery to Fossil (e.g. Mega Watts Display and the On Line Performance Monitoring System).
	IT-T-Gas Delivery Application Support Baseline	1639	6,903,152	0%	0%	0%	100%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system admin & monitoring and operational data back up & recovery to Gas Delivery (e.g. Gas Service Info. Management System & Decision Support System).
	IT-T-IT Client Projects-O&M	1218	11,969,764	0%	-4%	79%	25%	Pass-Thru	Provides O&M project management, analysis, architecture, and testing for projects requested by PSEG LOB clients.
	IT-T-Limited Desktop Support	1224	220,744	0%	22%	0%	78%	Transaction - Based on the actual number of limited desktops	Bundled offering that includes: basic software & hardware support and Network access. This support product is designed for "thin client desktops". Thin client desktops are monitors & keyboards only (i.e. kiosks).
	IT-T-MAC Activate	1208	913,610	0%	9%	0%	91%	Transaction - Based on the actual number of moves, adds and changes performed	Move, add, and change (MAC) support provides basic activation and/or modification of data and voice equipment at client locations. Does not include installation of new or existing equipment.
	IT-T-MAC Activate & Install	1209	64,601	0%	8%	0%	92%	Transaction - Based on the actual number of move/add/change with installs performed	Move/add/change (MAC) support provides basic install and activation of data/voice equip at client locations. Includes installing new &/or existing equip to new client locations & changing existing configurations (i.e. new users).
	IT-T-Mobile Data Terminal Support	1226	6,529,627	0%	0%	0%	100%	Transaction - Based on number of Mobile Data Terminals	Mobile Data Terminals (MDTs) are portable, wireless, rugged laptop computers used by PSE&G's mobile work force who require access to operational applications (i.e. iPower, Outage Management System (OMS), and work management applications).
	IT-T-NERC CIP	1999	1,621,033	0%	0%	0%	100%	Transaction – Based on labor to support NERC CIP regulatory compliance	This product provides support and services associated with NERC CIP regulatory compliance for PSEG NERC registered entities.

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Information Technology (cont.)	IT-T-Nuclear Application Support Baseline	1641	9,399,966	0%	100%	0%	0%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery. An example of one of these applications is radiation protection.
	IT-T-Premium Desktop Support	1184	225,100	0%	24%	0%	75%	Transaction - Based on the actual number of premium desktops	Bundled offering that includes: basic software & hardware support and network access. This computer support product permits the user to make configuration changes to their computer.
	IT-T-PT-Basic Telecommunications Svcs	1182	22,789,221	0%	6%	0%	94%	Pass-Thru	Provides telephone related services such as toll free numbers ad their usage, data circuits, and POTS lines.
	IT-T-PT-Cellular	1213	7,225,811	0%	3%	0%	97%	Pass-Thru	Pass through of the wireless carrier charges for company wireless devices, including basic phones, smart phones, and mobile hot spots.
	IT-T-PT-Corp Extension Use	1211	838,159	1%	17%	0%	82%	Pass-Thru	Use of a corporate telephone extension. This is comprised of local toll and long distance charges. Conferencing charges are also charged back to clients in this product.
	IT-T-PT-C-PC/MDT with Installation	1545	19,266,510	12%	8%	0%	80%	Transaction	***Not listed in the service catalog. Based on the service title this appears to be installation of PCs and Mobile Data Terminals, the cost of which is capitalized along with the installed equipment.***
	IT-T-PT-Customer Operations Application Sppt	1939	4,472,296	0%	0%	0%	100%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for Customer Operations (e.g. BPU Complaints, Complex Billing, & Epiphany).
	IT-T-PT-Electric Delivery Application Support	1940	1,594,546	0%	0%	0%	100%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for Electric Delivery (e.g. Outage Management, and Delivery Work Management).
	IT-T-PT-ER&T Application Support	1941	304,072	0%	100%	0%	0%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery for ER&T. It enables the ER&T group to find markets for the energy Power generates.
	IT-T-PT-Fossil Application Support	1942	555,062	0%	100%	0%	0%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery to Fossil (e.g. Mega Watts Display and the On Line Performance Monitoring System).
	IT-T-PT-Gas Delivery Application Support	1943	100,790	0%	0%	0%	100%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system admin & monitoring and operational data back up & recovery to Gas Delivery (e.g. Gas Service Info. Management System & Decision Support System).
	IT-T-PT-Nuclear Application Support	1944	6,152,643	0%	100%	0%	0%	Pass-Thru	Includes contract management, software/hardware maintenance & licensing, system administration & monitoring and operational data back up & recovery. An example of one of these applications is radiation protection.
	IT-T-PT-Real Time System Support	1945	548,793	0%	100%	0%	0%	Pass-Thru	Provides management and administration services to operate, maintain and support the hardware and software associated with the Salem and Hope Creek plant process systems used to support Nuclear plant operations.
	IT-T-Radio Network	1215	5,376,999	0%	14%	0%	86%	Transaction - Apportioned to each LOB based on historical usage	Provides equipment maintenance and support for PSEG's radio systems. These include PSE&G's 900 MHz trunked radio system and PSEG Nuclear' s 900 MHz and conventional radio system.
	IT-T-Real Time System Support Baseline	1841	2,803,299	0%	100%	0%	0%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	Provides management and administration services to operate, maintain and support the hardware and software associated with the Salem and Hope Creek plant process systems used to support Nuclear plant operations.
	IT-T-Retail Office Application Support Baseline	1776	202,169	0%	0%	0%	100%	Transaction - Based on the contracts, labor, materials etc. to support the specific applications for this business	This service supports the Utility's (Transmission) Retail Business Service operation to derive the monthly settlement of retail energy for Basic Generation Service (BGS) suppliers and Third Party Suppliers.

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Information Technology (cont.)	IT-T-Security	1189	10,423,263	0%	31%	10%	59%	Transaction - total allocated by OC/LOB based on headcount	Enterprise security services to provide information protection, cyber security, and identity and access management.
	IT-T-Special Data Services	1214	6,076,896	0%	8%	0%	92%	Transaction - A price per circuit is calculated and billed monthly based on the number of circuits.	Provides 24 X 7 support in the event of a nuclear emergency. These are transmitted on a public carrier or private facility to support ESOC (Electric Systems Operations Center)/GSOC(Gas Systems Operations Center) Demand Site Mgmt.
	IT-T-Standard Desktop Support	1225	4,807,226	0%	40%	0%	60%	Transaction - Based on the actual number of standard desktops	Bundled offering that includes: basic software & hardware support and network access. This computer support product does not permit the user to make configuration changes to their computer.
	IT-T-Unconnected Desktop Support	1185	49,505	0%	60%	0%	40%	Transaction - Based on the actual number of unconnected desktops	Service that includes only basic software & hardware support. It does not include network access.
Information Technology Total			**571,784,405**	**1%**	**25%**	**6%**	**69%**		
Internal Audit Services	IA-P-C-Internal Audit Capital	2087	36,762	0%	0%	0%	100%	Prof Hourly	***Not listed in the service catalog.***
	IA-P-E-Int Cntrl Program Mgmt	2041	7,638,867	0%	26%	16%	58%	Enterprise	Governance / oversight of enterprise internal controls
	IA-P-Professional Services	2039	9,685,217	0%	48%	3%	49%	Prof Hourly	Internal auditor resources utilized to evaluate and improve the effectiveness of risk management, governance and control processes. Outputs include audit reports and other internal control related products.
	IA-P-PT-Internal Audit	1885	13,910	0%	0%	100%	0%	Pass-Thru	External audit resources utilized to evaluate and improve the effectiveness of risk management, governance and control processes. Outputs include Audit Reports and other internal control related products.
	IA-P-SOX Testing	2040	606,306	3%	79%	0%	18%	Prof Hourly	Internal Audit resources utilized to evaluate and improve the effectiveness of risk management, governance and control processes. Outputs include SOX testing results and evaluations.
Internal Audit Services Total			**17,981,062**	**0%**	**40%**	**9%**	**52%**		
Investor Relations	IR-T-E-Investor Relations	1359	2,586,517	0%	28%	15%	58%	Enterprise	Investor Relations provides the investment community with information about corporate and industry activities, strategies and results; monitors and analyzes financial conditions; and considers financial market perceptions in corporate decisions.
Investor Relations Total			**2,586,517**	**0%**	**28%**	**15%**	**58%**		
Laboratory Testing Services	LT-P-Lab Testing Svc	3001	90,288	0%	58%	0%	42%	Prof Hourly	Straight time labor and overhead for Laboratory Testing Services associates
	LT-P-Lab Tstg Svc OT	3002	7,485	0%	18%	0%	82%	Prof Hourly	Overtime labor and overhead for Laboratory Testing Services associates
Laboratory Testing Services Total			**97,773**	0%	55%	0%	45%		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Law	LE-P-C-Commercial	1890	468,811	0%	0%	0%	100%	Prof Hourly	***Not listed in the service catalog.***
	LE-P-C-Environmental	1892	74,660	0%	0%	0%	100%	Prof Hourly	***Not listed in the service catalog.***
	LE-P-Commercial	1823	6,008,750	8%	53%	7%	31%	Prof Hourly	Structure & negotiate energy transactions including credit support & collateral arrangements. Nuclear regulatory/licensing matters & fuel cycle transactions & commercial agreements in support of SCM dispute resolution.
	LE-P-Corp & Financial Transactions	1263	210,062	59%	29%	0%	12%	Prof Hourly	Issuance and sale of equity & debt securities / redemptions, Commercial lending transactions, Corp Governance, Risk Mgmt., financial transactions - derivatives and capital market transactions.
	LE-P-C-Paralegal Services - Capital	2118	1,891	0%	0%	0%	100%	Prof Hourly	***Not listed in the service catalog.***
	LE-P-C-Regulatory	1896	152,142	0%	0%	0%	100%	Prof Hourly	***Not listed in the service catalog.***
	LE-P-E-Law Enterprise	1975	7,637,368	0%	27%	16%	57%	Enterprise	Corporate and non-operating company specific legal matters
	LE-P-Environmental	1278	6,167,387	0%	29%	1%	70%	Prof Hourly	Provide legal advice and counsel regarding company compliance with environmental, health and safety laws including permits, licenses, enforcement and cost recovery matters, waste management, resource recovery, auditing, and site remediation.
	LE-P-E-Paralegal - Services - Enterprise	2119	983,605	0%	27%	16%	58%	Enterprise	Corporate and non-operating company specific legal matters
	LE-P-E-PT-Law Enterp	1250	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
	LE-P-E-PT-Law Enterprise	1974	3,474,422	0%	27%	16%	57%	Enterprise	External expenses related to corporate and non-operating company specific legal matters
	LE-P-Labor/ Employment	1271	3,408,381	0%	27%	12%	61%	Prof Hourly	Labor and Employment to provide the following services: Defense in state/federal employment litigation matters and agency proceedings, representation in labor arbitrations, counsel in all aspects of labor, employment, and immigration law.
	LE-P-Litigation	1270	6,863,663	0%	18%	2%	79%	Prof Hourly	Torts (personal injury and property), contracts, collections, bankruptcy, subpoena responses, environmental Municipal court prosecutions/defenses, accident investigations, shareholder disputes & risk avoidance.
	LE-P-Paralegal Services	2117	2,531,556	0%	14%	1%	85%	Prof Hourly	Provides paralegal support for the Law department to specific operating companies/LOBs.
	LE-P-PT General Counsel	2124	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Pass-Thru	External legal counsel to provide legal advice specific to operating companies.
	LE-P-PT-C-Commercial	1891	243,746	0%	91%	0%	9%	Pass-Thru	***Not listed in the service catalog.***
	LE-P-PT-C-Corp & Fin Trans Deferred	1256	1,110,137	0%	7%	0%	93%	Pass-Thru	***Not listed in the service catalog.***
	LE-P-PT-C-Environmental	1893	795,752	0%	0%	0%	100%	Pass-Thru	***Not listed in the service catalog.***
	LE-P-PT-Commercial	1818	712,364	2%	69%	30%	-1%	Pass-Thru	External legal counsel to structure & negotiate energy transactions including credit support & collateral arrangements. Nuclear regulatory/licensing matters & fuel cycle transactions & commercial agreements in support of SCM dispute resolution
	LE-P-PT-Corp & Financial Transaction O&M	1249	482,674	31%	65%	0%	4%	Pass-Thru	Issuance and sale of equity & debt securities / redemptions, Commercial lending transactions, Corp Governance, Risk Mgmt., financial transactions - derivatives and capital market transactions.
	LE-P-PT-Corp Development	1872	(113,025)	0%	100%	0%	0%	Pass-Thru	External legal counsel to manage and coordinate legal aspects for M&A and development transactions. Lead transaction analysis and negotiations and support the completion and integration process.
	LE-P-PT-C-Regulatory	1897	5,885,488	0%	1%	0%	99%		
	LE-P-PT-Environmental	1251	3,785,240	0%	76%	0%	24%	Pass-Thru	Provide legal advice and counsel regarding company compliance with environmental, health and safety laws including permits, licenses, enforcement and cost recovery matters, waste management, resource recovery, auditing, and site remediation.
	LE-P-PT-Labor/ Employment	1257	177,115	0%	19%	7%	74%	Pass-Thru	External legal counsel for Labor and Employment: Defense in state/federal employment litigation matters and agency proceedings, representation in labor arbitrations, counsel in all aspects of labor, employment, and immigration law.
	LE-P-PT-Litigation	1254	6,972,232	2%	17%	3%	78%	Pass-Thru	Torts (personal injury and property), contracts, collections, bankruptcy, subpoena responses, environmental Municipal court prosecutions/defenses, accident investigations, shareholder disputes & risk avoidance.
	LE-P-PT-Regulatory	1260	4,587,997	0%	11%	0%	89%	Pass-Thru	External legal counsel to provide legal advice and representation with regard to all state regulatory aspects of the ownership, operation and sale/purchase of elect/gas Co's or their assets. Includes analysis on state energy regulatory matters.
	LE-P-Regulatory	1268	11,679,996	3%	17%	4%	76%	Prof Hourly	Provide legal advice, representation and counseling with regard to all state regulatory aspects of the ownership, operation and sale or purchase of electric/gas companies or their assets. Includes analysis on state energy regulatory matters.
Law Total			**74,302,413**	**2%**	**25%**	**5%**	**68%**		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Nuclear Security	NS-P-C- Nucl Secty C	2144	67,301	0%	68%	0%	32%	Prof Hourly	Capital Nuclear Security hours and costs for Capital related work
	NS-P-Nucl Secty Prof	2142	67,163	0%	100%	0%	0%	Prof Hourly	Professional Nuclear Security activities, not part of normal hours
	NS-T-Nucl Security	2140	63,075,493	0%	100%	0%	0%	Transactional - all billed to Nuclear	Nuclear Security Normal Activities
Nuclear Security Total			**63,209,957**	**0%**	**100%**	**0%**	**0%**		
Other Security	SS-P-Claims	1907	4,330,796	0%	0%	1%	99%	Prof Hourly	Seeks recovery for losses resulting from third party transgressions and for damages to the Company's infrastructure due to criminal acts and negligence
	SS-P-Security Planning Ops and BIM	1985	7,472,103	0%	10%	1%	89%	Prof Hourly	Provides security planning & operations support including subpoena services, annual licenses for forensics and litigation, as well as security incidence tracking. Also provides Business Interruption Management (BIM) services.
	SS-T-Corp Security Guard Service	1853	5,724,478	0%	21%	0%	79%	Transaction - Billed to General Office occupants in proportion to the amount of square footage utilized	General Office guard service - protection of PSEG associates, physical, and information assets.
	SS-T-E-Business Interruption Management	1887	761,123	0%	28%	16%	56%	Enterprise	Business Continuity Planning, Crisis Management, Life Safety/Evacuation, Emergency Response, and Disaster Recovery services that benefit PSEG.
	SS-T-E-Corporate Security & Claims	1986	11,664	0%	29%	15%	56%	Enterprise	Vehicle costs
	SS-T-E-Security Planning & Operations	1886	7,334,036	0%	27%	15%	57%	Enterprise	Asset Protection, Information Security, and Homeland Security/Regulatory Compliance services that benefit PSEG.
	SS-T-Security Command Center	1876	8,697,026	0%	12%	0%	88%	Transaction - Charged to the clients based on the proportion of the number of devices (cameras) actively managed by the center	Supports security regulatory compliance requirements (NERC, BPU) by monitoring, recording, and reporting security events via cameras, video, card readers, access control devices, and ID Badges.
Other Security Total			**34,331,226**	**0%**	**15%**	**4%**	**81%**		
Payroll Services	BC-P-Payroll Professional Services	1018	29,886	0%	0%	44%	56%	Prof Hourly	Subject matter expert to OC for all payroll related ad hoc requests, employee adjustments, compliance items, tax research, time administrator training, union grievances, retro adj. etc.
	BC-T-Employee Inquiry and Admin Svcs	1026	2,367,294	0%	23%	0%	77%	Transaction - Billed based on monthly headcount	Centralized group of SME's familiar with HR policies and procedures, related initiatives and internal PSEG culture/structure who respond to both active and retired associates' HR/Payroll related inquiries.
	BC-T-P/R Check and rel Trans Svcs	1025	3,324,995	0%	15%	20%	64%	Transaction - Billed per individual paid for each payroll run	Process all time related validation and all statutory and non statutory deductions for all employees. Process includes time entry through paycheck distribution.
Payroll Services Total			**5,722,176**	**0%**	**18%**	**12%**	**69%**		
Power Dedicated Finance	PF-P-C-Power Dedicated Finance	2009	241,253	0%	100%	0%	0%		
	PF-P-Power Finance	2021	622,311	2%	98%	0%	0%		
	PF-T-Power Dedicated Finance	1788	29,662,490	0%	100%	0%	0%	Transaction - Actual expense billed 100% to PSEG Power	Provide financial reporting, planning and analysis for Power LLC :earnings forecasting, monthly close & accounting support, mgmt. reporting/business analysis, benchmarking, 5 Yr business plan, develop cost analysis & capital process management.
Power Dedicated Finance Total			**30,526,054**	0%	100%	0%	0%		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Procurement	BC-P-Accounts Payable Consulting	1020	118,917	0%	2%	96%	2%	Prof Hourly	Provide AP expertise to meet client data requests, system upgrades, and process initiatives. Analyze data for SEC, Rate Case and other regulatory filings. Prepare 1099 tax returns. File with Tax authorities. Resolve complex payment inquiries.
	BC-T-A/P Invoices - Purchase Order	1017	2,256,425	0%	22%	17%	61%	Transaction - Per invoice processed	Pay purchase order invoices. Support Client processing concerns. Respond to vendor payment inquiries. Coordinate EFT payments. PO's retained in accordance with records preservation schedules.
	BC-T-Business Expense Reimbursement	1022	147,559	0%	12%	9%	80%	Transaction - Per expense form processed	Process employee expense reports. Transfer data to Payroll and Accounting. Manage Corporate American Express Travel card program. Answer employee travel and expense inquires. Retain in accordance with records preservation schedules.
	SC-P-C-Procurement	2016	11,585,463	0%	19%	0%	81%	Prof Hourly	Procurement of materials and outside services, supporting all general Capital purchase orders or contracts. ***(Definition provided by Overland - this service is not described in the service catalog.)***
	SC-P-Procurement	2015	33,756,285	1%	54%	10%	35%	Prof Hourly	Procurement of materials and outside services, supporting all general O&M purchase orders or contracts.
	SC-P-PT-Material Management	2076	610,712	0%	0%	100%	0%	Pass-Thru	Professional spend management (data compilation) and procurement of materials and outside services.
	SC-T-Ariba	2111	684,980	0%	17%	11%	73%	Transaction - Based on LOB portion of early payment savings potential from external vendor spend	Ariba is a cloud-based solution to modernize Procurement-To-Pay processes across PSEG. This initiative automates interactions with vendors to drive efficiency, mitigate risks and save on costs throughout the procure-to-pay cycle, ultimately leading to better buying decisions.
Procurement Total			**49,160,340**	**0%**	**43%**	**9%**	**47%**		
PSE&G Dedicated Finance	TF-P-C-PSE&G Dedicated Finance	2011	6,763,896	0%	0%	0%	100%		
	TF-P-PSE&G Dedicated Finance	2010	11,724,461	0%	0%	2%	98%	Prof Hourly	Provides financial planning and management reporting support to PSE&G and PSEG-LI
	TF-P-PT-PSE&G Dedicated Finance	2045	12,348	88%	0%	12%	0%	Pass-Thru	Provides financial planning and management reporting support to PSE&G and PSEG-LI
	TF-P-Rates & Revenue Requirements	2012	7,581,532	0%	1%	0%	99%	Prof Hourly	Provides Tariff administration and Regulatory support to PSE&G and PSEG-LI
PSE&G Dedicated Finance Total			**26,082,237**	**0%**	**0%**	**1%**	**99%**		
PSEG Executive Office	EO-P-Executive Services	1718	1,169,577	5%	6%	68%	20%		
	EO-T-E-Executive Svcs	1338	98,404,765	0%	27%	15%	58%	Enterprise	Captures all of the expenses associated with the Executive Office, including SC LTIP. Excludes Reinvestment Pool and OC specific billing which are billed as separate services.
	EO-T-Executive Office Direct Support	1851	4,295,940	11%	3%	19%	66%		
	EO-T-PT-Executive Office Direct Support	1783	10,218	-69%	169%	0%	0%		
PSEG Executive Office Total			**103,880,500**	**1%**	**26%**	**16%**	**58%**		
PSEG LI Dedicated Support	SV-T-PSEG LI Dedicated Support	2083	1,871,884	2%	0%	98%	0%	Transaction - Actual expense billed 100% to PSEG LI	Dedicated support to PSEG-LI
PSEG LI Dedicated Support Total			**1,871,884**	2%	0%	98%	0%		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
PSEG LI FEMA	FE-P-PSEG LI FEMA Support AT4	2095	36,393	0%	0%	100%	0%	Prof Hourly	Dedicated support to PSEG-LI FEMA projects
	FE-P-PSEG LI FEMA Support AT5	2096	897,791	0%	0%	100%	0%	Prof Hourly	Dedicated support to PSEG-LI FEMA projects
	FE-P-PSEG LI FEMA Support AT6	2097	405,381	0%	0%	98%	2%	Prof Hourly	Dedicated support to PSEG-LI FEMA projects
	FE-P-PT-PSEG LI FEMA Support	2098	116,269	0%	0%	100%	0%	Pass-Thru	Consists primarily of housing allowance and car leases for PSEG-LI FEMA associates.
	FE-T-PSEG LI FEMA PT	2121	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Pass-Thru	External resources related to PSEG-LI FEMA projects
PSEG LI FEMA Total			**1,455,834**	**0%**	**0%**	**100%**	**0%**		
RTO Strategy	RT-P-C-PT-RTO FedReg	2161	77,275	0%	0%	0%	100%	Pass-Thru	External legal counsel costs that meet capitalization requirements and provide legal advice and representation with regard to all federal regulatory aspects of the ownership, operation and sale/purchase of elect/gas Co's or their assets. This service also includes all property related legal matters that meet capitalization requirements.
	RT-P-C-PT-RTO Strategy	2157	131,926	0%	0%	0%	100%	Pass-Thru	Currently not in use
	RT-P-C-RTO FedReg	2160	4,100	0%	0%	0%	100%	Prof Hourly	Internal hours/cost that meet capitalization requirements and provide legal advice, representation and counseling with regard to all federal regulatory aspects of the ownership, operation and sale or purchase of electric/gas companies or their assets. This service also includes all property related legal matters that meet capitalization requirements.
	RT-P-C-RTO Strategy	2156	38,700	0%	0%	0%	100%	Prof Hourly	Currently not in use
	RT-P-E-RTO Strategy	2154	41,700	0%	25%	16%	59%	Enterprise	Internal hours/cost which benefit the overall Enterprise and provide advocacy and rules-shaping activities at all of the Regional Transmission Organizations (RTOs) in which PSEG owns assets – specifically, PJM, the ISO-NE and the NYISO.
	RT-P-PT-RTO FedReg	2159	72,490	100%	0%	0%	0%	Pass-Thru	External legal counsel to provide legal advice, representation, analysis and counseling with regard to all federal regulatory aspects of the ownership, operation and sale/purchase of elect/gas Co's or their assets. This service also includes external legal counsel related to all property related legal matters.
	RT-P-PT-RTO Strategy	2006	244,128	0%	71%	0%	29%	Pass-Thru	External spend that assists in providing advocacy and assistance in rules-shaping activities at all of the Regional Transmission Organizations (RTOs) in which PSEG owns assets – specifically, PJM, the ISO-NE and the NYISO.
	RT-P-RTO FedReg	2158	14,600	0%	100%	0%	0%	Prof Hourly	Internal hours/cost that provide legal advice, representation, analysis and counseling with regard to all federal regulatory aspects of the ownership, operation and sale or purchase of electric/gas companies or their assets. This service also includes all property related legal matters.
	RT-P-RTO Strategy	2061	655,600	4%	19%	0%	77%	Prof Hourly	**Internal hours/cost that provide advocacy and rules-shaping activities at all of the Regional Transmission Organizations (RTOs)** in which PSEG owns assets – specifically, PJM, the ISO-NE and the NYISO.
RTO Strategy Total			**1,280,519**	**8%**	**26%**	**1%**	**66%**		
SC Level Contingency / Stretch	SL-T-SC Level Contingency / Stretch	4992	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Transactional	Budget Stretch
SC Level Contingency / Stretch Total			**-**	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
SC Operations Contingency / Stretch	SP-T-SC Ops Budg Str	4993	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	Transactional	SC Ops Budget Stretch
SC Operations Contingency / Stretch Total			**-**	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		

Attachment 3-2

PSEG Services - Analysis of Service Level Cost Distributions 2018 through 2020

Sum of Annual Actual Dollars (OC-954)				'18-'20	'18-'20	'18-'20	'18-'20	Allocation Method and Service Description (OC-28)	
Department or Type of Service	Service	Svc ID	Totals	Ent/ EH / SC	Power	LI	PSE&G	Alloc Method	Service Description
Service Company Misc Accounting	COLI	2114	2,350,868	-9%	46%	7%	57%	Transaction - Based on cost	COLI interest
	Gain - Asset Sale	2132	(5,740,968)	0%	29%	15%	56%	Residual Allocation	Gain on sale from SC assets
	SC Billings	4997	(13,446,343)	0%	39%	4%	57%	Transaction - Based on cost	Non departmental expense
	SC OPEB Non-Operating	2139	3,082,318	2%	33%	7%	59%	Residual Allocation	SC OPEB expense
	SC Pension Non-Operating	2138	(19,520,989)	0%	35%	7%	58%	Residual Allocation	SC Pension Non-Operating
	SC-T-C-SC Billings Capital	2168	1,054,795	0%	0%	0%	100%	Transactional	Currently used to deferred pandemic costs
Service Company Misc Accounting Total			**(32,220,319)**	**1%**	**36%**	**8%**	**55%**		
State Governmental Affairs	SG-P-C-State Government Aff	1980	11,358,851	0%	0%	0%	100%	Prof Hourly	Provides advocacy and education at the state level on issues solely relevant to a particular operating company via legislative testimony/consultation. ***(Description provided by Overland - This service is not described in the service catalog.)***
	SG-P-E-PT-State Government Aff	1982	3,710,686	0%	27%	16%	58%	Enterprise	External expenses related to Enterprise related advocacy
	SG-P-E-State Government Aff	1981	2,846,582	0%	27%	16%	57%	Enterprise	Enterprise related advocacy
	SG-P-PT-State Government Aff	1978	1,582,224	0%	66%	0%	34%	Pass-Thru	External expenses related to operating company specific efforts
	SG-P-State Government Aff	1983	5,444,485	0%	13%	0%	87%	Prof Hourly	Provides advocacy and education at the state level on issues solely relevant to a particular operating company via legislative testimony/consultation.
State Governmental Affairs Total			**24,942,827**	**0%**	**14%**	**4%**	**82%**		
Treasury Management Services	MI-T-PT-Insurable Risk	1565	36,718,523	0%	39%	4%	57%	Pass-Thru	External liability and other insurance premiums
	MI-T-PT-Property Insurance	1360	(13,243,107)	0%	180%	0%	-80%	Pass-Thru	External liability and other insurance premiums
	TR-P-Treasury Services	2046	1,123,319	0%	1%	99%	0%	Prof Hourly	Compilation of Treasury Services that include Cash Management, Capital Management, Insurance and Trust Investment for PSEG LIPA.
	TR-T-E-PT-Treasury Mgmt Svcs	1352	357,953	0%	27%	16%	57%	Enterprise	A pass through service to manage enterprise wide bank accounts and external treasury software costs for the overall enterprise.
	TR-T-PT-Treasury Mgmt Svcs	1351	3,055,486	6%	24%	0%	69%	Pass-Thru	A pass-through service to manage bank and trustee fees for each of the operating companies
	TR-T-Treasury Mgmt Svcs	1347	11,410,033	7%	39%	2%	52%	Transactional - Dept. costs for Cash Mgmt., Insurance, Trust Invest. and Capital Mgmt. are blended together by an approved method to establish a fixed weighted % by LOB	Compilation of Treasury Services that include Cash Management, Capital Management, Insurance and Trust Investment.
Treasury Management Services Total			**39,422,207**	**3%**	**-11%**	**8%**	**101%**		
Grand Total			**1,538,053,272**	**1%**	**29%**	**7%**	**63%**		
Total Distributions				**14,787,863**	**449,569,252**	**101,985,752**	**971,710,404**		
Distribution Percentages				**1%**	**29%**	**7%**	**63%**		

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Attachment 3-3

PSEG Services - Analysis of LI Equivalents for Selected Centralized Utility Services Charged Wholly or Mostly to PSE&G

PSEG Services		Similar Service Provided to PSEG LI By			Providing Department Headcount				Providing Department Head Title, Company and Cost Center			
Service ID	Service Title	Company	Cost Center	Cost Center Title	12/31/18	12/31/19	12/31/20	6/30/21	Title	Company	Cost Center	CC Name
2130	Process Improvement	PSEG Services	2130	Process Improvement	N/A - Providing Dept. is in PSEG Services							
1953	Strategic Communications Planning	PSEG LI Utility	5032	Corporate Communications	7	8	9	9	Director Communications PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC
1955	Company Newsletters	PSEG LI Utility	5032	Corporate Communications	7	8	9	9	Director Communications PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC
1344	Corporate Properties Mgt.	PSEG LI Utility	5562	Facilities	8	7	8	8	Mg Dir & VP Construction & Ops Svcs	PSEG LI LLC	8085	PSEG LI Staffing CC
			5592	PS LI Legal	14	17	17	18	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff
			5594	PS LI Claims	9	9	9	8	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff
2034	Environmental Policy	PSEG LI Utility	5172	Environmental	8	7	8	8	Mgr Environmental Compliance	PSEG LI Utility	5172	Environmental Staff
1638	Electric Distribution IT Apps.	PSEG LI Utility	5536	Corporate Data Center	11	10	9	9	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
			5538	IT Support	19	48	62	58	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1226	Mobile Data Terminal Support	PSEG LI Utility	5532	IT Operations	15	20	19	18	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1999	NERC CIP Regulatory Compliance	PSEG LI Utility	5178	NERC/CIP Staff	4	4	4	3	Manager NERC / CIP Compliance	PSEG LI Utility	5178	NERC/CIP Staff
1182	Basic Telecommunications	PSEG LI Utility	5532	IT Operations	15	20	19	18	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1213	Wireless communications	PSEG LI Utility	5532	IT Operations	15	20	19	18	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1545	Mobile Data Terminal Installation	PSEG LI Utility	5532	IT Operations	15	20	19	18	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1939	Customer Ops. IT Apps.	PSEG LI Utility	5532	IT Operations	15	20	19	18	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
			5534	Applications Svcs & Support	7	6	4	3	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
1940	Electric Delivery IT Apps.	PSEG LI Utility	5538	IT Support	19	48	62	58	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff
2039	Internal Audit Int. Cont. & Risk Mgt.	PSEG LI Utility	5052	Internal Audit	5	5	5	5	Internal Audit Manager	PSEG LI Utility	5052	Internal Audit Staff
1251	Legal Advisory Svcs - Compliance	PSEG LI Utility	5172	Environmental	8	7	8	8	Mgr Environmental Compliance	PSEG LI Utility	5172	Environmental Staff
			5592	PS LI Legal	14	17	17	18	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff
			5594	PS Li Claims	9	9	9	8	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff
2117	Paralegal Services	PSEG LI Utility	5592	PS LI Legal	14	17	17	18	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff
			5594	PS LI Claims	9	9	9	8	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff
1260 & 1268	Legal - State Regulatory	PSEG LI Utility	5592	PS LI Legal	14	17	17	18	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff
1985	Security Planning & Ops. Supt.	PSEG LI Utility	5580	Security	13	15	15	15	Senior Manager	PSEG LI Utility	5580	Security Staff
1907	Claims Recovery	PSEG LI Utility	5580	Security	13	15	15	15	Senior Manager	PSEG LI Utility	5580	Security Staff
1853	Security Guard Svcs	PSEG LI Utility	5580	Security	13	15	15	15	Senior Manager	PSEG LI Utility	5580	Security Staff
1876	Security Command Svcs	PSEG LI Utility	5580	Security	13	15	15	15	Senior Manager	PSEG LI Utility	5580	Security Staff
2016	Procurement - Capital-related	PSEG LI Utility	5552	Procurement	22	24	23	23	Mgr Procurement Operations	PSEG LI Utility	5552	Procurement Staff
2012	Tariff Administration	PSEG LI Utility	5518	Rates & Load Forecasting	5	5	6	6	Accounting Services Mgr (As of 2021)	PSEG LI Utility	5514	Accounting Staff
1980 & 1983	State Govt Affairs Advocacy	PSEG LI Utility	5042	Public Affairs	10	12	11	11	Dir External Affairs PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC

Responses to OC-940, OC-954, OC-955, OC-1095.

PSEG Services - Analysis of LI Equivalents for Selected Centralized Utility Services Charged Wholly or Mostly to PSE&G

PSEG Services		Similar Service Provided to PSEG LI By			Providing Department Head Title, Company and Cost Center				Providing Department Head Reports to Title, Company and Cost Center			
Service ID	Service Title	Company	Cost Center	Cost Center Title	Title	Company	Cost Center	CC Name	Title	Co	Cost Center	CC Name
2130	Process Improvement	PSEG Services	2130	Process Improvement								
1953	Strategic Communications Planning	PSEG LI Utility	5032	Corporate Communications	Director Communications PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC	VP Corporate Communications	PSEG Services	1886	Communications & Advertising
1955	Company Newsletters	PSEG LI Utility	5032	Corporate Communications	Director Communications PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC	VP Corporate Communications	PSEG Services	1886	Communications & Advertising
1344	Corporate Properties Mgt.	PSEG LI Utility	5562	Facilities	Mg Dir & VP Construction & Ops Svcs	PSEG LI LLC	8085	PSEG LI Staffing CC	President & COO PSEG Long Island	PSEG LI LLC	8085	PSEG LI Staffing CC
			5592	PS LI Legal	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff	VP & Deputy General Counsel	PSEG Services	1896	Law Commercial Staff
			5594	PS LI Claims	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff	VP Deputy GC & Chief Litigation Counsel	PSEG Services	1862	Law Staff
2034	Environmental Policy	PSEG LI Utility	5172	Environmental	Mgr Environmental Compliance	PSEG LI Utility	5172	Environmental Staff	Dir Transmission & Distribution Svcs	PSEG LI LLC	8085	PSEG LI Staffing CC
1638	Electric Distribution IT Apps.	PSEG LI Utility	5536	Corporate Data Center	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
			5538	IT Support	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1226	Mobile Data Terminal Support	PSEG LI Utility	5532	IT Operations	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1999	NERC CIP Regulatory Compliance	PSEG LI Utility	5178	NERC/CIP Staff	Manager NERC / CIP Compliance	PSEG LI Utility	5178	NERC/CIP Staff	Dir Transmission & Distribution Svcs	PSEG LI LLC	8085	PSEG LI Staffing CC
1182	Basic Telecommunications	PSEG LI Utility	5532	IT Operations	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1213	Wireless communications	PSEG LI Utility	5532	IT Operations	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1545	Mobile Data Terminal Installation	PSEG LI Utility	5532	IT Operations	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1939	Customer Ops. IT Apps.	PSEG LI Utility	5532	IT Operations	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
			5534	Applications Svcs & Support	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
1940	Electric Delivery IT Apps.	PSEG LI Utility	5538	IT Support	Manager IT Operations Support	PSEG LI Utility	5538	IT Support Staff	Mg Dir & CIO PSEG LI (As of 2021)	PSEG LI LLC	8085	PSEG LI Staffing CC
2039	Internal Audit Int. Cont. & Risk Mgt.	PSEG LI Utility	5052	Internal Audit	Internal Audit Manager	PSEG LI Utility	5052	Internal Audit Staff	VP Internal Auditing Services	PSEG Services	1877	Internal Auditing Staff
1251	Legal Advisory Svcs - Compliance	PSEG LI Utility	5172	Environmental	Mgr Environmental Compliance	PSEG LI Utility	5172	Environmental Staff	Dir Transmission & Distribution Svcs	PSEG LI LLC	8085	PSEG LI Staffing CC
			5592	PS LI Legal	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff	VP & Deputy General Counsel	PSEG Services	1896	Law Commercial Staff
			5594	PS Li Claims	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff	VP Deputy GC & Chief Litigation Counsel	PSEG Services	1862	Law Staff
2117	Paralegal Services	PSEG LI Utility	5592	PS LI Legal	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff	VP & Deputy General Counsel	PSEG Services	1896	Law Commercial Staff
			5594	PS LI Claims	Manager Claims (as of 2021)	PSEG Services	1857	PS LI Claims Staff	VP Deputy GC & Chief Litigation Counsel	PSEG Services	1862	Law Staff
1260 & 1268	Legal - State Regulatory	PSEG LI Utility	5592	PS LI Legal	Mg Dir & VP Legal PSEG Long Island	PSEG LI Utility	5592	PS LI Legal Staff	VP & Deputy General Counsel	PSEG Services	1896	Law Commercial Staff
1985	Security Planning & Ops. Supt.	PSEG LI Utility	5580	Security	Senior Manager	PSEG LI Utility	5580	Security Staff	VP Corporate Security & Properties	PSEG Services	1856	Corporate Security Staff
1907	Claims Recovery	PSEG LI Utility	5580	Security	Senior Manager	PSEG LI Utility	5580	Security Staff	VP Corporate Security & Properties	PSEG Services	1856	Corporate Security Staff
1853	Security Guard Svcs	PSEG LI Utility	5580	Security	Senior Manager	PSEG LI Utility	5580	Security Staff	VP Corporate Security & Properties	PSEG Services	1856	Corporate Security Staff
1876	Security Command Svcs	PSEG LI Utility	5580	Security	Senior Manager	PSEG LI Utility	5580	Security Staff	VP Corporate Security & Properties	PSEG Services	1856	Corporate Security Staff
2016	Procurement - Capital-related	PSEG LI Utility	5552	Procurement	Mgr Procurement Operations	PSEG LI Utility	5552	Procurement Staff	Dir Procurement PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC
2012	Tariff Administration	PSEG LI Utility	5518	Rates & Load Forecasting	Accounting Services Mgr (As of 2021)	PSEG LI Utility	5514	Accounting Staff	SVP Corp Plan Strategy & Utility Finance	PSEG Services	3050	PSE&G Finance Staff
1980 & 1983	State Govt Affairs Advocacy	PSEG LI Utility	5042	Public Affairs	Dir External Affairs PSEG LI	PSEG LI LLC	8085	PSEG LI Staffing CC	SVP Corporate Citizenship	PSEG Services	1890	PSEG Executive Office

Responses to OC-940, OC-954, OC-955, OC-1095.

4. MARKET CONDITIONS

Introduction and Overview

This chapter covers the relationship between PSE&G and the retail choice environment in New Jersey, as PSE&G plays a role in influencing relevant state policy and supporting retail choice through its approach to customer relations. It is divided into the following sections:

- Retail Market Overview – This section provides a brief background on retail choice in the deregulated state of New Jersey.
- Government Aggregation Overview – This section provides a brief background on government energy aggregations in New Jersey.
- Third Party Supplier Relationships – This section covers the process for third party suppliers to become suppliers in PSE&G's territory, and the purchase of receivables program New Jersey State Law mandates PSE&G to provide to them.
- PSE&G's Involvement in the TPS Contracting Process – This section covers the interchange between PSE&G and TPS when a TPS gains a new customer (or aggregated group of customers) in PSE&G's territory.
- PSE&G Policy Interactions – This section covers PSE&G's participation in relevant state level policy discussions relating to retail choice and evaluates PSE&G's position on supporting retail choice.
- State of Electric Retail Competition in New Jersey – This section benchmarks PSE&G switching rates to other utilities and regions in the country to evaluate the health of retail competition in PSE&G's territory.
- New Jersey Benchmark to PJM and Nationwide – This section benchmarks New Jersey switching rates to other utilities and regions in the country to provide comparison to switching rates in PSE&G's territory.
- Affiliate Representation at PJM/FERC – This section addresses the PSEG representation in PJM and at FERC and the impacts on ratepayers.

Summary of Findings

1. Residential electric Third-Party Supplier ("TPS") participation in New Jersey is lower than the average in PJM States and among deregulated states across the US; commercial and industrial ("C&I") is at or above PJM and national levels.
2. PSE&G customers' electric participation rates for both residential and commercial/industrial are slightly lower than the average of the other Electric Distribution Companies ("EDCs") in New Jersey.
3. A small amount of government energy aggregations are active in New Jersey, a portion of which are within PSE&G territory, although they do not make up a large percentage of retail choice customers.
4. PSE&G supports New Jersey Board of Public Utilities (the "Board" or "BPU") policies to encourage retail choice in New Jersey and actively participates in relevant policy discussions.
5. PSE&G supports the TPS by acting as a point of contact when a TPS is entering the New Jersey retail market by providing consolidated billing to customers on behalf of the TPS and covering those costs, and by purchasing TPS receivables.
6. PSE&G complies with all Board policies governing retail choice and actively considers TPS needs.
7. In PJM and Federal Energy Regulatory Commission ("FERC") matters, PSEG crafts a unified position that is determined within the RTO Strategy Group through the combined input of PSE&G and PSEG Power.
8. PSEG maintains a consistent message to continue safe, affordable and reliable service to its customers in its interactions in FERC and PJM matters. Although -interests behind PSE&G and PSEG Power affiliates tend to be aligned, they conceivably may vary based on the differing revenue sources.[1]
9. PSEG's input into the PJM stakeholder processes consistently focuses on protecting its ratepayers, although PSE&G's input has only a minor effect on PJM's ultimate decisions.
10. PSEG's input into the PJM decision-making process is heavily diluted by equal sector weighting – PJM's decisions are attributable to a large and diverse pool of members many of which do not own transmission and distribution assets but vote in decisions that affect ratepayers.

Our Recommendations

4.1 Provide a link to the Board's "Shop for Energy Suppliers" webpage on PSE&G's retail choice page to make Supplier browsing easier for customers.

4.2 Provide a link to the Company's Price to Compare directly from its "Electric and Gas Choice Customer Information" page to allow customers to easily see the Price to Compare versus TPS rates.

[1] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer, on August 25, 2021.

4.3 Continue to actively participate in supporting retail choice in New Jersey, especially with the roll-out of Advanced Metering Infrastructure.

4.4 PSE&G should initiate discussions with the New Jersey Board of Public Utilities (the "Board" or "BPU") to discuss options and strategies to advocate for new sector weighting in PJM to provide more voting power and influence for members owning significant transmission and distribution assets and that have long-term interests in providing reliable service to end-use customers when voting in transmission-related proceedings, especially regarding New Jersey.

Retail Market Overview

New Jersey's electric market has been fully deregulated since the passing of the Electric Discount and Energy Competition Act of 1999 ("EDECA"), which aimed to lower the cost of energy and improve the quality of service options, and established that New Jersey's energy supply should rely on competitive markets where possible.[2] One key outcome of relying on competitive markets is allowing residential, commercial, and industrial customers to buy energy directly from TPS. The TPS engage solely in the competitive sale of electricity or gas – they are not regulated utilities. This encourages more competition and lower prices by letting consumers purchase energy from multiple entities rather than just the local monopoly utility.

PSE&G is a utility company that delivers both gas and electricity to customers on behalf of TPS but also to electricity and gas customers who choose not to purchase from a TPS in the retail market. These local utility-supplied sales of electricity or gas to non-TPS customers, which are regulated by the Board, are often called "Default Service," "Standard Offer Service," or "Provider of Last Resort" but in New Jersey are called "Basic Generation Service" ("BGS") for electric and "Basic Gas Supply Service" ("BGSS") for gas. Customers in New Jersey are free to come and go from BGS and BGSS.[3] In 2019, 65% of commercial, 73% of industrial and 12% of residential electric sales came from TPS in New Jersey. Retail choice (non-BGS) activity continues to remain lower in New Jersey compared to other states in PJM despite the local EDCs actively supporting the TPS' participation in the market.

Government Aggregation

Customers can participate in retail choice in two ways: by directly contracting with a TPS, or collectively through a government energy aggregation ("GEA"). New Jersey has allowed government aggregations since 2003,[4] although the state's first aggregation was not established until 2012 when legislation

[2] Response to OC-0642, EDECA Complete; N.J.S.A. 48:3-50 a(2).
[3] Response to OC-0229, 2020 BGS Proposal Filing, page 14.
[4] NJ Government Aggregation Act, L. 2003, c. 24, https://www.njleg.state.nj.us/2002/Bills/PL03/24_.HTM.

allowed automatic enrollment.[5] These aggregations consist of municipalities or counties establishing a program to pool together their residential customer accounts to purchase power in bulk from a TPS, often with local officials, volunteers or hired consultants coordinating the discussions with the TPS. These programs allow the municipalities and counties to leverage bargaining power as a group to negotiate competitive rates for their individual customers.

New Jersey's legislative approach to government aggregation supports retail choice by allowing aggregations to automatically enroll customers, unless they are already taking TPS service. They can opt out at any time without fees. New Jersey has also put in some safeguards - an aggregation's overall rate must be lower than the EDC's BGS/BGSS rate (unless, for electric, the TPS offers a green product).[6]

Electric aggregations have been more popular than gas.[7] As of the date January 2022, there are nine electric GEAs in New Jersey and no gas GEAs; during interviews for this audit there were 11 electric aggregations but two expired earlier in 2021.[8]

Third Party Supplier Relationships

TPS Certification Process

New Jersey has approximately 80 gas TPS and over 100 for electric.[9] These suppliers first must obtain a license from the Board before submitting an application to PSE&G.[10] TPS are required to renew their license with the Board each year, a requirement more frequent than most states.[11] PSE&G uses the Board's credit requirements to ensure they are financially sound.[12] PSE&G's Retail Choice Team works with the TPS acting as a point of contact for navigating the New Jersey market – many TPS are active in multiple states and need help understanding New Jersey's specific requirements.[13] PSE&G provided Overland with many different documents that it provides to TPS to introduce them to the New Jersey market and to PSE&G's policies, which comprehensively explain the process and protocols of being a TPS in PSE&G's territory.

TPS must become compliant with PSE&G's Electric Data Interchange ("EDI") software before supplying gas or electricity in PSE&G's territory so they can translate data into the standard documentation used

[5] Gable Associates, https://gabelassociates.com/services/energy-users/government-energy-aggregation/#:~:text=In%202012%2C%20New%20Jersey's%20first,bills%20into%20a%20single%20bid.

[6] http://www.njaggregation.us/downloads/Government%20Energy%20Aggregation%20detailed%20FAQ_RC%20418 2013.pdf.

[7] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.

[8] Response to OC-1520.

[9] https://nj.myaccount.pseg.com/MyServicePublic/EnergyChoiceAndThirdPartySuppliers/InformationForCustomers.

[10] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.

[11] https://www.state.nj.us/bpu/about/divisions/energy/thirdparty.html.

[12] Response to OC-1178.

[13] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.

by PSE&G and transmit information using PSE&G's Transport Protocol.[14] It is through EDI that the TPS can add customers and receive the necessary data. The roll-out of Advanced Metering Infrastructure ("AMI") may change the software used for customer information gathering, but PSE&G plans to decide on the software used for AMI through a working group process to consider the various impacts of the change.[15]

TPS Purchase of Receivables Program

New Jersey, like most states offering retail choice, has a purchase of receivables ("POR") program in place that allows a utility like PSE&G to purchase the receivables (customer bill balances due) of the TPS. The POR program is available only to TPS on consolidated billing, meaning that PSE&G sends one bill to the customer with charges due to PSE&G and the TPS.[16] Currently, about 86% of customers enrolled with TPS are on consolidated billing.[17]

Consistent with Board Orders and the Board-approved Customer Account Services Master Services Agreement, PSE&G cannot deny a TPS asking to enroll in the POR program based on the TPS's rate structure, whether fixed or variable rate.[18] This POR system allows steady revenues and cash flows for TPS. This is intended to support retail choice by shifting the revenue delay and collection to the utilities, which are larger and more able to sustain the payout uncertainty.

PSE&G pays the TPS for their receivables within 20 days of the customer receiving their bill. For electric the Company pays the TPS dollar for dollar; for gas there is a small discount in the amount that TPS are paid.[19] New Jersey's POR provision is with recourse, meaning that if the account is more than 120 days in arrears for electric and gas, the customer is switched back to dual billing, and going forward, PSE&G no longer purchases that customer's receivables.[20] Each party retains responsibility for their own receivables.[21] At this point PSE&G still owns the outstanding receivables, but will not purchase any more for this specific customer.[22]

[14] Third Party Supplier Electric Operating Manual, Nov 5, 2021 (last updated), page 9. https://nj.myaccount.pseg.com/myservicepublic/energychoiceandthirdpartySuppliers/-/media/174384e5a41f40fd9bdd3bfe45420db9.ashx

[15] Response to OC-1526, 2021-10-07 PSEG Comments on Staff's Straw Proposal EO20110716, page 4.

[16] Response to OC-1524.

[17] Response to OC-1525.

[18] Response to OC-1178.

[19] PSE&G Third Party Supplier Gas Choice Operating Manual November 5, 2021[modified] ("Gas TPS Manual"), page 29, https://nj.myaccount.pseg.com/-/media/PSEG/NJMyAccount/GatherContentDocuments/1-2-6-5EnergyChoiceDocuments/gas_manual.ashx; Third Party Supplier Electric Operating Manual Nov 5, 2021(last updated) ("Electric TPS Manual"), page 26; https://nj.myaccount.pseg.com/myservicepublic/energychoiceandthirdpartySuppliers/-/media/174384e5a41f40fd9bdd3bfe45420db9.ashx.

[20] Gas TPS Manual, page 27; Electric TPS Manual, page 29.

[21] Gas TPS Manual, page 26; Electric TPS Manual, page 28.

[22] Response to OC-1522.

PSE&G's POR policy also specifies that if a customer disputes a TPS's charges and the dispute is not resolved, the value of the missing receivables is deducted from the next payment to the TPS. In this case the TPS can take over the responsibility of pursuing the overdue payments from the customer and also send its own separate supply bill because the charges become the receivable of the TPS.[23]
The POR program is only available for TPS customers who are on consolidated billing, which is limited to customers who meet a certain creditworthiness requirement set by the Board.[24] This minimizes the risk of customer default by limiting the POR program to customers with a certain base level of creditworthiness but allows the ultimate risk to be shifted back to the TPS if a customer is wrongly billed.

PSE&G's Involvement in the TPS Contracting Process

PSE&G provides information to a TPS for each customer that could either enroll directly with a TPS or through an aggregation.[25] For customer-initiated enrollments, PSEG will provide to a TPS customer specific historical usage information (Including Capacity and Transmission information) upon request. Upon receiving a customer-initiated enrollment, PSE&G will provide to a TPS an enrollment confirmation and will subsequently provide monthly-billed usage to the TPS.

With respect to a government aggregation program, there are two levels of data provided for customers, referenced as "Phases":

Phase 1

- Historical usage
- Number of residential customers by rate class
- Capacity/transmission obligation

Phase 2

- Name
- Address
- Account number
- Additional information such as payment plan type, billing routing number or whether net-metered

Aggregated Phase 1 data is provided when a TPS is considering pricing a bid for a government aggregation. This information allows the TPS to build up a load profile. Phase 2 data is provided once the contract is signed between the municipality and the TPS. The data is used to communicate with customers and provide them the opportunity to opt out before becoming enrolled with the TPS. After receiving an enrollment, PSE&G will provide the TPS an enrollment confirmation, and will subsequently provide monthly-billed usage to the TPS.

[23] Response to OC-1178.
[24] Responses to OC-1173 and 1524.
[25] Response to OC-1519.

As the asset owner of the meter infrastructure and physical touchpoint with the customer, PSE&G has several responsibilities to its customers taking TPS service. At the state level, PSE&G is responsible for submitting switching statistics to the Board to track changes in retail participation.[26] PSE&G notifies customers any time they come off BGS, whether they have chosen to enroll directly with a TPS, or when they are automatically enrolled in a government aggregation. Secondly, customers who take TPS service may receive either separate supply (TPS) and delivery (EDC) bills or "consolidated billing" which allows the EDC to send one bill to the customer with both charges. The customer will receive a consolidated bill from the EDC if the customer meets the creditworthiness standards set by the BPU and does not select dual billing. For both gas and electric, TPS are allowed up to 50 lines of text on the consolidated bill that PSE&G sends, on which they can advertise their business.[27] For TPS customers on consolidated billing, PSE&G takes on the responsibility and cost of billing services for the TPS.

PSE&G has numerous controls in place to maintain the accuracy of its TPS data and financial record keeping. These are discussed in Chapter 5: Electric Procurement and Supply.

PSE&G Policy Interactions

PSE&G regularly interacts with other companies to stay current on supporting retail choice. PSE&G is a member of the EDC/EDI[28] Workgroup run by the Board. In these meetings the EDCs discuss how other states approach retail choice and government aggregation policy. PSE&G's general approach to retail choice policy is to accept change that is brought about by the Board and be supportive of the Board's initiatives to further grow retail choice in New Jersey.[29]

PSE&G provided Overland with agendas for one year of EDC/EDI Workgroup meetings. Although most scheduled meetings were cancelled, updates were provided each month in lieu of those meetings. The agendas concerned the implementation of AMI, mainly relating to the roll-out of net metering in various EDCs' territories, customer information system changes (to Oracle) and PSE&G sharing interval data with the group.[30]

Recent initiatives that PSE&G has supported in New Jersey have included reducing the time to switch, which encourages better competition in the industry as customers can easily move to the TPS with the best price. PSE&G has also supported a recent policy change to increase the number of days in arrears a customer's receivables must reach before PSE&G stops purchasing the TPS receivables, giving more security to TPS. A discussion of the purchase of receivables program is provided below.[31] Finally, PSE&G

[26] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.
[27] Gas TPS Manual, page 24; Electric TPS Manual, page 26.
[28] Electronic Data Interchange ("EDI") is the software used to collect and exchange customer use data.
[29] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.
[30] Response to OC-1517, NJEDI Working Group Minutes.
[31] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.

has listened to TPS concerns with the rollout of AMI with the objective to maintain and enhance retail competition in New Jersey.

AMI

The Company currently uses EDI to send interval data, where available, to the TPS that allows hourly reads instead of traditional monthly reads.[32] PSE&G is working to minimize the impact of their roll out of AMI on retail choice in their territory by considering requests made by the TPS themselves. During the proceeding relating to the deployment of AMI meters, four TPS filed as intervenors to support the implementation of AMI itself but also to ensure data access would allow retail competition to continue without friction.[33] They also argued that allowing PSE&G sole ownership of this data would give the Company an unfair competitive advantage as an electric Supplier (through BGS), leveraging its monopoly power.[34]

While the AMI deployment will last through 2024, discussions continue around the specifics of the AMI program, including recommendations from Board Staff that customers share data with TPS with "a minimum of hassle" to keep data access fair.[35] PSE&G has agreed with that recommendation that AMI meter data be made available, subject to a registration requirement to maintain the integrity of customer privacy and Company cybersecurity.[36]

AMI should benefit TPS much the same as it will benefit PSE&G – more granular data should help with customer segmentation and analysis, leading to better load profiling and forecasting.[37] AMI should also enable benefits to retail customers who wish to participate in demand response by working with Curtailment Service Providers ("CSP") to voluntarily reduce demand and receive capacity, day-ahead, real-time or ancillary service market revenues – this would also benefit the CSP (who may be a TPS themselves) to more efficiently predict the demand reduction that is their bid product.[38] Provided that data sharing requirements set by the Board include provisions to keep coordination with TPS streamlined, AMI should not impair the growth of retail choice in New Jersey.

[32] Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.
[33] Response to OC-1174, Market Participants CEF-EF Testimony Gibbons Direct Testimony And Exhibits, page 8.
[34] Response to OC-1174, Market Participants CEF-EC Testimony Gibbons Direct Testimony And Exhibits, page 6.
[35] Response to OC-1174, EO20110716 PUBLIC+NOTICE 2021-08-24, page 9.
[36] PC-1526 2021-10-07, PSEG Comments on Staff's Straw Proposal EO20110716, page 4.
[37] Response to OC-1174, Market Participants CEF-EC Testimony Gibbons Direct Testimony And Exhibits, page 10.
[38] https://learn.pjm.com/three-priorities/buying-and-selling-energy/markets-faqs/~/media/BD49AF2D60314BECA9FAAB4026E12B1A.ashx.

State of Electric Retail Competition in New Jersey

Switching Process

The process for switching from BGS/BGSS service to a TPS is the same for PSE&G customers as it is for the other EDCs in New Jersey.[39] PSE&G provides a link for a list of all certified TPS in the state on their "Electric and Gas Choice Customer Information" webpage.[40] From here, customers can open a file with a list of TPS including name, address, location, phone number and website. If a BGS customer chooses to switch to a TPS, they can switch in under a month if their TPS submits an enrollment at least 13 days before their next meter read for electric, or by the 10th day of the month for gas.

The New Jersey BPU website has its own "NJ Power Switch" webpage that provides streamlined browsing of TPS and includes quick links to pricing quotes on its "Shop for Energy Suppliers" webpage, which PSE&G's Supplier browsing site does not. It would be easier for customers to switch to a TPS if PSE&G included a link to the NJ Power Switch website in their retail choice webpage. Customers base their benefit to switching to a TPS by comparing the TPS rate to their EDC's Price to Compare, a retail electric rate for BGS that each EDC must publish on their website. PSE&G publishes its Price to Compare quarterly, while some EDCs in New Jersey publish theirs annually or every one or two months. While PSE&G's Price to Compare is easily located through Google search, it is not linked to its "Electric and Gas Choice Customer Information" webpage. This price posting is vital to a customer's choice to switch and should be more easily found on PSE&G's website.

Switching Statistics Benchmarking

PSE&G does not perform benchmarking studies to compare their switching rates to other states but complies with all Board rules regarding TPS choice.[41] Below in Table 4-1, switching benchmarking data of PSE&G to other EDCs in New Jersey is provided.

PSE&G Benchmark to Other EDCs in New Jersey

EDECA established that customers have the right to choose their electric supplier, and that this choice should enable competition in the electric industry – and promote efficient pricing. One common measure of robustness of competition is the switching statistic, which is the measure of customers taking TPS service instead of BGS; this is also called the retail choice participation rate.[42] Few states publish this data at the individual company level, but the New Jersey BGS website publishes this for each of the four EDCs. Table 4-1 below shows the percentage eligible customers (measured by load in MW) who have chosen to take TPS service, including those in government aggregations. This share has varied over the past decade as government aggregations are established, and the difference in TPS rate and

[39] Response to OC-1187.

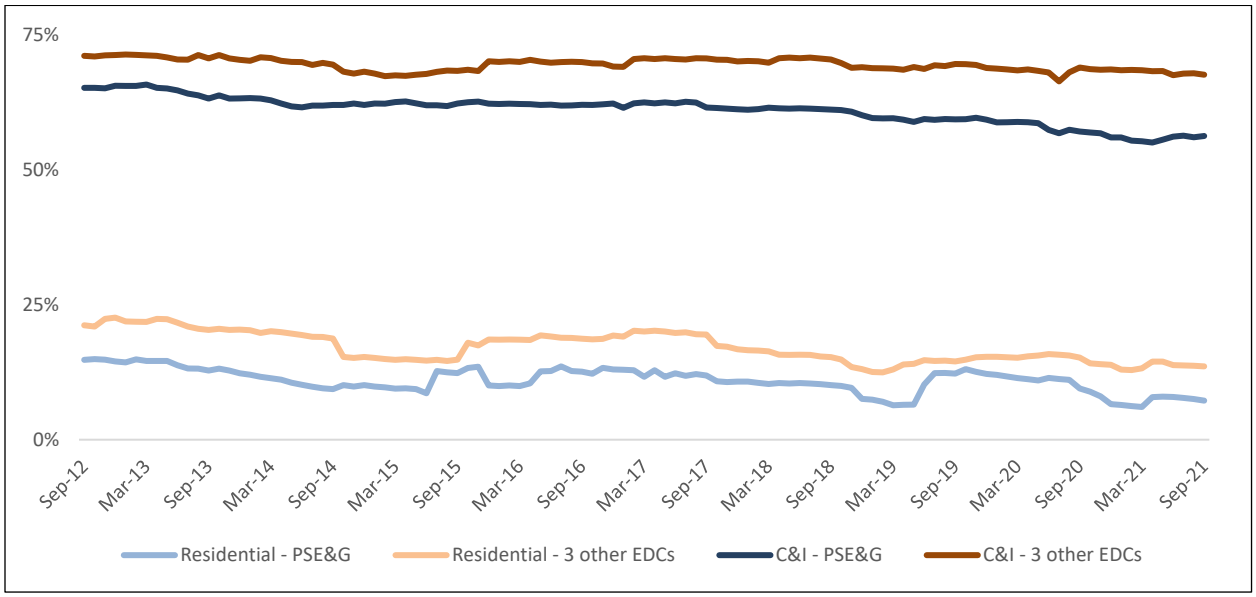
[40] https://nj.myaccount.pseg.com/MyServicePublic/EnergyChoiceAndThirdPartySuppliers/InformationForCustomers.

[41] Response to OC-1187.

[42] Description of EDC Data and Documents in the Monthly Data Portion of the BGS Auction Data Room Revised 1-30-2019 https://www.bgs-auction.com/documents/Data_Descriptions_-_Updated_Monthly_Data_30_Jan_2019.pdf.

the Prices to Compare varies with the market. Overland requested explanation from PSE&G about the low switching rates in PSE&G's territory compared to the other EDCs, and why there were spikes or drops in switching in 2015 and 2019. The Company indicated that while it does not generally speculate on specific reasons for changes in switching rates, the number of customers participating in government aggregation programs increased considerably in 2019, and generally weather, TPS pricing and strategy as compared to default service pricing, and customer risk tolerance, among other factors, could all play a role in the variability of switching rates.[43]

Table 4-1 Percentage of Customer Load (MW) Taking TPS Service by Month, PSE&G and Other 3 New Jersey EDCs [42]



Across the EDCs, switching levels remain higher among the CIEP class than RSCP, with 55-70% of CIEP load taking TPS service while only 5-25% of RSCP load do. A higher commercial and industrial participation rate is common in most retail choice states because large commercial and industrial customers have the resources and ability to make more sophisticated purchasing decisions to cover their higher load, while residential customers may opt for the simpler option to stay with the utility. As shown in Table 4-1, switching rates for PSE&G tend to be lower than for other EDCs. Table 4-2 below shows the Price to Compare for each of New Jersey's four EDCs for September through December 2021. PSE&G has the lowest Price to Compare among the EDCs and therefore the hardest price to beat to incentivize switching to a TPS, which may explain their lower switching levels.

[43] Responses to OC-1572 and 1573.

Table 4-2 - Price to Compare Across New Jersey EDCs: Residential Winter Electric Rates as Seen by Customers ($/kWh) September-December 2021 [44]

Prices to Compare Across New Jersey EDCs			
PSE&G	**ACE**	**JCP&L**	**RECO**
$ 0.0740	**$0.1096**	**$0.0835**	**$0.1040**
Notes: **Prices shown are pulled directly from the companies' websites and are cited as seen by the consumer.** **PSE&G: excludes Transmission Charge, NJ SUT and BGS Reconciliation Charges.** **ACE: includes Transmission Charge, NJ SUT, Reconciliation Charges and Transmission Enhancement Charges.** **JCP&L: includes NJ SUT, excludes Reconciliation Charges and Transmission Charges.** **RECO: Simple average of Bergen, and Passaic and Sussex County rates: ($0.11158 + 0.09643)/2 = $0.1040. Includes supply, Transmission Charge, NJ SUT and Base Transmission Charge for one region.**			

[44] https://nj.pseg.com/aboutpseg/regulatorypage/pricetocompare; https://www.atlanticcityelectric.com/MyAccount/MyService/Pages/Price-to-Compare.aspx; https://www.firstenergycorp.com/content/dam/customer/Customer%20Choice/Files/New%20Jersey/PriceToCompare.pdf; https://www.oru.com/-/media/files/oru/documents/saveenergyandmoney/shop-for-energy-money/how-to-choose-your-energy-service-company-esco/recopricetocomparenj.pdf.

New Jersey Benchmark to PJM and Nationwide

EIA data shows that participation rates measured by MWh sales have been fairly stable for both residential and commercial/industrial consumers in the state of New Jersey, the entire PJM region, and all Deregulated States over the past five years as shown in Table 4-3. Note that EIA and the New Jersey BGS website publish load data differently: the EIA measures load in MWh while the BGS website uses MW.

Table 4-3 - Percentage of Electricity Sales (MWh) to Ultimate Customers from TPS[45]

Percentage of Electricity Sales (MWh) to Ultimate Customers from TPS						
	Residential			Commercial & Industrial		
	NJ	PJM*	All Deregulated States**	NJ	PJM*	All Deregulated States**
2015	13%	24%	19%	69%	64%	51%
2016	14%	24%	19%	69%	65%	52%
2017	16%	24%	19%	69%	65%	52%
2018	13%	24%	20%	68%	65%	53%
2019	12%	23%	21%	66%	64%	54%

*For the purposes of this metric, states with deregulated electric markets in PJM include Delaware, Maryland, New Jersey, Ohio, Pennsylvania, Virginia, and the District of Columbia. States within PJM's territory that do not have deregulated electric markets and are not included are Kentucky, North Carolina, and West Virginia. States that are partially, but not majority in PJM include Indiana, Michigan, and Tennessee; Illinois is approximately two-thirds in PJM and has been excluded from this analysis.

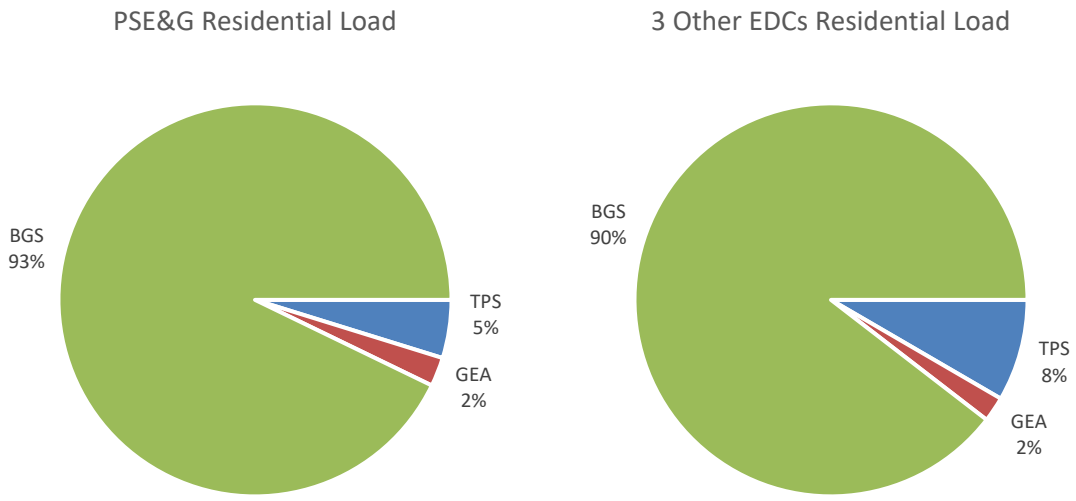
**All deregulated states does not include Texas, which does not broadly offer default service and is not a comparative deregulated environment.

Switching rates for residential electric customers have been fairly steady in New Jersey, PJM and across the US. Although residential switching rates in New Jersey are lower than the rest of PJM, on average, New Jersey's switching rates are not significantly lower than the average of all deregulated states. For Commercial and Industrial customers, New Jersey's switching rates are much higher than the average of other deregulated states and slightly higher than the other PJM states.

Government aggregations provide large clusters of TPS customers when formed. The BPU and BGS websites do not provide historic switching data for government aggregations but do provide a November 2021 snapshot. Table 4-4 shows that a small share of PSE&G's load (MW) on government aggregation contracts, and that aggregations are a small portion of retail choice across New Jersey.

[45] Electricity Sales to Ultimate Customers by State by Sector by Provider (EIA-861), https://www.eia.gov/electricity/data/state/.

Table 4-4 – November 2021 Residential Load by Supplier (MW)[45]



New Jersey's guaranteed savings provision for government aggregations, which only allows contracts with a per kWh or therm rate that is lower than the local EDC BGS rate may prevent some aggregations from forming.[46] For example, the Piscataway Township was discontinued when Supplier bids were higher than the BGS rates offered by PSE&G.[47] The inability of some TPS to offer contracts with rates lower than the local EDC indicates that the NJ EDC's prices to compare are competitive with the market and customers may not have the financial incentive to participate in retail choice individually if the options are not sufficiently cheaper than their local EDC. The Price to Compare is directly linked to winning BGS auction prices, which are set by the TPS that bid into that auction and the rate design approved by the BPU, leaving the Price to Compare tied to the market itself. Few other states require a guaranteed savings provision.[48]

PSEG Affiliate Relationship in PJM/FERC Matters

As described in depth in Chapter 5: Electric Procurement and Supply, PSE&G and other PSEG affiliates vote with a unified position on PJM matters, but both can participate in PJM and FERC matters as individuals. PSE&G and affiliates under PSEG Power may have differing motives and therefore opinions but maintain a consistent message under the PSEG brand. PSEG's position is centered around long-term system reliability, especially since PSEG's business interests are weighted towards PSE&G's transmission and distribution business and are focused on customer delivery.[49]

[46] Response to OC-1516 citing NJ Admn Code 14:4-6.9 Price requirements for government-private programs.

[47] https://www.piscatawaynj.org/information/energy_aggregation.php.

[48] New York requires guarantee savings as reconciled annually for non-GEA TPS contracts; Maryland and Illinois have guaranteed savings provisions for low-income customers contracting directly with TPS.

[49] Response to OC-0613.

Participation in the PJM Stakeholder Process

In PJM, the PSEG companies only have one vote to represent both interests, which is cast within the Transmission Owners sector. At a high level, PSEG's unified position is determined by the Deputy General Counsel & RTO Strategy Officer[Jodi Moskowitz] as a result of attending different committees that discuss matters related to PJM. Chapter 5: Electric Procurement details specific topics and PSEG's stance on them. Generally, PSEG's position has advocated for reliable yet cost effective transmission planning and development, the separation of responsibilities of PJM and the Transmission Owners, sovereignty of Transmission Owners to make asset management decisions, energy markets that support New Jersey public policy goals and value carbon-free resources and allow them to participate in the market, and reforms that assure asset owners are fairly represented in the stakeholder process and decision making.[50]

As discussed in Chapter 5: Electric Procurement, PSEG's vote in PJM is heavily diluted and amounts to 1.43%.[51] PSEG's indirect influence, through presentations, comments and other public opinions, has revolved around ratepayer needs and interests whether through prioritizing long-term value and cost effectiveness of investments, resiliency, or public policy goals. While the ultimate impact of PSEG's participation in PJM and FERC policy making is not measurable, its underlying positions are in the best interest of, and are intended to benefit, customers.

Participation in FERC Matters

PSEG's interaction at FERC is through direct filings of PSE&G or other affiliates, group filings for the PSEG Companies as a whole, or either of those filed jointly with other transmission or generation owners. In the past three years, PSEG has participated in FERC dockets related to its own regular transmission tariff filings or those of other Transmission Owners in its three RTO regions, FERC-initiated investigative proceedings, and FERC-conducted technical conference proceedings. PSEG has also been an active intervenor in PJM filings where it was already participating in the stakeholder process before the FERC proceedings, such as the Minimum Offer Price Rule ("MOPR") filing.[52]

PSEG's participation in FERC matters has been consistent with the company's unified position in PJM matters. For example, it has filed comments in various stakeholder proceedings, including support for climate policy including a carbon tax, free markets to encourage participation in ancillary markets, Transmission Owners' rights over interconnections, market rules in support of nuclear facilities, and

[50] Response to OC-0613.

[51] Response to OC-1189 and Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer, on August 25, 2021.

[52] In October 2018, PJM filed tariff changes that set price floors in the capacity auction for resources receiving subsidies; these floors were in response to PJM's argument that subsidized resources distorted the market by setting clearing prices too low. This included most renewables that had received production and investment tax credits, and nuclear receiving state support such as New Jersey's ZECs. PSEG stated in early 2021 that it still expected its nuclear units to clear the upcoming capacity auction. A revised MOPR with fewer restrictions, which was more favorable to renewable and nuclear resources, was approved in 2021; OC_0255_2020 PSEG 10K, page 14.

overall stances to support system reliability.[53] Among these issues, the underpinning argument has been to either protect ratepayer's financial or reliability interests, or to support state policies as set by the public.

Ratepayer Impacts

FERC matters are complex and process-driven procedures that typically include numerous stakeholders. PSE&G inputs into these dockets are based on representing its customers' interests. PSE&G's stance in participating in these matters has been focused on reliability and cost saving, and public policy concerns that ultimately protect customer interests. The final decisions are determined by the FERC or through settlements with all the stakeholder parties.

[53] Response to OC-0034.

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5. ELECTRIC PROCUREMENT AND SUPPLY

Introduction and Overview

This chapter covers the process for PSE&G to secure electric supply for its supply customers who have not elected to participate in retail choice. As a deregulated state, New Jersey has its utilities procure electricity through suppliers who are chosen by an annual auction, described in further detail in the chapter below. It is divided into the following sections:

- Overview of PSE&G Procurement – This section provides a high-level overview of PSE&G's electric procurement department and relevant state and regional elements of electric supply, including PJM and electric market deregulation.
- Staffing in the Power Procurement Function – This section covers PSE&G's approach to staffing its power procurement and supply function.
- BGS Power Purchases – This section provides an overview of the Basic Generation Service auction process that PSE&G uses to procure energy for its default electric customers, analyzes the cost elements Basic Generation Service, and reviews the controls in place to maintain the power supply and procurement function.
- Non-BGS Power Purchases – This section provides an overview of PSE&G's non-BGS power purchase, which are comprised of a few small contracts related to the Public Utility Regulatory Policies Act of 1978.
- Interactions with PSEG Power – This section explains the separations in place between PSEG Power and PSE&G as it relates specifically to power supply and procurement.
- PJM/FERC Involvement – This section reviews PSE&G's involvement in the PJM stakeholder process and its position relating to key PJM issues in recent years.
- ZEC Program – This section addresses the carbon reduction benefits to New Jersey paid for the continued operation of nuclear plants in PJM.
- Planning and Reliability – This section reviews the effect of PSE&G's decisions relating to electric supply planning on its customers.

Summary of Findings

1. The annual Basic Generation Service ("BGS") Auction Process includes all the Electric Distribution Companies ("EDCs") including PSE&G, has been in place since 2002, and is subject to annual review and approval by the New Jersey Board of Public Utilities (the "Board" or "BPU"). The EDCs retain an independent consultant to run the process, NERA, and the Board

retains Bates White, an independent consultant, to provide a final report on the outcome and integrity of the process.

2. The underlying goal of the BGS procurement process is to obtain reliable supply on behalf of BGS customers at prices consistent with market conditions. The annual BGS Residential Small Commercial Pricing ("RSCP") process provides residential and small commercial customers with stable rates and less volatility through three-year fixed price auctions for multiple tranches with multiple Suppliers.
3. The BGS RSCP auction process has been historically successful in providing steady, market-based prices for residential and small commercial customers.
4. Delayed PJM capacity market auctions had the potential to introduce a risk premium in recent years associated with uncertainty in the wholesale electric market capacity prices, but this premium was eliminated with the use of capacity market proxy prices and a true-up mechanism for actual costs incurred.
5. While the Electric Procurement and Supply function within PSE&G is run by a dedicated team, they do not have a formal succession plan and run the risk of being without key personnel should their historically low turnover cease.
6. PSE&G contracts a small amount of electricity from legacy PURPA contracts which are paid based on avoided cost rates.
7. PSE&G and PSEG Power are adequately separated by the Federal Energy Regulatory Commission ("FERC") and New Jersey affiliate rules and interact as independent entities in the market.
8. PSE&G and PSEG Power coordinate one unified corporate position at PJM that represents the best interests of both parties but also for PSE&G's ratepayers.
9. PSEG crafts a unified position in PJM and Federal Energy Regulatory Commission ("FERC") matters that is determined within the Federal Regulatory/RTO Strategy Group through the combined input of PSE&G and PSEG Power.
10. PSEG Power's three nuclear units receive Zero Emission Credit ("ZEC") payments as certified eligible units under New Jersey law.
11. PSE&G participates in the ZEC program by collecting Zero Emission Credit Recovery Charge ("ZECRC") Rider revenues from ratepayers, in accordance with New Jersey law, and using these monies to make ZEC payments to eligible nuclear generators annually; these units are wholly or jointly owned by its affiliate PSEG Nuclear.
12. The first three-year ZEC program for the nuclear units was approved by the Board for 2019-2022 after thorough input from numerous stakeholders following review of significant detailed financial and other eligibility information regarding the nuclear units provided by the nuclear generators.
13. The second three-year program for 2022-2025 was approved in April 2021 by the Board and the $10/MWh ZEC payment to the generators was continued after review of detailed financial information submitted by the nuclear generators and thorough stakeholder review by the Board and intervenors.

14. PSEG Power and PSE&G operate as independent entities in New Jersey's electric market as mandated by Electric Discount and Energy Competition Act ("EDECA"). All ZEC-related payments are made in accordance with Board Orders approving the ZEC program and appropriate ZECRC charges to NJ ratepayers.
15. Recordkeeping for the ZEC program is tied to PSE&G's customer deliveries and PSEG Power's actual generation output as recorded at PJM. These processes have robust record keeping controls in place relating to power settlement and payment.
16. Nuclear generators are required to make annual filings to the Board demonstrating their continued financial need as well as the actual output from the plants, which determines the payment from the EDCs.
17. PSE&G makes annual filings to the Board detailing their total ZECRC collections which are used to fund their portion of the ZEC payments made to the nuclear plants who are eligible under the ZEC program.
18. PSE&G's planning to maintain reliability is done in conjunction with PJM's transmission planning process and the Board's BGS auction process.

Our Recommendations

5.1 PSE&G should not implement any changes in current BGS policies and practices until their proposal is approved by the Board.

5.2 The Electric Procurement and Supply function in PSE&G should adopt a more formal documented succession planning process for all of its manager-level and key analyst roles to maintain secure operations in the future.

5.3 The Board should look at the impacts post sale of PSEG Power fossil facilities relative to the financial information provided and justification of ZECs to make sure stranded shared Service Company costs are not included as part of the financial hardship justification included by the nuclear plants in any future ZEC application.

5.4 The Board should conduct an inquiry or audit of PSEG Services allocation methodology to ensure that none of the stranded shared services costs resulting from the sale of PSEG Power's assets will be charged to the PSE&G ratepayers post-closing of the transaction.

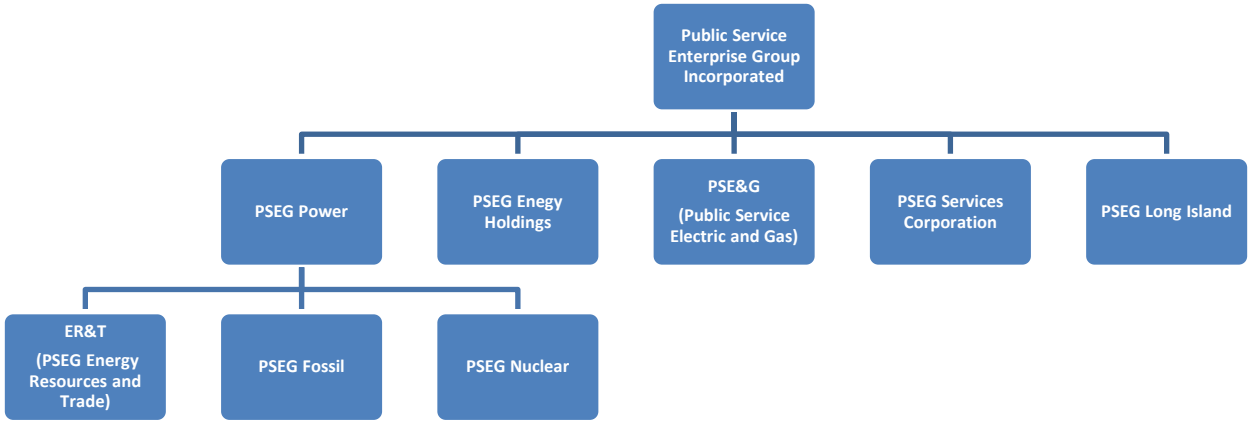
Overview of PSE&G Procurement

Organization

The PSEG organizational structure is explained more fully in Chapter 11. The simplified organization structure chart in Table 5-1 highlights the key entities necessary to understand electric procurement and supply. PSEG, the parent company of the utility that is the subject of this audit, owns subsidiaries dedicated to the generation of electricity (PSEG Power), specifically from fossil-fuel based assets (PSEG

Fossil)[1] and nuclear assets (PSEG Nuclear), as well as the marketing and dispatching of the assets' output (Energy Resources and Trade or "ER&T"). PSEG also owns interests in offshore wind projects connecting to PJM that are currently under construction, through PSEG Energy Holdings.[2] All these affiliates are provided management, administrative and general services from PSEG Services Corporation.[3]

Table 5-1 – Simplified Public Service Enterprise Group Organizational Chart[4]



PJM

PJM is a FERC - regulated regional transmission organization ("RTO") that covers much of the Mid-Atlantic region. As an RTO, PJM coordinates non-discriminatory transmission access to its members, conducts regional transmission planning and operates an auction-based wholesale electric market. Since the Electric Discount and Energy Competition Act of 1999 ("EDECA") restructured the New Jersey electric market in 1999 and required the utilities to divest their generation assets, the New Jersey EDCs[5] have depended on PJM to act as grid operator to oversee and manage the electric wholesale generation markets, subject to FERC jurisdiction, where competitive Suppliers and generators buy and sell electricity. These competitive auction-based markets coordinate the sale of both capacity and energy at market-clearing prices, called Locational Marginal Prices ("LMPs") that vary by location within PJM to reflect local market conditions (demand, transmission constraints, supply shortages, etc.).

PJM is not a government entity but does act as a central coordinator of the electric grid in the region, interacts directly with the local state authorities and is under the ultimate authority of the FERC. PSE&G has been a member of PJM since its inception and participates directly in the RTO's decision-making

[1] PSEG Power recently completed the process of selling its non-nuclear generation, including both fossil-fuel and renewable assets, to ArcLight Capital Partners and Quattro Solar INC., respectively.

[2] Responses to OC-0590, page 3, and 0255_2020 PSEG 10K, pages 56 and 92.

[3] Response to OC-0255_2020 PSEG 10K, page 2.

[4] Represents the organization before the sale of PSEG Power's fossil fuel assets to ArcLight – PSEG Fossil is no longer a subsidiary of PSEG Power.

[5] PSE&G, Atlantic City Electric ("ACE"), Jersey Central Power & Light ("JCP&L") and Rockland Electric Company ("RECO").

process as a voting member of the PJM transmission owner sector. PSE&G and the other PJM transmission owners also possess separate shared contractual rights and responsibilities governing their relationship with PJM and exercise those rights and responsibilities through participation in a transmission owners agreement administrative committee. Although PSE&G has multiple affiliates in PJM, their collective vote is cast by PSE&G as a transmission owner. PSE&G's transmission and distribution territory is confined to PJM, while PSEG Power, prior to the recent sale of its non-nuclear generation assets, owned assets in three RTOs: PJM, the New England Independent System Operator ("ISO-NE") and the New York Independent System Operator ("NYISO").[6]

Retail Energy Market in NJ

As explained in Chapter 4: Market Conditions, New Jersey's electric customers have two options to buy electricity: from Third-party Suppliers ("TPS") or from the EDC through a Board-approved annual auction process. New Jersey restructured its electric market with the passing of the Electric Discount and Energy Competition Act ("EDECA") in 1999. The principal reasons were to keep costs low and create a robust retail market.[7] This restructuring established retail choice, required the NJ utilities to sell their regulated generation plants and also procure default service from competitive Suppliers who bid into the New Jersey Board-run BGS auction for all customers who decide not to participate in the competitive market.[8]

BGS Overview

BGS is a market-priced supply service mandated by the restructuring of New Jersey's energy market.[9,10] PSE&G acts as an agent for its BGS customers and rather than buying electricity directly from the market, procures electric supply in the Board-run BGS auction for all NJ electric distribution utilities. PSE&G and other utilities in New Jersey (collectively, the "Electric Distribution Companies" or "EDCs") have been participating in these annual auctions since 2002. Competitive Suppliers participate in the Board-run auction and take on load-serving entity responsibility.[11,12] This Board run process results in qualified Suppliers to the EDCs selected solely on price through a competitive process that secures the lowest prices for ratepayers. This auction process has been in place and has been thoroughly reviewed and improved through minor modifications over the last 19 years.

[6] Response to OC-0653.

[7] 2019 New Jersey Energy Master Plan, page 107, https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

[8] Docket Nos. EX01050303, EO01100654, EO01100655, EO01100656 and EO01100657, order dated December 10, 2001, page 19.

[9] Response to OC-0229, 2020 BGS Proposal Filing.

[10] N.J.S.A. 48:3-57d: Power procured for basic generation service by an electric power Supplier shall be purchased at prices consistent with market conditions (EDECA page 14).

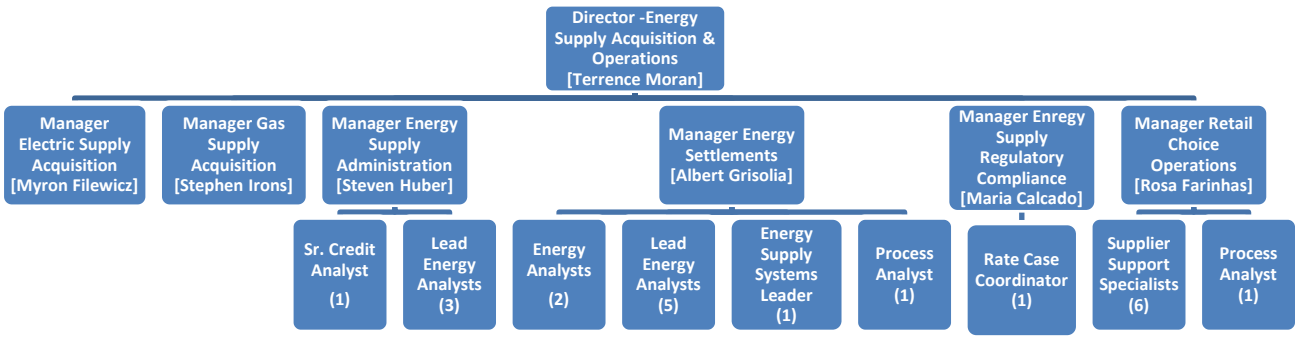
[11] Response to OC-0641_Basic Generation Service Controls, page 4.

[12] In the rare occasion that the amount of electricity procured through the auctions is less than the EDCs' specific targets, EDCs with shortfalls may implement Contingency Plans that allow them to purchase energy directly from PJM wholesale markets (Response to OC-0229, 2020 BGS Compliance Filing, Compliance BGS-CIEP Auction Rules, page 58).

Electric Procurement and Supply Organizational Structure

The Energy Supply Acquisition and Operations group within PSE&G has six main departments, shown below in Table 5-2. The director is responsible for energy supply procurement, retail choice operations, electric and gas settlement processes, regulatory support and compliance, and overall supply administration.[13] All departments cover both gas and electric aside from the supply acquisition teams; there is one Manager for electric supply and one for gas who perform similar tasks. The Energy Supply Acquisition and Operations Director also works with these managers to determine policy positions in the state and within PJM. There is a department dedicated to energy supply administration, specifically managing BGS and BGSS[14] payments, and another department for settlements to make sure all numbers are accurate for electric and gas service. Because PSE&G delivers both gas and electric, it owns all meter connections on its electric and gas distribution system and has responsibility for all meter reads, including customers taking energy from a TPS. Lastly, there is a department dedicated to retail choice, which manages and interacts with TPS and participates in New Jersey state policy discussions relating to retail choice.[15] The Energy Supply Acquisition and Operations group's work also includes interaction with other PSE&G groups, especially the RTO Strategy group under PSEG Services.

Table 5-2 – Simplified PSEG Corporate Structure[16]



Staffing in the Power Procurement Function

Diversity of Power Purchases

PSEG as a corporation has diversity and inclusion commitments in which the Company recognizes that the business must reflect its customer base.[17] PSEG has set records in recent years by buying more than

[13] Interview of Terrence Moran, Director of Energy Supply Acquisition and Operations, on August 18, 2021.

[14] Basic Gas Supply Service ("BGSS") is the equivalent default service for gas customers in New Jersey, discussed in Chapter 6: Gas Procurement and Supply.

[15] Interview of Terrence Moran, Director of Energy Supply Acquisition and Operations Interview, on August 18, 2021.

[16] Headcount levels as of May 2021, Response to OC-0258 Energy Supply Acquisition and Operations Organizational Chart.

[17] Response to OC-0636_Standards of Conduct PSEG PDF, page 13.

20% of the company's goods and services from diverse Suppliers.[18] Specific to its procurement of power supply, the Company does not have any specific directives for procuring from minority-owned businesses. Because the procurement function is subject to the BGS and Purchased Electric Power ("PEP") tariffs, it is subject to those procurement requirements which ensure fairness and allow all qualifying entities to participate.[19] Specific to BGS, because it is a highly confidential auction requiring pre-qualification, all participating parties have fair access so it is not possible to give preference to any specific categories of Company ownership. This design also applies to selection of affiliate and non-affiliate Supplier selection. ER&T has previously participated in BGS auctions but bid into the auction just as any other Supplier, giving PSE&G no say in if or how much of their product is awarded to ER&T. ER&T did not participate in the BGS auctions in 2021 and 2022.

Previous Audit Recommendation

In the 2012 audit, Overland suggested that the Company increase staffing levels in all energy procurement areas. PSE&G disagreed with this recommendation, maintaining that the Company's staffing management is appropriate.[20] As shown in the headcount levels in Table 5-2, the current staffing levels in the electric procurement area are adequate. When asked during an interview in this audit about the energy procurement department's succession planning process, it was made clear that no succession planning was formerly in place and argued that because the group has low turnover this is not a concern. When asked in writing, however, it was explained that the Director of Supply Acquisition & Operations updates a succession plan for their own position via email to HR. As of the time of this audit, there are three successors named for that role. There are no successors named for the manager positions below Senior Director in the department, but each role does have three named departments from which the role would be backfilled from.[21] The Energy Supply Acquisition & Operations department is needed to provide a central service in the PSE&G business model and requires certain areas of expertise. Given the large amount of electricity and gas purchases for BGS and BGSS and the extreme complexity of the tasks, this Department needs a more formal process for succession planning should any employees leave, regardless of historically low turnover.

BGS Power Purchases

BGS Auction Process Overview

BGS supplies customers who decide not to buy directly from TPS and is fully regulated and run by the Board. Since 2002, the four EDCs in New Jersey have procured BGS through a statewide auction process held in February of each year. The BGS auction uses competitive procurement through a descending clock auction. The process runs two auctions, one for residential and small commercial customers

[18] https://nj.pseg.com/newsroom/newsrelease67.
[19] Response to OC-0237.
[20] Response to OC-0999.
[21] Response to OC-1015.

("RSCP")[22] and one for large commercial and industrial customers ("CIEP") with load greater than 500 kW.[23] There are four products in each auction, one for each of the four EDCs. The main participants in the BGS process are:

- BPU
- EDCs (ACE, JCP&L, PSE&G, RECO)
- Auction Manager (NERA)
- Board Advisor (Bates White)
- Intervenors

The auction process is administered and overseen by the BPU. The auction process involves two consultants: NERA Consulting is hired by the four EDCs to run the auction independently and help them with their regulatory and administrative requirements, and Bates White is retained by the BPU to verify the auction's empirical competitiveness and compliance with BPU policy.[24] NERA interacts with the potential competitive Suppliers and the EDCs are observers of the process. Using the information provided by Bates White in their final report on auction results, the BPU rules on the prudency of the annual auctions and approves the auction results.[25]

The procurement schedule differs between RSCP and CIEP products because the BPU aims to protect the RSCP consumers from market risk while allowing the more sophisticated CIEP consumers to react to real time price signals.[26] A delivery year starts June 1 and ends May 31. The CIEP product's per MW-day price for the entire delivery year is procured in one auction, so the auction held in February 2019 procured all the estimated CIEP load for the delivery year starting June 2019.

The total kWh to be procured by each EDC in their respective RSCP auction is set to roughly cover one-third of the projected residential and small commercial classes' demand for each of the next three years, spreading out price volatility. For example, the February 2019 auction procured one-third of the energy needed for the delivery years starting in June 2019, 2020 and 2021. By the completion of the February 2019 auction, each EDC had procured approximately all of its predicted RSCP load for the 2019 delivery year, two-thirds of its predicted load for the 2020 delivery year, and one-third of its predicted load for the 2021 delivery year. This procurement timeline is shown below in Table 5-3.

[22] Formerly called Basic Generation Service Fixed Price ("BGS-FP") until the BPU changed the name to Residential Small Commercial Pricing ("RSCP") in their November 2014 order (Decision and Order ER14040370).

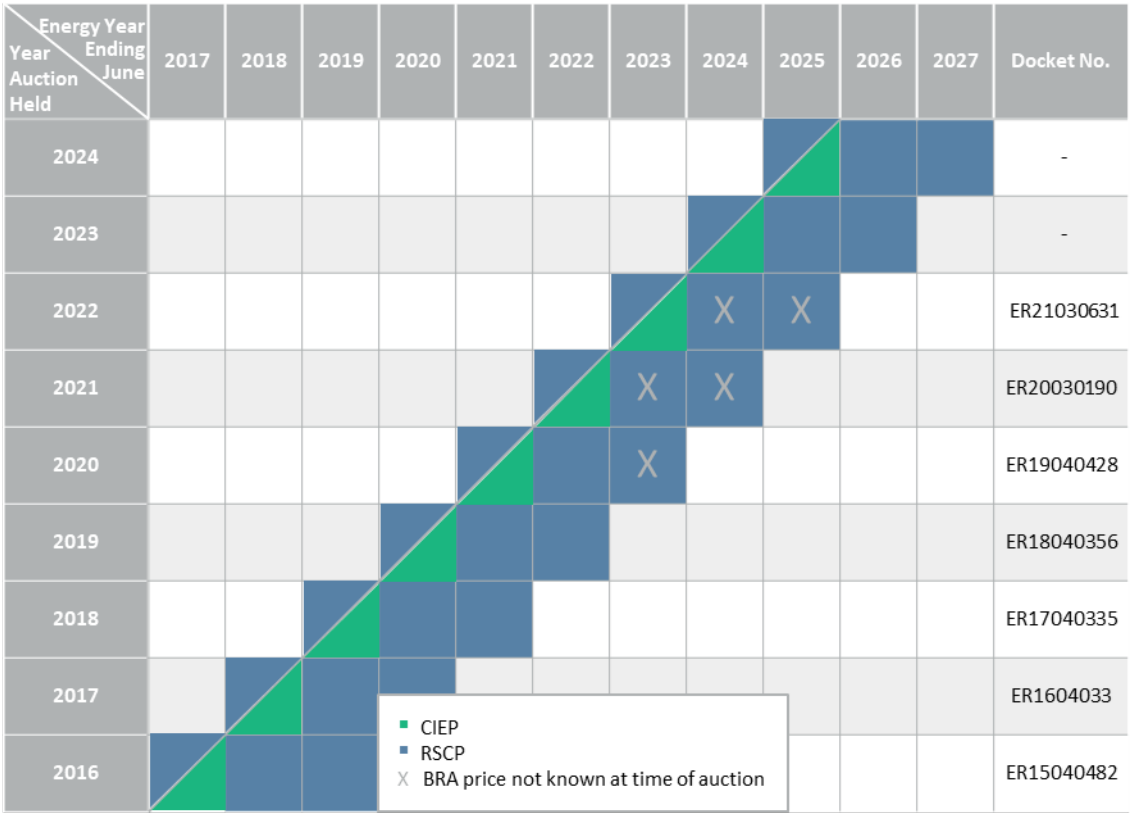
[23] The CIEP threshold was changed from 750 kW to 500 kW by Board Order dated June 18, 2012 in Docket No. ER12020150.

[24] Annual Final Report On The 2020 BGS RSCP And CIEP Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC.

[25] Response to OC-0641_Basic Generation Service Controls, page 4.

[26] Response to OC-1016.

Table 5-3 – Auction and Energy Year Timeline



The auction bid amounts are determined for each EDC's customer class, whether one third of load for RSCP or the full year's load for CIEP. This load share is broken down into MW "tranches" that represent an obligation to serve a fixed percentage of an EDC's full requirements load. Tranches bid in the 2020 auction are listed below in tables C and D. The actual amount of kWh sold will vary depending on what an EDC's real time load is, and Suppliers assume this load risk. In practice, each tranche is approximately sized to equal 75 MW for CIEP and 80-90 MW for RSCP.[27] The tranches make up portions of the EDC's peak load and the number of tranches is determined prior to the auction start, resulting in each EDC having a different number of tranches procured to match their differing peak loads. RECO has a much smaller load than the other three EDCs and in 2019 for CIEP procured only one 56 MW tranche.[28]

[27] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, pages 2-3.
[28] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 2.

Table 5-4 – 2020 BGS Auction Provisional Number of CIEP Tranches and MW-Measures of Tranches per EDC[29]

2020 BGS Auction Provisional Number of CIEP Tranches and MW-Measures of Tranches per EDC				
	CIEP Peak Load Share (MW)	Number of tranches	Size of tranche (%)	MW-measure (MW)
PSE&G	1,826.78	24	4.17%	76.12
JCP&L	886.45	12	8.33%	73.87
ACE	301.6	4	25.00%	75.4
RECO	56	1	100.00%	56
Total	**3,070.83**	**41**		
Response to OC-299_2020				

Table 5-5 – 2020 BGS Auction Provisional Number of RSCP Tranches and MW-Measures of Tranches per EDC[30]

2020 BGS Auction Provisional Number of RSCP Tranches and MW-Measures of Tranches per EDC							
		Tranches already procured			Tranches to be procured in 2020 for a three-year term		
EDC	RSCP Peak Load Share (MW)	Total number of tranches	2018 (one year remaining)	2019 (two years remaining)	Number of tranches	Size of tranche (%)	MW-Measure
PSE&G	7,552.23	85	29	28	28	1.18%	88.85
JCP&L	4,479.13	53	20	18	15	1.82%	81.44
ACE	1,940.20	22	7	7	8	4.55%	88.19
RECO	321.96	4	1	1	2	25.00%	80.49
Total	**14,293.52**	**164**	**57**	**54**	**53**		
Response to OC-299_2020							

The electric capacity and energy prices the Suppliers bid are based on market prices, i.e., the LMPs within PJM. These auction-based prices will vary by EDC because each EDC has its own unique geographic constraints, load factor and customer environment.[31] PSE&G has consistently had the highest price per kWh of the four EDCs over the last five years. PSE&G's territory covers some of New Jersey's most densely populated areas and is also the most constrained transmission service area. As explained below, the RSCP product price charged to customers is more stable and less volatile because it is based on an annual procurement covering one-third of the load for each of the next three years. This means that each year's supply to BSG customers is the result of three separate annual auctions to reduce annual instability in capacity and energy prices for residential customers, thereby acting as a natural hedge. The CIEP product price is entirely based on a one-year auction. Larger commercial and industrial customers are more sophisticated buyers and therefore can manage price volatility better than residential customers.

[29] Response to OC-0229, 2020 BGS Proposal Filing, VIII, Appendix A: Provisional BGS-CIEP Auction Rules, page 6.
[30] Response to OC-0229, 2020 BGS Proposal Filing, IX Appendix B: Provisional BGS-RSCP Auction Rules, page 8.
[31] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 3.

The BGS auction has been run as a descending clock auction since it was first introduced in 2002. The method was proposed by the EDCs and approved after a thorough stakeholder process in 2001.[32] The auction begins with the auctioneer declaring a high starting price in cents per kilowatt hour for RSCP or dollars per megawatt day for CIEP, and then slowly dropping the price through subsequent rounds. The price continues to drop as long as bids from Suppliers exceed the amount required for each EDC's peak load share. Bidding stops once the sum of bids from Suppliers equals the EDCs' tranches being auctioned. When the bidding stops the auction clearing price is set.

The auction-wide starting price maximum and minimum are initially developed by NERA and then tentatively finalized in consultation with the EDCs and ultimately finalized after consulting with Bates White and Board staff;[33] these two prices create a range that each EDC's starting price can be within. The EDC-specific starting prices are set by the EDCs in consultation with the Board, Bates White and NERA.[34]

As the price descends, Suppliers continue submitting bids or drop out of the auction if the prevailing price is lower than what they are willing to accept. When a Supplier drops out of an auction round, the sum of MWs bid declines. When the required megawatt hours' worth of tranches bid is equal to the estimated load, the auction clears at the price at that point in the descent.[35] Before the auction, the Bidders are provided rate schedules that convert an auction price (in kWh or MW-day) to customer rates so that the Bidders can use their judgement for what affect each auction price will have on customer migration between TPS and BGS (migration is discussed in Chapter 4: Market Conditions above).[36] If prices are too low, a Supplier may not earn high enough profits, but if prices are too high, it may drive customers off BGS and onto TPS service, losing the Supplier revenue.

Once auction results are approved, the bids become a binding commitment between the EDCs and winning BGS Suppliers.[37] Each BGS Supplier assumes PJM Load Serving Entity ("LSE") responsibility for the number of tranches it secures in the auction, meaning it has the obligation to procure capacity and day-to-day energy needs. The winning Bidders are also responsible for complying with the state of New Jersey's Renewable Portfolio Standards ("RPS") requirements.[38]

BGS Auction Timeline

The BGS auction process begins each year with a Board order directing the EDCs to file proposals for the BGS auction process. The order directs the EDCs to procure the remaining one-third of RSCP product for the next three years and the annual CIEP product. Each year since the auctions began in 2002, the EDCs

[32] Response to OC-0229, 2020 BGS Proposal Filing, page 1.
[33] Response to OC-0248, BGS 2021 BGS Hearing NERA Presentation, slide 16.
[34] Response to OC-1024, 2021 BGS Process Approval- Signed Board Order, Attachment C, page 4.
[35] Due to the use of exit prices, the final auction rate may not equal the bid price in the final round.
[36] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 3.
[37] Response to OC-0229, 2020 BGS Proposal Filing, page 18.
[38] Response to OC-0229, 2020 BGS Proposal Filing, page 4.

have filed for a descending clock auction method with these separate RSCP[39] and CIEP products. Table 5-6 below summarizes the timeline that the BGS auction process has followed in recent years.

Table 5-6 – Annual BGS Auction Timeline

Annual BGS Auction Timeline		
Date	**Milestone**	**Purpose**
Mid-late April	BPU order	Directing EDCs to file BGS proposals
On or before July 1	EDC joint BGS filing	Propose auction methodology and request BPU approve the RSCP and CIEP auction process and any changes requested; includes company-specific addenda with rate design
July and August	Discovery and reply comments	Board and interested parties can question the EDCs' proposed changes to the BGS auction process or any pertinent elements of the market environment, i.e., PJM policy
Late September	Legislative-type hearing	Intervenors and stakeholders can raise concerns and propose changes, such as removing the transmission piece from the RSCP product
Late September	Public hearings in each EDCs' territory	Allow members of the public to share their opinions
Mid-November	BPU order accepting EDCs' BGS filing	Board incorporates concerns raised in discovery and hearings to approve or deny portions of the EDCs' filing and directs them to file a compliance filing following the Board's findings
Late November to early December	EDCs' individual compliance filings	The EDCs file individual compliance filings that revise the auctions rules, company-specific addenda and Service Master Agreements ("SMAs") to reflect any changes mandated by the November Board Order
Mid-December	BPU order approving compliance filings	BPU approves the compliance filings, provided they appropriately reflect the Board's direction provided in their November/December order
Late January-early February	CIEP Auction	Procures 1 year of CIEP BGS requirement
Early February	RSCP Auction	Procures one third of each of the following three delivery year's RSCP requirement
Early February	Bates White post auction checklist	The BPU's consultant provides a checklist that evaluates the auction's competitiveness, used to recommend BPU accept the results
Early February	BPU order approving auction results	The BPU approves the closing prices of the auction; implements BGS rates, allows EDCs to file compliance tariff sheets around March 1 and directs the EDCs to execute SMAs with winning Bidders
Mid-February	EDCs file tariff filing	Reflect all requirements laid out in the BPU order approving the auction results
April or May	BPU order approving EDCs' tariff filings	The BPU approves the EDCs tariff filings if they conform with all prior order's mandates
June 1	Start of delivery year	That year's auction winners begin their terms

[39] Formerly called Basic Generation Service Fixed Price ("BGS-FP") until the BPU the name changed the name to Residential Small Commercial Pricing ("RSCP") in their November 2014 order (Decision and Order ER14040370).

Intervenors in the process who participate in discovery or attend hearings are commonly independent generators in the state, Suppliers, TPS, energy traders and PSEG Corporation, in addition to the EDCs, their consultant (NERA) and the BPU always attending. The public hearings in the EDCs territories tend to draw little attention, with the September 2019 hearings having no public attendance.[40]

The filings have varied somewhat each year to reflect the changing company needs and market environment. Many of these requests are founded in the desire to lower BGS rates to customers, often through reducing costs to Suppliers or eliminating risk premiums that could drive up auction clearing prices.

Recent proposal items that were accepted and implemented by the Board include:

- In 2019 and 2020 (for the 2020 and 2021 BGS auctions), the EDCs requested to use proxy prices for capacity because PJM's capacity market (Base Residual Auction, or "BRA") was delayed until after the BGS auction.
- The 2019 filing (for the 2020 auction) included a supplemental filing in October 2019 proposing a Capacity Proxy Price to be used in place of the capacity prices that would have resulted from the BRAs. The schedule for the BRAs was delayed due to filings at FERC.
- In 2020, the EDCs requested the transmission component of the RSCP product be removed from the bidding process for Suppliers and paid directly by the EDC's after years of discussion by stakeholders during prior legislative-type hearings,[41] and after the March 2020 Board Order approving the prior auction had expressed concern on rising transmission-related costs and refunds to Suppliers pending FERC final orders.[42] See Section on BGS component costs below for further explanation.

Recent proposal items that have been denied by the Board include:

- In their 2019 BGS proposal filing, the EDCs requested the RSCP and CIEP auctions be started at the same time, while historically the RSCP auction had started three days after the CIEP auction.[43] The EDCs argued that combining the timelines would reduce costs to Bidders and consequently increase Bidder participation resulting in more competition - which should drive down prices. The Board did not approve this request and Rate Counsel felt disobliged by the EDCs for changing the timeline on the BGS website prior to Board approval.[44]

[40] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 2.

[41] https://www.nj.gov/bpu/newsroom/2021/approved/20210211.html.

[42] Responses to OC-0229, 2021 BGS Proposal Filing, pages 2-10, and 0229, 2020 Board Order Ordering BGS Compliance Filing, pages 12-15.

[43] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 7. Historically, BGS Auctions have occurred over a period of three (3) or more days, with the BGS-CIEP auction starting on the first Friday in February, and the BGS-RSCP auction starting on the first Monday, thereafter.

[44] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 9.

- In 2019 the EDCs requested to move Bidder application deadlines to reduce Bidders' responsibility during the December holiday period.[45]
- In 2019 the EDCs requested to increase credit requirements for the Suppliers to guarantee compliance with the Renewable Portfolio Standards in a case of a supplier default.[46]

Compliance with Board Orders

While EDECA initially directed the EDCs to provide BGS for only the first three years, prior to the end of this three-year period the Board chose to continue retail choice.[47] Every year since the BGS process was first approved in 2001, the EDCs have jointly filed an annual auction proposal that has received Board approval, albeit occasionally requiring revisions to keep the auctions consistent with Board policy and State objectives. The Board itself audited the auction process after the first five years and implemented minor changes.[48] In 2012, the Board audited the process again, including stakeholder feedback, and again determined the BGS auction process adequately maintains the goals of EDECA and is in the best interest of the public.[49]

Prior Audits

The Board has mandated several audits that relate to the BGS process, which ultimately reinforce their position that the BGS process is a well-functioning and effective system. Audits reviewed for this 2020 Overland audit include the following:

- 2012 Overland Consulting: Audit of Relationships and Transactions Between Public Service Electric and Gas Company and its Affiliates and a Comprehensive Management Audit of Public Service Electric and Gas Company.
- 2018 Internal Audit: Basic Generation Services - PSE&G Energy Costs.[50]
- 2018 Liberty Consulting: BGS Auction Administrative and Other Related Expenses of New Jersey EDCs.[51]

Overall, these audits did not find any fundamental flaws with the BGS process. Overland's 2012 audit found that generally, PSE&G did not violate any FERC and BPU affiliate standards. While Overland made no formal recommendations on BGS procurement, it did note that PSE&G's Energy Acquisition Group

[45] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 7.

[46] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 9.

[47] The original EDECA stated: No later than three years after the starting date of retail competition as provided in subsection a. of section 5 of this act, the board shall issue a decision as to whether to make available on a competitive basis the opportunity to provide basic generation service to any electric power Supplier, any electric public utility, or both (Docket Nos. EX01050303, EO01100654, EO01100655, EO01100656 and EO01100657, order dated December 10, 2001).

[48] Which led to some further improvements in the process, including the ability for Bidders to comment on the alternate guaranty process and application forms.

[49] Response to OC-0229, 2021 BGS Proposal Filing, page 23.

[50] This report concluded that the relevant activities are Well Controlled, specifically that BGS usage and billing activity is accurately recorded, supplier invoices are accurate and paid timely, supplier credit risk is properly monitored as mandated by the BPU, and that financials are both accurately and timely entered into the general ledger. See response to OC-0254_18-AU-16 - Basic Generation Services – PSE&G Energy Costs (Confidential).

[51] Supplemental Response to OC-0656 BGS Auction Administrative Expenses Final Report.

did not have adequate staffing to identify least-cost power procurement for BGS customers.[52] As stated above, "Staffing in the Power Procurement Function," this function does not have a succession plan. This 2012 audit was not an investigation and required no implementation plan.[53] While the Company did provide the Board with audit implementation updates, these matters were not addressed, and the Company disagreed with the recommendations and findings related to these.[54]

In prior Board audits Parties have suggested exploring alternative auction formats, but both the EDCs and the Board have disagreed that changing the auction format would provide any clear benefits. The 2018 Liberty audit specifically targeted the administrative costs of the BGS auctions and resulted in 16 recommendations, 14 of which the Board directed the EDCs to implement, and only seven of which were relevant to PSE&G. The Board dismissed two of the recommendations that posed the most fundamental changes to the BGS process, one of which suggested re-evaluating the descending clock auction format in favor of a lower cost alternative such as sealed bid, and the other suggested subjecting the Auction Manager (NERA) to competitive solicitation. The Board and the EDCs ultimately disagreed with these recommendations, requiring no implementation, because alternative methods would not necessarily be more effective in procuring low-cost energy and the audit report did conclude that the BGS auction process does efficiently procure diverse energy supply for the EDCs. The remaining recommendations focused on accounting procedures such as cost classification and allocation among the EDCs, and billing procedures with outside consultants.[55]

BGS Costs

Benchmarking Analysis of PSE&G's Auction Prices

Winning RSCP BGS prices for PSE&G have consistently been above the state average for the years 2015-2020, principally due to the transmission constraints mentioned above. RSCP BGS prices had been rising generally for all the EDCs over the past few years due to increasing RPS commitments.[56] As explained below, real capacity prices in the PJM market are far lower than the recent proxies used to inform the BGS auction process, meaning prices to end-use customers will decrease to reflect these low clearing prices via the capacity reconciliation mechanism in place approved by the Board in November 2019. Auction results for the years 2015-2020 are shown in Tables 5-7 and 5-8 below.

[52] Response to OC-0999.
[53] Response to OC-0444_2012-07-13 – PS Comments, page 5.
[54] Response to OC-0443_PSEG Audit Implementation Update Aug 2014 (Confidential).
[55] Response to OC-0254_Board's July 15, 2020 Order of Implementation.
[56] Annual Final Report On The 2020 BGS RSCP And CIEP Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC, pgs. 2-3.

Table 5-7 – Cleared BGS-RSCP Prices (¢/kWh)

Cleared BGS-RSRP Prices						
EDC	2015	2016	2017	2018	2019	2020
Atlantic City Electric	8.606	8.214	7.549	8.123	8.740	8.269
Jersey Central Power & Light	8.042	7.485	6.908	7.311	7.715	7.243
Public Service Electric & Gas	9.954	9.638	9.078	9.177	9.804	10.216
Rockland Electric Company	9.066	8.502	8.050	8.594	8.803	8.242
Tranche Weighted Average	**9.102**	**8.715**	**8.194**	**8.383**	**8.951**	**9.006**

Table 5-8 – Cleared BGS-CIEP Prices ($/MW-day)

Cleared BGS-CIEP Prices						
EDC	2015	2016	2017	2018	2019	2020
Atlantic City Electric	235.89	258.61	217	289.99	290.15	350.55
Jersey Central Power & Light	248.41	259.24	218	276.21	246.01	321.00
Public Service Electric & Gas	272.78	335.33	276.83	287.76	281.78	359.98
Rockland Electric Company	272.14	277.50	223.61	300.82	283.36	383.31
Total	**261.90**	**303.54**	**252.22**	**284.98**	**273.04**	**348.22**

Cost of Each Component

The BGS product is full requirement, meaning that when Suppliers bid into the auction, they bear and include in their price a wide variety of risks including load variability, market volatility, fuel price increases, migration, and changes in the PJM marketplace.[57] The CIEP and RSCP products have different pricing structures that vary in what risks are borne by the Suppliers, customers and PSE&G.

CIEP Suppliers' revenue is derived from four components: standby fee, capacity,[58] energy, and the ancillary services. The bid product in the CIEP auctions is capacity - Suppliers bid a capacity price while the other four components are a pass-through to customers. [59] RSCP supplier bids, however, have

[57] Response to OC-0229, 2020 BGS Proposal Filing, page 24.

[58] The capacity obligation is the unforced capacity requirement for the aggregate group of BGS-CIEP customers determined in accordance with the EDC and PJM practices on a daily basis (Response to OC-0229, 2020 BGS Compliance Filing, Compliance BGS-CIEP Auction Rules, page 3).

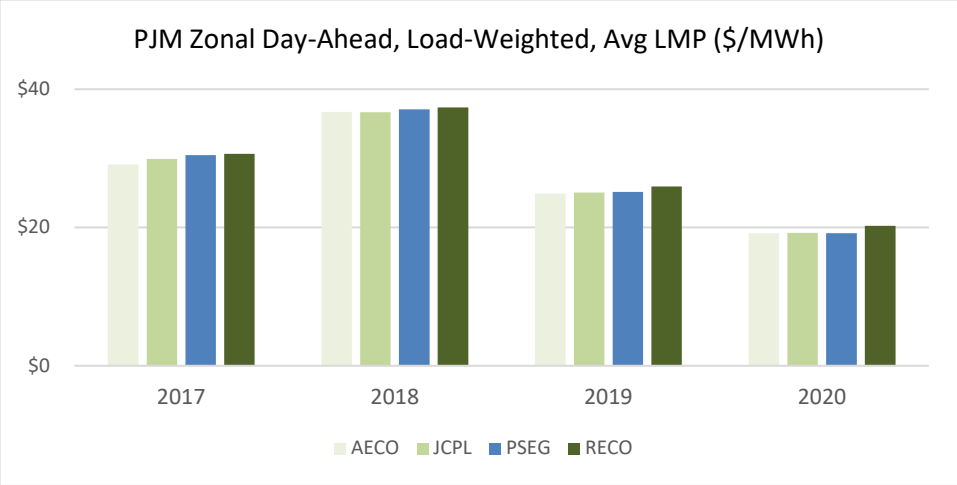
[59] Responses to OC-0229, 2020 BGS Compliance Filing, PSE&G specific addendum, page 11, and 0229, 2020 Board Order Ordering BGS Compliance Filing, page 3. Additionally, there was previously a transmission component included in the BGS RSCP and CIEP products until the February, 2021 auction.

energy, ancillary and formerly had transmission services price variations fixed into the price of the product they bid. Capacity prices paid to Suppliers are known prior to entering the auction based on the capacity market prices cleared in the PJM BRA auction allowing Suppliers to then factor these prices into their bids. Transmission prices were known going into the auction because they are published in PSE&G's FERC-filed tariff and ancillary services cost estimates are provided by the EDCs prior to each auction.

PJM Energy Prices

The per kWh or MW-day prices cleared in the BGS auction vary by EDC – each EDC in New Jersey has its own unique geography, load factor, and other aspects that tie into its LMPs in the PJM market. The CIEP product provides a direct pass-through for the PJM energy price for PJM's load-weighted average Residual Metered Load Aggregate Real-Time Locational Marginal Price,[60] directly linking the CIEP customers to the variations in the wholesale market. Wholesale market prices by EDC territory are provided in Table 5-10 and 5-11. The RSCP product is a three-year fixed price per MWh which reduces price variability risk to residential customers for PJM's continuously changing market clearing prices.

Table 5-9 – PJM Zonal Day-Ahead, Load-Weighted, Average LMP ($/MWh)[61]



[60] Response to OC-0229, 2020 BGS Proposal Filing, Appendix A, Provisional BGS-CIEP Auction Rules, page 3.

[61] 2020 PJM State of the Market Report, https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2020/2020-som-pjm-vol2.pdf; 2018 PJM State of the Market Report, https://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2018/2018-som-pjm-volume2.pdf.

Table 5-10 – Zonal Real-Time, Load-Weighted, Average LMP, Average LMP ($/MWh) [62]

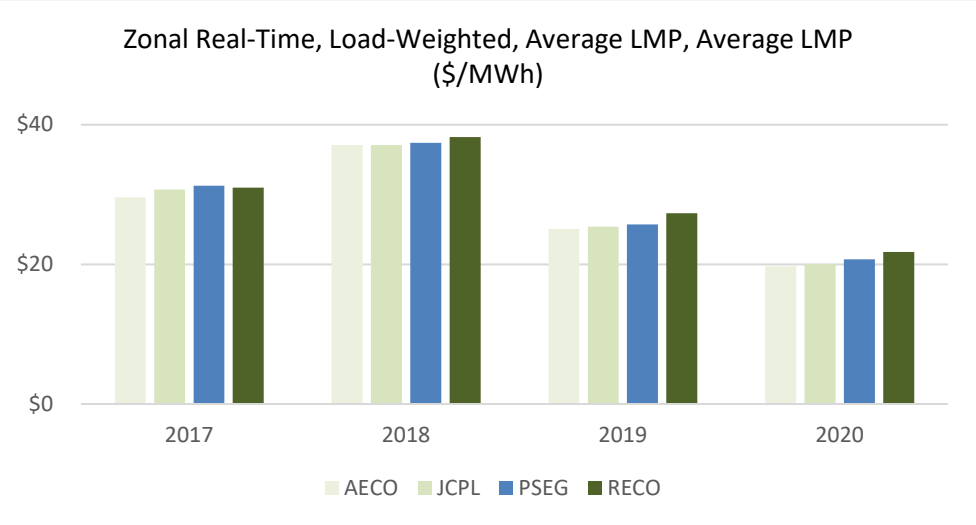
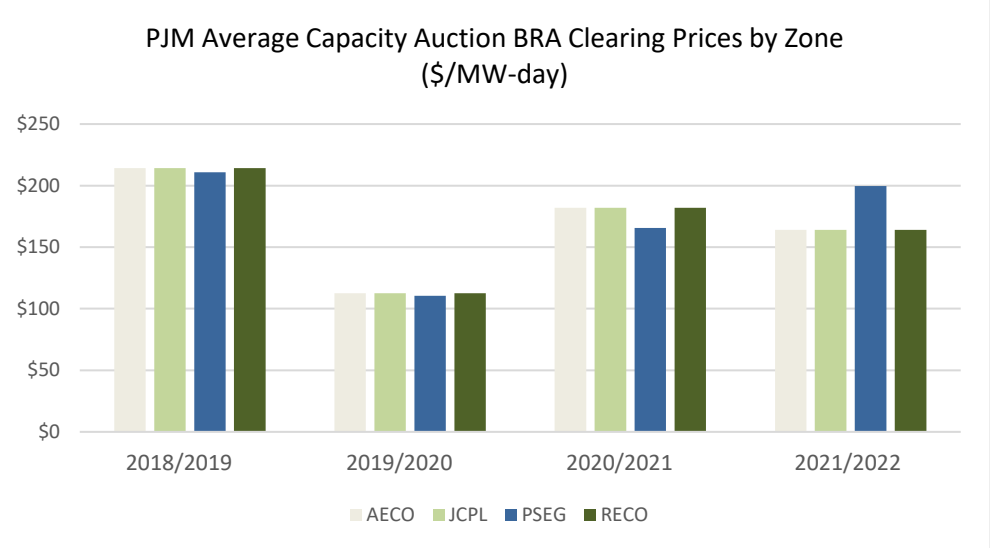


Table 5-11 – PJM Average Capacity Auction BRA Clearing Prices by Zone ($/MW-day)[63]



Standby Fee

The CIEP product includes a standby fee that recovers costs associated with the administration, maintenance and availability of BGS as an option.[64] The Standby Fee is paid by all Commercial and Industrial ("C&I") customers whether or not they are on BGS; it serves to compensate Suppliers for being available to provide BGS-CIEP supply.[65] The Standby Fee is a known cost that is proposed by the

[62] 2020 PJM State of the Market Report; 2018 PJM State of the Market Report.
[63] 2020 PJM State of the Market Report; 2018 PJM State of the Market Report.
[64] Response to OC-0229, 2020 BGS Compliance Filing, Attachment 1 – Tariff Sheets, Original Sheet No. 73.
[65] Response to OC-0229, 2020 BGS Compliance Filing, Attachment 1 – Tariff Sheets, Original Sheet No. 73, page 7.

EDCs in their joint proposal and approved by the Board before the start of the BGS auction.[66] There is no standby fee for the RSCP product.

Ancillary Services

Ancillary services are a component of the full-requirement BGS product, but payment for ancillary services differs between RSCP and CIEP. CIEP Suppliers pass through ancillary services via a flat fee per kWh whose price is included as part of the initial June BGS proposal. CIEP Suppliers are paid the ancillary service and standby fee on a per-MWh sold basis. The ancillary services and standby fee prices, as proposed by the EDCs and approved by the board, have been flat the past five years and are shown below in Table 5-12. Ancillary services provided to BGS RSCP customers are included as part of the fixed per kWh energy price bid by Suppliers. EDCs provide estimates of these costs prior to the auction but the risk is with the Suppliers if they are different than the estimates.

Table 5-12 – BGS CIEP Pass-Through Costs 2015-2020

BGS CIEP Pass-Through Costs 2015-2020						
CIEP Pass-through costs ($/MWh)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Ancillary Services	$6	$6	$6	$6	$6	$6
Standby Fee	$0.15	$0.15	$0.15	$0.15	$0.15	$0.15

The rate design workbooks provided in the company specific addenda within the BGS compliance filing provide estimated ancillary service rates for both CIEP and RSCP, although the RSCP rate is provided as a guideline for estimating costs that Suppliers will incur and recover alongside energy costs. Because the actual costs are complex and span multiple market-based products, a Board-approved, overall annual estimate is used.[67] The ancillary service rate for RSCP provided in the 2020 compliance filing is $2/MWh compared to the $6/MWh for CIEP; the RSCP ancillary estimate is based on day-ahead market prices while the CIEP ancillary estimate is related to real-time market prices.[68]

Capacity

Capacity is a key component of the BGS product and has caused recent discussion in the BGS filing process due to capacity market policy changes at PJM. In April 2018, PJM filed changes to its capacity market extending the Minimum Offer Price Rule ("MOPR"), and FERC's June 2018 rejection of the proposal directed PJM to conduct a stakeholder process to find a long-term solution for PJM. This MOPR filing imposed offer floor prices on the bids of certain subsidized generation in an attempt to keep markets competitive, which lead to friction with many states' renewable policies that were subsidizing renewables.[69] This process at the FERC resulted in PJM delaying its capacity market auction for the 2022-

[66] Response to OC-0229, 2020 BGS Proposal Filing, page 13.
[67] Response to OC-0229, 2020 BGS Proposal Filing, page 17.
[68] Response to OC-0229, 2020 BGS Proposal Filing, page 8-9.
[69] 163 FERC ¶ 61,236.

2023 delivery year from May 2019 to May 2021. The MOPR rule was subsequently revised to only apply to Conditioned State Subsidies – those subsidies that require the recipient to participate in the capacity market. The 2023-2024 delivery year auction was subsequently moved from December 2021 to June, 2022. The 2024-2025 delivery year auction will take place in December 2022.[70]

The BGS auction held in February 2020 procured one-third of the RSCP requirement for the 2022-2023 delivery year, which at that time had not had its PJM capacity auction yet. This led to concerns surrounding price inflation during the legislative type hearings in fall 2019. The delay of the auction had the potential to raise BGS prices in two ways: first, the price uncertainty would lead to a risk premium charged by Bidders through higher price offers, and secondly, fewer Bidders were expected to participate in the auction at all because of the uncertainty. This resulted in the EDCs filing a supplemental proposal that provided proxy capacity prices for the auction. Once the PJM capacity auction is held, the EDCs will reconcile the difference between these actual capacity prices and the proxies. The Board approved this supplemental filing, determining it would serve as an adequate way to reduce the potential for a risk premium and barriers to auction entry.[71] Table 5-13 below compares the proxy prices filed by the EDCs to the capacity prices cleared in the May 2021 BRA.

Table 5-13 – 2022-2023 Delivery Year Proxy Prices and PJM-Cleared Capacity Prices ($/MW-Day)[72]

2022-2023 Delivery Year Proxy Prices and PJM-Cleared Capacity Prices ($/MW-Day)			
EDC	**2019 & 2020 BGS Filing Proxy Price**	**Adjusted Preliminary Zonal Capacity Price**	**Preliminary Zonal Net Load Price**
ACE	$152.06	$98.04	$97.75
JCP&L	$152.06	$98.04	$97.75
PSE&G	$162.13	$98.04	$97.75
RECO	$152.06	$98.04	$97.75

Transmission

In their July 2020 BGS proposal filing (effective in June of 2021), the EDCs requested that the transmission component be removed from the BGS product. Transmission rates could not be hedged the same way energy prices could, and because Suppliers bear a degree of risk related transmission cost recovery, there was concern that a price premium would potentially be built into their BGS bids to compensate. PSE&G's transmission costs have been steadily increasing over the past decade and have

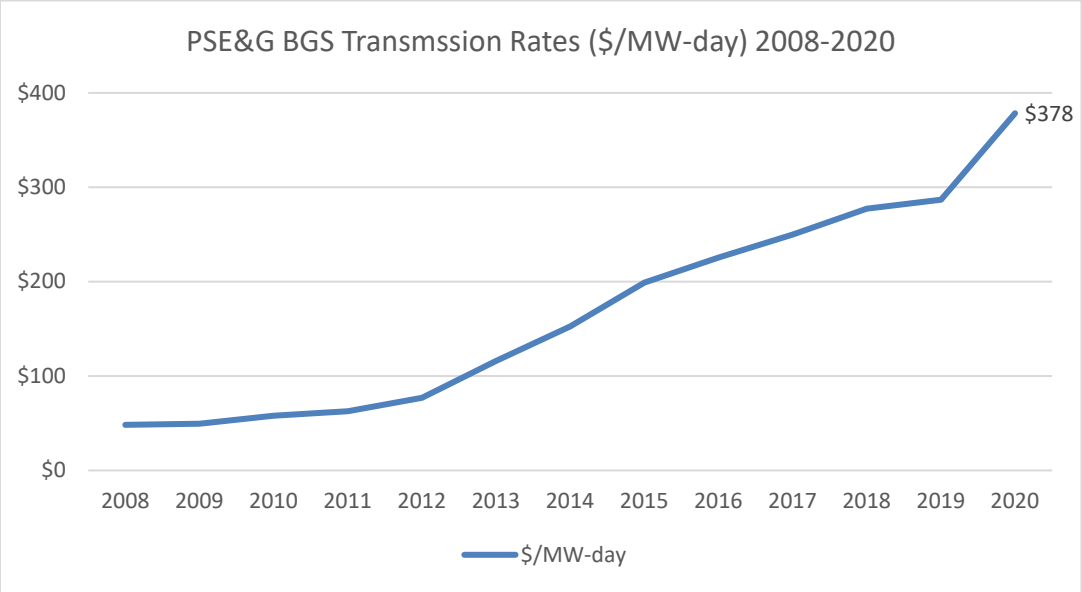
[70] Response to OC-0229, 2020 BGS Proposal Filing, page 16; PJM Reestablishes Capacity Auction Schedule, https://insidelines.pjm.com/pjm-reestablishes-capacity-auction-schedule/; https://insidelines.pjm.com/ferc-approves-new-capacity-auction-date-pre-auction-deadlines/.

[71] Response to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 18.

[72] Responses to OC-0229, 2020 Board Order Ordering BGS Compliance Filing, page 18, and 0229, 2020 Board Order Ordering BGS Compliance Filing, page 18; PJM RPM BRA Results, https://www.pjm.com/-/media/committees-groups/committees/mic/2021/20210609/20210609-item-10-2022-2023-base-residual-auction-results.ashx, 22/23 BRA Results settlement excel file.

been one of the largest factors in raising BGS prices.[73] Table 5-14 below shows the recent increase in transmission costs.

Table 5-14 – PSE&G BGS Transmission Rates ($/MW-day) 2008-2020[74]



There is a mechanism that has been in place since 2004 that allows the EDCs, after filings are made for a transmission rate change at the FERC, to then file with the Board to change the BGS rates on file (and request approval to pay suppliers) so that the EDCs could begin billing customers for the revised transmission charges, and potentially begin incorporating the updated transmission charges in the payments to the suppliers. This is shown as "Transmission Charge Adjustment" on the Supplier statements.[75] However, the Transmission Charge Adjustment, in cases where the transmission costs increased, could only be made after FERC issues a final order. This potential significant delay between the FERC issuing its final order, and the EDC's ability to pay Suppliers was causing dissonance between an increase in transmission costs based on a FERC filed rate that Suppliers had to pay and the corresponding ability of the EDCs to pay them.[76] These reasons led the BPU to approve the removal of transmission rates from the RSCP product and let the EDCs cover those costs through a separate transmission charge to customers starting with the 2021-2022 delivery year.

[73] Annual Final Report On The 2020 BGS RSCP AND CIEP Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC.

[74] Bates White Post Auction Reports 2009-2020, https://www.bgs-auction.com/bgs.auction.prev.asp.

[75] Responses to OC-1507 and 1508.

[76] Response to OC-0229, 2021 BGS Proposal Filing, page 2.

Changes in Cost

Overall, BGS winning prices have remained relatively flat for RSCP and increased slightly for CIEP. The costs of the individual BGS components, however, have varied by year as they follow the clearing prices in PJM's markets and (for transmission) PSE&G's filed tariffs. As seen in Table 5-11 and Table 5-14, PSE&G's filed prices for ancillary services have remained flat while prices for transmission have increased 68% in the past five years, meanwhile capacity market prices have varied both up and down. In their report approving the 2020 BGS auction, the Board's consultant attributed much of PSE&G's increase in price to their rapidly increasing transmission costs; in 2020, transmission was removed from the BGS product and is now directly passed through to customers since the start of the 2021-2022 delivery year. Bates White also cited RPS standards as an additional cause for the increased BGS prices. Tables 5-5 through 5-11 above show that PJM's market clearing prices for energy and capacity vary by year and can be somewhat unpredictable. By procuring the RSCP product in one third year tranches, the risk of this volatility is mitigated for residential and small commercial customers.

Cost Risk Management

One benefit of the BGS product being full requirement is that it shifts price-risk management to the Suppliers who bid into the auction. They take the risk involved in judging what auction-clearing price will cover the necessary capacity and RPS (in the case of CIEP), and all components of supply (in the case of RSCP) needs of their respective EDC load share. This is considered compliant with EDECA, which directs the state's energy market to rely on competitive markets.[77] As defined in the June 2020 BGS proposal:[78]

> BGS is a price-risk management service where competitive entities assemble supply components in the competitive power market and assess and price these risks. This ensures that customers obtain the full benefits of competition by opening the price-risk management function to competitive discipline.

After the close of both the 2020 and 2021 auctions, the Board's Auction Manager concluded that the auction's prices were consistent with market conditions and did not appear to include any risk premiums.[79] The proxy capacity prices used for the 2022-2023 Delivery Year based on historical PJM BRA results were significantly higher than the actual capacity prices cleared in the May 2021 BRA. This will require the winning BGS-RSCP Suppliers in the 2020 and 2021 auctions to refund the difference between these values times their capacity obligations to the EDCs (through the BGS payment process) during the 2022-2023 Delivery Year.

[77] Response to OC-0248_BGS 2017 BGS Hearings NERA Presentation, page 7.

[78] 2021 BGS Proposal Filing, page 4.

[79] Annual Final Report On The 2020 Bgs Rscp And Ciep Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC, Page 9; Annual Final Report On The 2021 BGS RSCP And CIEP Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC, page 10.

BGS Deferral Accounting

BGS is not designed to earn PSE&G a profit; instead, any over or under collection of revenues from BGS customers versus costs paid to BGS Suppliers is deferred and returned to/collected from customers through a reconciliation charge (the "Charge") that assures that BGS revenues only cover BGS costs – and nothing more. Overland reviewed 9 months of Supplier bills and compared them to PSE&G's recorded revenues received from BGS customers and found no issues on the calculation for monthly over or under collection balances.[80]

To settle over or under-collected BGS revenues, PSE&G includes a reconciliation charge on their BGS customer bills. All EDCs in New Jersey have a reconciliation charge mechanism, but the system for each is different. PSE&G's reconciliation charge is calculated each month through deferral accounting, and will switch to quarterly starting in Energy Year 2021-2022.[81] This process takes a starting BGS under/cover collection balance from the month prior, adds in the BGS revenues from customers for the current month and then deducts the BGS costs that were paid to Suppliers or paid for running the auction including tranche fees and auction fees.[82] This balance is divided by the expected BGS sales for the next month to determine a per kWh charge/credit that will be added to the customer's bill. These charges are applied on a two-month lag, so under-collection in January is calculated in February and applied to March bills. The reconciliation charge changes each month based on the prior months' sales and revenues and the upcoming month's forecasted sales.[83]

The Manager of Electric Supply Acquisition previously hosted monthly reconciliation charge meetings to discuss any concerns with these numbers and discuss any unusual activity or concerns with the accounting.[84] These meetings are now held quarterly, due to the change in the reconciliation charge from monthly to quarterly. The BGS deferral accounting process includes a major Sarbanes Oxley ("SOX") control in the auditing process given the significant amount of costs and revenues that pass through the income statement. SOX and non-SOX Controls are discussed in detail in the Controls section on the following page.

Cost Allocation

Cost allocation for BGS is directly tied to historical energy usage, providing clear and fair allocation among customer classes. Costs incurred to provide BGS including tranche fees are allocated based on load share among all BGS customers.

As part of the annual BGS filing process to the Board, the EDCs each submit a company-specific addendum which outlines a specific rate design for translating winning BGS auction prices into BGS rates

[80] Responses to OC-0230 and 0232.

[81] Docket NO. ER20030190, In The Matter Of The Provision Of Basic Generation Service (BGS) For The Period Beginning June 1, 2021, Decision And Order.

[82] Response to OC-0232.

[83] Response to OC-0229, 2020 BGS Proposal Filing, PSE&G specific addendum, pages 3-6.

[84] Interview of Terrence Moran, Director of Energy Supply Acquisition and Operations Interview, on August 18, 2021.

by customer rate class for approval before distribution to potential Suppliers. This is done through a series of tables provided as appendices. The appendices take usage during peak and off-peak time by rate class and use it to calculate the ratio of customer class price to overall BGS price after providing cost estimates for forward energy prices, loss factors, capacity and transmission obligation costs, ancillary service costs and RPS costs. For the 2020 and 2021 filings, these also included provisions for a capacity price adjustment to allow the replacement of the pre-filed proxy prices with actual PJM capacity auction cleared prices.[85] These ratios allow auction prices to be translated into actual rates charged to customers, which Suppliers can use to predict customer migration.

The process to determine these ratios outlines the allocation of costs to customer classes, which is consistently based on historic usage, leading to equitably distributed costs. Other costs, including tranche fees, are allocated based on MW obligation as bid on in the BGS auction.

There are certain costs that are allocated to all customers, regardless of BGS or TPS status. The CIEP standby fee is charged to all C&I customers regardless of BGS status to recover the costs associated with the administration, maintenance and availability of the BGS product.[86] This is consistent with Board Policy that states that because all C&I customers benefit from the availability of BGS, all customers pay this charge.

Controls

PSE&G has controls around maintaining secure and accurate processes concerning electric procurement. These controls relate to BGS and non-BGS service and range from energy settlement, data validation and TPS billing. The number of controls can fluctuate as PSEG refines and expands its control processes. A significant reduction in controls happened in 2012-2013 during what the Company called a "SOX Optimization and Rationalization project" which downgraded certain key controls to reduce redundancy.[87]

BGS Risks

BGS represents a significant portion of PSE&G's revenues and operating expenses, making any errors made by the Company in the billing process highly critical. PSEG manages risks through its Enterprise Risk Management ("ERM") function, which allows for corporate-wide risk identification starting at the function or department level, which allows PSE&G's Energy Supply and Procurement area to raise risks to monitor and potentially mitigate, if needed. The key risks stated by the Company relating to BGS are:

- Political/regulatory/economic relating to the structure of auctions and payments, including:

[85] Response to OC-0229, 2020 BGS Compliance Filing, PSE&G specific addendum, pages 7-8.
[86] Response to OC-0434_Electric Tariff 16 2021, Second Revised Sheet No. 73.
[87] Response to OC-0076_Internal Controls Over Financial Reporting – PSEG Revenue – Billing, page xii.

  - Capacity market price uncertainty – mitigated by use of capacity proxy prices in 2020 and 2021 BGS auctions.[88]
- Systems utilized to aggregate BGS energy requirements.
  - Subject to change during the roll out of AMI.[89]
- Volatility in customer's taking BGS (migration risk), including:
  - BGS expense risk – mitigated by the EDCs filing their BGS proposal jointly,
  - Supplier default risk – mitigated by BGS contractual agreements including specific credit requirements,[90] and
  - Affiliate risk – PJM control over transmission planning reduces this risk.

Control Areas

Energy Settlements and BGS Process

PSE&G has recognized the risks of BGS, especially since the revenues from BGS provide a large portion of PSE&G's overall revenues. PSE&G has implemented numerous SOX and non-SOX controls that cover the BGS process, these include accounting reconciliation policies to verify the correct data and documents were used, deferral account balances are appropriate, data is processed timely, PSE&G is protected adequately through Supplier collateral and estimates do not vary materially from actuals. At a high level, PSE&G has four Sarbanes-Oxley Control Objectives for BGS:[91]

- To assure all BGS Supplier statements are accurate, timely, and complete;
- To assure BGS payments to Suppliers are entered into the general ledger accurately, timely, and completely;
- To assure all BGS Supplier payment authorizations are accurate and timely; and
- To assure that PSE&G is properly protected in case of default by BGS Suppliers.

Specific controls in place for the Energy Supply Acquisition and Operations organization to address these above controls include:[92]

- EG826 - assures all BGS Supplier statements are accurate, timely, and complete – by verifying billing determinations prior to the start of a new BGS Year (Manager Energy Supply Administration)
- EG809 - assures monthly BGS payment reports and supplier statements are accurate prior to being approved for payment (Director Energy Supply Acquisition & Operations)
- EG824 - ensure PSE&G holds sufficient collateral for its BGS Suppliers (Manager Energy Supply Administration)

[88] Response to OC-0615_2021 BGS Proposal Filing, pages 2-10.
[89] PC_1526_2021-10-07 PSEG Comments on Staff's Straw Proposal EO20110716, pages 5-6.
[90] Response to OC-0641_Basic Generation Service Controls, page 2.
[91] Response to OC-0641_Basic Generation Service Controls, page 1.
[92] Response to OC-1000_Basic Generation Service (BGS) Purchases_Narrative_2021 wdesk, pages 4-6.

- EG827 - monthly comparison of estimated to final BGS statements, with variances over $500,000 leading to follow-up review (Accounting Services Department); and
- EG815 - monthly confirmation that the accounting team received the correct copies of the Supplier SMAs (Manager Energy Supply Administration).

In addition to these BGS-related controls, the Manager of Electric Supply Acquisition hosts monthly BGS reconciliation charge meetings to discuss any concerns with the numbers and discuss any unusual activity or concerns with the accounting.[93] Key SOX controls are tested at least annually by both Internal Audit, and externally by Deloitte.[94]

Validating and Reconciling Data

Additionally, there are controls in place for the Energy Supply Acquisition and Operations organization relating to energy settlements that ultimately feed into BGS billing. These controls secure accurate inputs for the energy supply processes and include:[95]

- EG817 - daily review to ensure data transferred into ROSS from source systems is complete and timely (Manager Energy Settlements).
- EG822 - daily review of the wholesale settlement report for accuracy of generator and tie meter loads (Manager Energy Settlements).
- EG825 - daily validation of data submitted to PJM's system and the Wholesale Validation database (Manager Energy Settlements).
- EG802 - monthly review of ROSS transaction log (Manager Energy Settlements).
- EG821 - monthly validation of interval meter data, compared against measurements meter data to allow the investigation of differences and corrective action, if needed (Manager Energy Supply Administration).
- EG823 - monthly review of generation station and tie meter data to synchronize meter readings (Manager Energy Settlements).
- EG829 - rates group prepares tariff sheets for the upcoming billing months' reconciliation rates (Manager Energy Supply Administration).
- EG828 - monthly determination of total unaccounted for energy to ensure it does not exceed 1.5% of total system demand, to ensure the settled energy is reasonable (Manager Energy Settlements).
- EG830 - to mitigate risk of a possible impact to finance statements from PSEG, review and determine need for a current year Service Organization Control Report (Manager Energy Supply Administration).

[93] Interview of Terrence Moran, Director of Energy Supply Acquisition and Operations Interview, on August 18, 2021.

[94] Interview of Steven Huber, Manager Energy Supply Administration, on August 5, 2021; Interview of Maria Calcado, Manager Energy Supply Regulatory Compliance, on August 4, 2021; Interview of Albert Grisolia, Manager Energy Settlements, on August 5, 2021.

[95] Response to OC-1000_Basic Generation Service (BGS) Purchases_Narrative_2021 wdesk, pages 4-7.

These controls serve to first sanity-check data as it comes in, then compare different data sets for accuracy, and also provide regular reviews and ensure accurate communication among groups. They also serve to protect PSE&G from outside risk such as Supplier default and from internal risk such as software or human errors.

TPS Controls

PSE&G has several controls, including one key SOX control, around data management for non-BGS/BGSS service – these not only make sure PSE&G's accounting is correct, but also ensures that TPS are paid correctly and that customers are billed accurately. PSE&G maintains close attention to the accuracy of data transferred between the customer's contracted TPS and PSE&G. These controls are designed to enable retail choice to run smoothly and keep customers happy with their choice to purchase energy through a TPS. The primary controls within the Retail Choice Team that relate to energy supply include:[96]

- SOX Control 830 covers the general responsibility of the Managers in Energy Supply Acquisition and Operations to determine when a Service Organization Control ("SOC") report is needed, and if appropriate, assess the report within internal control guidance.
- PSEG's IT department monitors incoming and outgoing electric files that come through the external electronic data interchange used to exchange data with the TPS. This daily review ensures the files are processed successfully.
- The Company has designed automated controls into its Customer Care System (SAP), including controls involving the EDI 810 transaction (related to POR) and the processing of supplier charges.
- Numerous other controls relating to ensuring the accuracy of how charges are processed and received.

Non-BGS Power Purchases

While generally PSE&G procures power for its customers through the BGS auction, it still purchases power under a few small Non-utility Generation ("NUG") contracts for power provided by certain independently-owned assets;[97] the last large NUG contract expired in 2014.[98] These contracts dated back to the Public Utility Regulatory Policies Act of 1978 ("PURPA"), which required utilities to buy power from non-utility cogeneration and small renewable energy plants ("Qualifying Facilities" or "QFs") at prices equal to the utility's avoided costs. While originally avoided cost rates related to the cost of building utility-owned generation, today avoided costs are based on the cost of procuring energy and are tied to PJM's wholesale market prices.

[96] Response to OC-1173 and Interview of Rosa Farinhas, Manager of Retail Choice Operations, on August 18, 2021.
[97] Presentation – BPU Mgt Audit Kickoff Meeting File 2 of 2, slide 137.
[98] Response to OC-0229, 2020 BGS Proposal Filing, PSE&G Specific Addendum.

This energy is recorded as a load reducer rather than energy supply in the load data that PSE&G submits to PJM because it is not sold into PJM but sent directly into PSE&G's system. Each month, PSE&G provides a NUG Energy Sales Report to the Board that reports monthly NUG sales by generator, payments to those generators, the value of that energy in PJM's wholesale market and the value of that energy at BGS RSCP rates.[99] Generation is purchased from NUGs under the payment schedule PEP in the tariff and the cost of the energy is shared among all of PSE&G's BGS and TPS customers.[100] PSE&G takes power from the NUGs at market prices and any differences between prices paid to NUGs (at avoided cost rates) and revenues received through rate schedule PEP (at wholesale market prices) are reconciled with ratepayers through the BPU-approved Non-Utility Generation Charge ("NGC").[101]

The opportunities for mitigating PSE&G's above-market NUG costs are limited and the overall impact they have on costs is minimal; the volume of load reduction[102] for 2020 totaled 10,910 MWh, less than 0.03% of annual electric sales.[103] The NUG contract prices were originally set in the 1980s under PURPA and are based on projections of avoided costs. Current NUG contract prices are approved by the BPU through tariff filings that set an NGC rate. This process is fully vetted by the BPU and allows for full review of the costs. Because the revenues are tied to BPU-set avoided cost, revenue maximization is embedded in the cost structure set through these approved rates.

Interactions with PSEG Power

Function Separation

When EDECA restructured the New Jersey energy market in 1999, it provided several elements to separate key business functions to promote competition. The Act gave the BPU authority to order regulated utilities including PSE&G to divest its electric generation assets to prevent market control.[104] As shown in Chapter 2 Affiliate Relationships and Transactions, PSEG's generation assets are owned by PSEG Power whereas PSEG's public utility business, which transmits and distributes electricity to end users, is within PSE&G. EDECA specifies separation requirements for affiliates, which PSEG cites in its Affiliate Standards that are filed annually and signed off by the Board.[105]

As explained in Chapter 2: Affiliate Relationships and Transactions, the PSEG Affiliate Transactions Council serves to oversee the sale of all goods and services between PSE&G and any of their affiliates and adheres to FERC and Board regulations. Transactions related to providing BGS and the sale of Zero Emission Credits ("ZECs") are not discussed at the Affiliate Transactions Council. The PSEG Affiliates'

[99] Response to OC-0616_2019 NUG Purchases.
[100] Response to OC-0621_PSEandG NGC 2019 Filing and Board Order.
[101] Response to OC-0239_NGC Filing, page 1.
[102] Measured as the difference in energy sales for resale and non-requirement sales for resale.
[103] Response to OC-0255_2020 PSEG BPU Annual Report-Public; OC-0255)2020 PSEG 10K, page 4.
[104] Response to OC-0642 EDECA Complete, 48:3-59.
[105] Response to OC-0504_2020 Annual Affiliate Standards Filing.

policy dictates that Board or FERC-approved transactions are not applicable to the Affiliate Transactions Council and power-related purchases are discussed and approved within the BPU.[106]

While transactions between PSE&G and PSEG Power are not covered by the NJ BPU's Affiliate Rules, which prevent cross subsidization between affiliates who sell retail energy directly to consumers as mandated in EDECA,[107] all non-BGS and non-ZEC transactions between the two are reviewed by the Affiliate Transactions Council to ensure compliance with cross-subsidization rules set at both the federal and state level.[108] Note that the Affiliate Transactions Council does not cover transactions between affiliates and the Service Organization (PSEG Services), which are instead covered by the Service Agreement between PSE&G and PSEG Services dated April 22, 2004.[109]

Separation Controls

PSEG has several controls in place to separate PSEG Power and PSE&G functions, as discussed further in Chapter 2: Affiliate Relationships and Transactions. PSEG Policy dictates that any time an employee transfers internally, between marketing and transmission functions, the Company posts it on their Standards of Conduct webpage.[110] PSEG has annual affiliate transaction training requirements that apply to all non-union and managerial employees that covers FERC Standards of Conduct and Market Rules. Spot training and refresher courses are also offered to employees transferring between departments.[111] These trainings include FERC's rules to control affiliate cross subsidization, information sharing, and market manipulation.[112]

Following FERC's standards of conduct, the transmission function (PSE&G) and marketing function (PSEG Power) operate independently of one another. This includes physical separation such as locating employees in different office floors.[113] Transmission and marketing functions cannot have access to each other's information, or equipment that houses the information. ER&T cannot receive non-public information unless that information is publicly posted at: https://nj.pseg.com/aboutpseg/electrictransmissioninformation. When information is posted, PSE&G transmission function employees are prohibited from "tipping off" ER&T marketing employees that information will be posted. In the case that these functions do participate in meetings together, these meetings cannot discuss transmission function information and must take and record attendance and provide agendas that state the information sharing rules.[114]

PSEG Power's marketing function and PSE&G interact as separate entities in the BGS auctions as mandated by the PSEG's BGS Rules of Engagement. Leading up to the auction, any queries from PSEG

[106] Response to OC-0998.
[107] Response to OC-0642 EDECA Complete.
[108] Response to OC-0626.
[109] Response to OC-0018_Update – Practice 520-3, 13Aug2021, page 2.
[110] Response to OC-0501, see https://corporate.pseg.com/aboutpseg/leadershipandgovernance/standardsofconduct.
[111] Response to OC-0503.
[112] Response to OC-0635_FERC 2020 Training.
[113] Response to OC-0630.
[114] Response to OC-0635_FERC 2020 Training.

Power are directed publicly the same as from any other Bidder into the auction. During the auction, the two affiliates sit in different locations during bidding.[115]

Sale of PSEG Power's Non-nuclear Assets

PSEG announced in July 2020 that it planned to divest all non-nuclear generating assets of PSEG Power, including approximately 6,750 MW of fossil generation and 467 MW of solar generation, and this transaction was completed in February of 2022. This sale of all fossil and solar assets reflects falling margins for generating assets.[116] The nuclear assets staying with PSEG are supported through the payment of ZECs in New Jersey's nuclear subsidy program. The change in ownership of PSEG Power's non-nuclear assets does not have any effects on PSE&G because they both operate in the market as separate entities,[117] with PSEG Power selling into the PJM market and PSE&G procuring energy sourced by Suppliers through BGS auctions.

PJM/FERC Involvement

Prior to the sale of its fossil plants, PSEG Power owned assets in three RTOs: PJM, ISO-NE and NYISO.[118] PSE&G is only a member of PJM, while PSEG Power had membership in all three RTOs. PSEG's only voting right in any RTO is PSE&G's vote within PJM. This section will focus on PSE&G's involvement within the FERC and in PJM, and to the extent PSEG Power is discussed, the discussion includes practices during the period prior to the 2022 sale of its fossil generation fleet.

Representation in PJM Stakeholder Process

Both PSE&G and PSEG Power, through its affiliates, are members of PJM. PSE&G is a transmission owner, and PSEG therefore votes in the Transmission Owner sector. PSEG as a company takes one unified corporate position at the FERC and PJM. This position is developed within the PSEG Services Corporation Law Department, under which the Deputy General Counsel and RTO Strategy Officer works with representatives who work for PSE&G and PSEG Power.[119] Previous audit recommendations had suggested PSE&G and PSEG Power advocate for separate positions on PJM and FERC issues, but this is not possible in the current PJM membership structure which limits the PSEG Companies to one sector when voting.[120]

The RTO Strategy Group works with PSE&G and PSEG Power to align their interests. These interests may have a different focus, as generators seek to earn profits on their energy sales while transmission

[115] Response to OC-0236_2020 - BGS PSEG Rules of Engagement, page 2.
[116] Response to OC-0327.
[117] EDECA does allow utilities to purchase power for BGS through a bilateral contract from a related competitive business segment of its parent company, given appropriate separation is in place.
[118] Response to OC-0653.
[119] Response to OC-0501.
[120] Response to OC-0443_2012-07-13 – PS Comments, page 27.

owners focus on reliability. Both companies communicate with PJM daily on issues via phone calls and emails, in addition to attending the PJM planning committee, market implementation committee, and others. PSEG votes as a transmission owner with its larger corporate interests and assets weighted towards the regulated transmission and distribution functions. In the past five years there has not been an instance where PSEG Power's position was favored over PSE&G's.[121] Currently, PSEG is not concerned about diverging interests between PSE&G and PSEG Power; PSEG Power sold its non-nuclear assets and only owns nuclear generation assets that receive revenues from both the PJM Market and New Jersey's ZEC subsidies.

PSE&G representatives attend and participate in numerous PJM committees, including (but not limited to):[122]

- Market Implementation Committee
- Markets & Reliability Committee
- Members Committee
- Operating Committee
- Planning Committee
- Risk Management Committee
- Sub-Regional RTEP Committee – Mid Atlantic
- Transmission Expansion Advisory Committee
- DER & Inverter-Based Resources Subcommittee
- Load Analysis Subcommittee
- Carbon Pricing Senior Task Force[123]

PJM's list of committees and task forces is not static and PSEG's RTO Strategy Group is continually prioritizing which are most important to participate in.[124] PSE&G's PJM committee participation tends to focus on protecting end-users and system resiliency, while PSEG Power focuses more on market settlements and activities, especially maintaining robust markets.[125] PSEG Risk Management, under the CFO in PSEG Services Corporation, also communicates with PJM, specifically on credit and customer policies and procedures.[126]

PSE&G's Stakeholder Processes Impact

PSEG and PSE&G's participation in PJM and FERC matters consists of: (1) verbal/written advocacy in the stakeholder committees and FERC docket process and through meetings with PJM senior

[121] Response to OC-0638.
[122] Response to OC-0238.
[123] This task force sunset in early 2022.
[124] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[125] Response to OC-0250.
[126] Response to OC-0641_Basic Generation Service Control.

management/staff and FERC Commissioners/staff consistent with *ex parte* rules; (2) sector-weighted voting in the PJM stakeholder process with decisions attributable to a large and diverse pool of members, many of which do not own transmission and distribution assets but vote in decisions that affect ratepayers; and (3) actions initiated under the transmission owners agreement ("TOA") as referenced in the "Transmission Planning" and "Enhancements to Electric Delivery System" sections below. While PSE&G and PSEG Power actively advocate for matters necessary to maintain safe, affordable and reliable service and robust electric markets, their voting power has diminished over time as PJM allows all market participants to vote. Although PSE&G owns a large transmission and distribution asset base across New Jersey and serves a large number of electric customers in New Jersey/PJM, its sector is weighted the same as other sectors that include financial traders, investment bankers and others who do not have an obligation to serve customers.[127]

The PSEG Companies' single vote in PJM is within the Transmission Owners sector and is driven by the vast majority of the PSEG Companies revenue and assets coming from PSE&G.[128] This single vote is worth 1.43% of all members in PJM where sector-weighted voting exists in the Members Committee and Markets & Reliability Committee and as one company among the 14 Transmission Owners, which is one of five sectors in PJM all of which have equal weight.[129] PSE&G has 0.5% of the eligible vote at all other committees (Planning Committee, Market Implementation Committee, Operating Committee) where affiliate voting exists, based on PSE&G having four affiliates and PJM having 998 eligible voters including Affiliates, Voting Members, and Ex-Officio Members.

PSE&G is a founding member of PJM whose primary goal is to serve customers, and has expressed concern that its vote in PJM is heavily diluted by other market participants who may not have as much concern about supplying reliable service.[130] Nevertheless, PSEG's contribution to discussions in PJM and FERC have been in the best interests of its ratepayers.

Internal PJM/FERC Coordination

PSE&G has numerous meetings during which RTO, FERC or New Jersey state policies are discussed. The central leader of these meetings is the Deputy General Counsel & RTO Strategy Officer, who has accountability for the centralized and unified RTO function for PSEG as a whole.[131] In May 2020 the RTO Strategy Group was centralized within PSEG Services so that this Officer is seated within PSEG Services Corporation. The lead Officer was moved from PSE&G during the centralization, while other members of the group were moved from either PSE&G or PSEG Power.[132]

[127] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[128] Response to OC-0255_2020 PSEG 10K.
[129] 1 / 14 / 5 = 0.0143, or 1.43%; Response to OC-1189.
[130] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[131] Response to OC-0653.
[132] Response to OC-0501.

The meetings that the Deputy General Counsel & RTO Strategy Officer leads or attends include:[133]

- Monthly RTO Issues Meeting - Held before monthly PJM Planning Committee, Transmission Expansion Advisory Committee and Market Implementation Committee meetings to review agenda and discuss anticipated outcomes.
- Monthly State ("SERPT") and Federal Energy Regulatory Policy Team ("FEPT") - The SERPT covers state regulatory and policy issues. The FEPT focuses on FERC proceedings impacting transmission and markets and also addresses related PJM developments. Both sets of meetings are intended to coordinate high level policy positions across the PSEG companies.
- Bi-weekly FERC Regulatory Group/RTO Strategy Meeting - Held to review current transmission planning, rates and cost allocation legal and policy developments as well as pending FERC dockets.
- Bi-weekly Markets Policy Meeting - Held to review current energy markets issues and developments at FERC, PJM, ISO-NE and NYISO.
- Monthly Full Regulatory Staff Meeting – intra Legal department meeting of the Federal Regulatory/RTO Strategy Group and the State Regulatory group jointly hosted by the Deputy General Counsel & RTO Strategy Officer and the VP of Regulatory & Deputy General Counsel to discuss high-level matters involving Federal and State issues, continue knowledge-sharing and team building, and to discuss administrative and general management issues.

These meetings all serve to address and coordinate PSEG's response to federal and PJM-level needs. The Deputy General Counsel & RTO Strategy Officer's underlying job is to maintain communication between all areas of PSEG that need to stay informed on RTO and FERC current events and rule changes, and to understand and incorporate their needs into a unified position. In addition to the meetings listed above, the Deputy General Counsel & RTO Strategy Officer speaks daily with the Regulatory & Deputy General Counsel on a range of topics relating to the Company's position on PJM and FERC activities and related interfaces with the BPU.[134]

Recent PJM Issues

Overland reviewed meeting agendas published for the five committees listed above that discuss PJM and FERC issues which do publish agendas to track the current affairs covered in each committee. The RTO Issues Committee, which discusses matters to develop a corporate unified position for PSEG's participation in the planning committee, market implementation committee, or any other relevant group at PJM, covers a broad range of topics. Common topics included the interconnection queue, distributed energy resources, battery storage, load forecasting, impacts of COVID-19, FERC orders,

[133] Response to OC-1188.

[134] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

capacity ratings, fuel cost policy, MOPR,[135] FTR markets, financial risk mitigation and fuel requirements, among others.[136]

The FERC Regulatory/RTO Strategy Group agendas have tended towards transmission-related issues, which are mostly FERC-regulated and planned by PJM, such as Transmission Owners Agreements, FERC Order No. 2222, transmission rates and cost allocation, and interconnection reform; meetings have also included broad planning concerns such as cyber security.[137]

The Markets Policy meetings have focused mainly on PJM topics which are likely to impact PSEG and which the Company may want to assert influence. These have included capacity market changes such as MOPR, ARR/FTR policy, ancillary services price formation and market changes in ISO-NE and NYISO. The meetings have also covered some FERC topics that require PJM action, including FERC Order No. 2222, and the FERC Advance Notice of Proposed Rulemaking ("ANOPR") on transmission planning.[138]

The Monthly Full Regulatory Staff meetings address the broadest range of topics of the committees mentioned, which varies from FERC, PJM and state concerns. Topics recently have included offshore wind policy and development, nuclear subsidy policy, FERC and NERC requirements, updates to the service company agreement and SMAs, state COVID relief, the sale of PSEG's non-nuclear assets, transmission rate filings, upcoming management audits and public reaction to PSE&G's storm response.[139]

A group run by the Managing Counsel – Federal Regulatory, which reports to the Deputy General & RTO Strategy Officer has bi-weekly calls to discuss transmission issues.[140] These calls discuss both federal and regional/PJM policies, ranging from network upgrades, cost allocation and transmission formula ratemaking, to policy such as the FERC ANOPR on transmission line ratings, FERC Order No. 2222, and also items such as complaints from transmission agreement holders and offshore wind planning.[141]

These committee discussions are all attended by the Deputy General Counsel & RTO Strategy Officer who uses this information to form PSEG's unified position. In the past five years, PSEG's position at PJM has focused on:[142]

[135] In October 2018, PJM filed tariff changes that set price floors in the capacity auction for resources receiving subsidies; these floors were in response to PJM's argument that subsidized resources distorted the market by setting clearing prices too low. This included most renewables that had received production and investment tax credits, and nuclear resources receiving state support such as New Jersey's ZECs. PSEG stated in early 2021 that it still expected its nuclear units to clear the upcoming capacity auction. A revised MOPR with fewer restrictions, which was more favorable to renewable and nuclear resources, was filed at FERC by PJM approved in 2021 and went into effect by operation of law in September, 2021.

[136] Response to OC-0238.

[137] Response to OC-1188.

[138] Response to OC-1188.

[139] Response to OC-1192.

[140] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

[141] Response to OC-1188.

[142] Response to OC-0613.

- Promoting reliable yet cost effective transmission planning and development;
- Separation of responsibilities of PJM and the Transmission Owners as set out in FERC Orders and PJM's governing documents;
- Sovereignty of Transmission Owners to make asset management decisions such as addressing aging infrastructure;
- Advocating for energy markets that support New Jersey public policy goals such as those that properly value carbon-free resources and allow them to participate in the market; and
- Advocating for reforms that assure asset owners are fairly represented in the stakeholder process and decision making.

These stances have been applied across a range of topics discussed at various PJM committee meetings and FERC proceedings, including transmission and interconnection planning, energy market policy, RTO governance, nuclear subsidies, load forecasting and long-term planning.[143]

Transmission Planning

PJM members benefit from open transmission access, and PJM's role as a regional transmission organization is to oversee transmission planning within its footprint, although the assets themselves are owned by the EDCs. This relationship is defined in the Transmission Owners Agreement ("TOA"), a foundational contract that governs responsibilities between PSE&G, Transmission Owners and PJM. That document makes clear PJM has responsibility for regional planning of transmission because it is responsible for developing and running the Regional Transmission Expansion Planning process ("RTEP"), as explained below in the Section on Planning & Reliability. Transmission owners still have responsibility over making decisions on retirement, repairs, maintenance, and replacement of assets.[144]

In the past five years, PSEG's participation in PJM discussions related to transmission planning have focused on promoting reliable yet cost effective transmission planning and development.[145] Their position has highlighted the fact that competitive transmission solicitations as mandated by FERC Order No. 1000, while designed to minimize short term costs, may be less cost effective in the long run by awarding projects on a piecemeal basis. These solicitations do not encourage large projects with economies of scale with long term reliability benefits.[146] PSEG has also advocated for the need for a regional transmission build-out to support offshore wind, highlighting that incumbent transmission owners understand constructability challenges, and will be incentivized to build higher quality assets because they will also be operating and maintaining them once they are placed in service.[147]

PSEG has been involved in discussions surrounding PJM's cost allocation rules, joining other stakeholders who also disagree on who pays for particular projects. PSEG argues that cost allocation

[143] Response to OC-0614.
[144] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[145] Response to OC-0613.
[146] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[147] Response to OC-0613.

cannot drive transmission planning decisions and that regional transmission costs allocated completely to the PSE&G zone and New Jersey generally are unfair if there are beneficiaries outside the zone and the state.[148]

Interconnection

The Company is concerned about the current PJM interconnection process, and hopes to see it become more efficient as the queue grows.[149] PSEG has supported reforms that encourage Distributed Energy Resource ("DER") connection to the grid.[150] The Company's various PJM and FERC-related committees have been actively discussing FERC Order No. 2222, which removes barriers to DERs participating in wholesale markets and has required revised tariff filings from RTOs that reflect this; PSEG does not yet know what impacts this Order will have on their customers' rates but recognizes that it may require additional equipment needs, but may also provide increased resiliency.[151]

Energy Markets

PSEG's opinions in energy markets have tended towards supporting public policy goals that call for decarbonization and clean energy deployment. PSEG has advocated for energy and capacity markets that recognize clean energy attributes and allow externalities (such as greenhouse gas emissions) to influence pricing. This has also included supporting carbon pricing, carbon tax, or emissions trading schemes, and any policies that would help states meet individual RPS goals and minimize carbon leakage.[152] This extends to direct participation in FERC proceedings in which the PSEG Companies provided written support for carbon pricing.[153]

Capacity Markets

PSEG has been active in capacity market discussions at PJM and the FERC.[154] At a high level, PSEG is supporting state clean energy goals through the opposition of PJM's previous expanded MOPR and supporting nuclear subsidies. PSEG argues that the previous expanded MOPR would lead to customers "double paying" for capacity not allowed in the auction through increased subsidies needed to support these resources.[155] This position on the PJM MOPR extended to PSEG supporting the potential for New Jersey to pursue a Fixed Resource Requirement ("FRR") construct that would allow the state to mitigate the impacts of an expanded MOPR and allow key renewable and nuclear resources fair participation as capacity resources.[156] This agenda also supports PSEG's pursuit of offshore wind generation, which

[148] Response to OC-0613.

[149] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

[150] Response to OC-0614.

[151] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021; Response to OC-1190.

[152] Response to OC-0614.

[153] Response to OC-0034_BPU Audit-PSEG FERC LIST; FERC Docket No. AD17-11; FERC Docket No. AD20-14.

[154] Demand response in PJM bids into the energy, capacity and ancillary service markets rather than participating in standalone demand response markets. Discussion of the potential benefit of AMI on demand response is discussed in Chapter 4: Market Conditions.

[155] Response to OC-0660.

[156] Response to OC-0248_2020 NJBPU Resource Adequacy Investigation.

would have been affected by an expanded MOPR. These stances are no longer needed now that PJM's revised MOPR, which went into effect by operation of law in September, 2021, would generally not implement price floors for subsided renewables in the capacity market.

There have been instances where PSEG Power and PSE&G's opinions have differed regarding capacity market policy. Certain presentations, comments and opinions shared by PSEG Power have advocated for MOPR in its non-PJM markets where its fossil generation stands to gain from the minimum offer price imposed on subsidized resources.[157] These were in situations where PSEG Power was representing itself and had no obligation to combine its opinions with PSE&G because it was covering a market in which PSE&G does not operate.

Nuclear Subsidies

PSEG Nuclear (under PSEG Power), owns several nuclear assets and has continually advocated for nuclear subsidies that keep these units online, underpinned by New Jersey's need for zero-carbon resources to meet its clean energy goals. This has resulted in efforts to raise awareness among PJM stakeholders of the value of nuclear in reaching these goals, and the effect of nuclear retirement on carbon emissions and overall capacity needs.[158] PSEG has advocated specifically for alternatives to the current ZEC process, whose 3-year process which they argue does not keep up with changing market conditions.[159] PSE&G and PSEG Power's participation in the ZEC program is discussed further in this chapter. PSEG's participation in FERC dockets has also reflected support for stronger, more robust nuclear subsidies.[160]

Resiliency/PJM Load Forecasting

PSEG's position in many of the key topics discussed at PJM committees and the FERC roll-up to the continued need for resiliency in PSE&G's territory. This is evident in their participation in transmission and interconnection planning discussions, and in their support for DERs. PSEG has further pushed for a dialogue with PJM to continually discuss Transmission Owners' sovereignty over building Critical Mitigation Projects that should not be opened up to competitive solicitation, and other related policies supportive of a well-functioning grid. Additionally, PSEG has advocated that more appropriate and accurate load forecasts be produced by PJM that will improve grid reliability through more rigorous planning.[161]

RTO Governance

As a founding member of PJM, PSEG has strong opinions on how PJM's governance has changed over the years. As explained above, PJM's vote has been heavily diluted as all five sectors in PJM have equal

[157] Response to OC-0248_ 2016 House Energy and Commerce Committee.
[158] Response to OC-0614.
[159] Response to OC-0248_Achieving NJ Clean Energy Goals Using the FRR Construct Presentation (final).
[160] Response to OC-0034_BPU Audit-PSEG FERC LIST; FERC Docket No. AD18-7.
[161] Response to OC-0614.

weight.[162] There also is support for a better process to inform stakeholders to improve communication of rule changes.

ZEC Program

ZECs are subsidies to reflect the carbon reduction benefits to New Jersey paid to certain nuclear plants in the PJM region that are at risk of closure. The benefits of nuclear plants include helping New Jersey reach its carbon emission reduction goals and supporting fuel diversity, air quality, and other environmental attributes.[163] These financial payments are made to qualified nuclear generators based on their MWh output for the year. ZECRCs are collected from New Jersey ratepayers (via monthly utility bills) and are the source of the payments from PSE&G to the qualified nuclear generators. Customers pay the $0.004/kWh ZECRC in their monthly bill and qualified nuclear generators receive a $10/MWh ZEC-payment based on their annual generation.

The ZEC program was established in 2018 when New Jersey's Senate passed L. 2018 c. 16 during Senate No. 2313 ("the Act"), requiring all four of New Jersey's EDCs (and one municipal utility)[164] to purchase ZECs, allowing full recovery of program costs from ratepayers on a per-kWh basis. The Act set the per-kWh ZECRC of $0.004 which the Senate concluded reflects the benefits from avoided emissions that are provided by keeping these nuclear units online. New Jersey could lose these carbon reduction attributes because the state's nuclear resources are at risk of retirement. Nuclear retirement comes with the associated risk of its replacement with gas generation, making the value of ZECs linked to the value of avoided fossil fuel use.[165] Environmental benefits of other carbon-free resources such as wind and solar are supported by New Jersey's Renewable Energy Credit ("REC") program; the ZEC program serves to similarly support nuclear's carbon-free attributes by preventing unit retirement.

Calculation and Payment Process

ZEC payments to a qualified nuclear unit are $10/MWh and are based on the plant's generation output for each energy year. Payments are made annually to the nuclear generators at the end of each energy year in August.[166,167] Annual ZEC payments are made from the EDC's ZECRC collections account. The

[162] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

[163] Docket No. E018080899 & Docket No. E018091004, Order Approving A Zero Emission Certificate Recovery Charge Tariff, page 1-2.

[164] Butler Electric Utility.

[165] §§1-5 C.48:3-87.3 to 48:3-87.7 P.L. 2018, Chapter 16, approved May 23, 2018 Senate, No. 2313: An Act concerning nuclear energy, and supplementing Title 48 of the Revised Statutes.

[166] The ZEC price may be changed each year based upon the Board's annual review of the charges collected from New Jersey ratepayers and generation output of the selected nuclear units. The Act set the price of one ZEC to be equal to the sum of ZEC charges collected by EDCs divided by the greater of 1) 40% of the MWh generation in the state in the prior energy year or 2) the total sum of MWh generation from the qualified units in the prior energy year. This essentially caps ZEC payments at nuclear capacity hitting 40% of the state's total electric output. See: Docket No. E018080899, Order Approving Ranking Criteria For Eligible Nuclear Power Plants To Receive Zecs.

[167] Docket No. EO18080899 & Docket No. EO18121338 & Docket No. EO18121339 & Docket No. EO18121337 Order Finalizing The Forward Steps In The Zec Program And Modifications To The Application.

$0.004/KWh ZECRC is collected monthly from customers by the EDCs, accumulates with interest and is used not only to make the annual ZEC payments to eligible generators, but also to cover the costs incurred by the Board for running the ZEC program.[168] As of 2021, the ZEC payment remains at $10/MWh based on historic generator output.[169]

The ZEC program is approved by the Board for a three-year period. The second ZEC program filing required the nuclear units to reestablish their need for financial support. In addition to these renewal filings, the Act also includes a provision for annual review of the nuclear plants' revenues to check for duplicate payments, as well as an annual certification process that attests to the plant's continued operation.[170] The Act allows for the Board to reduce the number of ZECs a generator is entitled to if the annual review indicates the units are receiving other payments for their fuel diversity, resilience, air quality or other environmental attributes.[171] All these proceedings require the nuclear generators to provide substantial financial information and detailed records.

The Act set the base ZECRC at $0.004/kWh, which is designed to cover the benefits provided by nuclear facilities and to fund the ZEC payments made to the eligible nuclear generators by the EDCs. The base ZECRC is fixed in the legislation while the actual funds collected are variable, based on kWh sales to customers. The Act allowed a provision for the Board to temporarily lower the per kWh rate if the existing amount is proven to over collect versus the ZEC payments actually made to eligible generators. The degree to which the charge is lowered, called the Return of Excess Collections Credit Rate ("RECCR"), is based on the amount over collected and the forecasted sales over the temporary period during which the ZECRC is lowered to quickly return the excess amount to ratepayers.[172]

PSEG ZEC Application

The program is open to all nuclear generation in PJM but only operating nuclear plants in New Jersey were granted ZECs for the initial period covering April 18, 2019 through May 31, 2022.[173,174] These three units are operated by and either wholly or majority owned by PSEG Power's subsidiary PSEG Nuclear. In December 2018 PSEG Power (with support from Exelon) opened separate docket proceedings for each of these three units (Salem 1, Salem 2 and Hope Creek) that requested the plants be considered for ZEC

[168] §§1-5 C.48:3-87.3 to 48:3-87.7 P.L. 2018, CHAPTER 16, approved May 23, 2018 Senate, No. 2313: An Act concerning nuclear energy, and supplementing Title 48 of the Revised Statutes.

[169] Docket No. ER20080557, Order Determining The Eligibility Of Salem Unit 1 Nuclear Generator To Receive Zecs.

[170] See Final Order issued July 10, 2019 for additional annual requirements such as personnel plans: Docket Nos. EO18080899, EO18121338, EO18121339, EO18121337 Order Finalizing The Forward Steps In The Zec Program And Modifications To The Application Forward Steps In The Zec Program And Modifications To The Application.

[171] §§1-5 C.48:3-87.3 to 48:3-87.7 P.L. 2018, CHAPTER 16, approved May 23, 2018 Senate, No. 2313: An Act Concerning Nuclear Energy, and supplementing Title 48 of the Revised Statutes.

[172] §§1-5 C.48:3-87.3 to 48:3-87.7 P.L. 2018, CHAPTER 16, approved May 23, 2018 Senate, No. 2313: An Act concerning nuclear energy, and supplementing Title 48 of the Revised Statutes; Docket No. EO18091004 & Docket No. EO18080899 Order Approving A Modified Zero Emission Certificate Recovery Charge Tariff.

[173] Exelon Generation Company, LLC ("Exelon") has 42.59% ownership interest in Salem 1 and Salem 2 while PSEG Power has 57.41% ownership interest and is the operator for these units (Docket No. ER20080557, Order Determining The Eligibility Of Salem Unit 1 Nuclear Generator To Receive Zecs).

[174] Zero Emission Certificate (ZEC) Information: https://www.nj.gov/bpu/agenda/zec.html.

eligibility as an interdependent coalition of units. The Act mandated that to be eligible to receive ZECs, an applicant must:[175]

> (1) be licensed to operate by the Nuclear Regulatory Commission ("NRC");
>
> (2) demonstrate that it makes a significant and material contribution to New Jersey air quality, minimizes harmful emissions, and if that plant were to retire, would impact New Jersey's ability to comply with State air emissions reduction requirements;
>
> (3) the plant will retire within three years and can demonstrate that the nuclear power plant's fuel diversity, air quality, and other environmental attributes are at risk of loss because the plant is not projected to cover its costs and risks, or alternatively is projected to not cover its costs including its risk-adjusted cost of capital;
>
> (4) certify annually that the plant does not receive any direct or indirect payment for its fuel diversity, resilience, air quality of other environmental attributes, despite its reasonable best efforts to obtain any such payments; and
>
> (5) submit a $250,000 application fee to the Board.

PSEG Power submitted revenue and cost projections as well as additional information requested by the Board and intervenors that demonstrated that the plants were eligible for ZECs and provided adequate environmental attributes. The initial applications filed in December 2018 stated that PSEG plans to retire the plants within three years because revenues are not expected to cover costs, despite the units having 17 or more years remaining on each of their NRC licenses. The application made clear that the shutdown of any, or all of the units would be detrimental to New Jersey's fuel diversity, system resiliency and greenhouse gas reduction goals. The applications provided proof of financial risk of closure by showing that revenues will not cover costs. The Act also allows applicants to also use a risk adjusted cost of capital, but the negative returns anticipated by PSEG did not necessitate the addition of risk in proving the units' need for financial support.[176]

In April 2019, the BPU approved three New Jersey based units for receipt of ZECs, subject to annual recertification.[177] In October 2020, PSEG submitted three applications to renew its ZEC eligibility for its three nuclear units, which were approved in April 2021 for the June 2022 through May 2025

[175] L. 2018 c. 16.

[176] Docket Nos. EO18121337, EO18121338, EO18121339, Application for the Receipt of Zero Emission Credits of Hope Creek, Salem 1, Salem 2 (respectively) Generating Station Submitted In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants.

[177] Docket Nos. E018080899, E018121338, E018121339, E018121337, Order Determining The Eligibility Of Hope Creek, Salem 1, And Salem 2 Nuclear Generators To Receive Zecs; Docket Nos. E018080899, E018091004, Order Approving A Zero Emission Certificate Recovery Charge Tariff, pages 1-2.

period.[178,179] The 2020 applications made similar claims on financial need and benefits at risk of loss if the units retired.[180]

The revenues received and costs to operate PSEG Power's nuclear fleet were the basis for and supported the analysis used to develop the Act. When the New Jersey Legislature was drafting the ZEC Act PSEG Power answered over 70 data requests from the Board during the development of the ZEC mechanism before PSEG Power had even applied for these units to receive ZEC payments. PSEG Power's actual application for its eligibility to receive ZEC payments once again demonstrated its need to receive the subsidies based on its projected revenues not covering its anticipated costs.[181] Overland reviewed these filings made to the Board and determined that these accounting records are subject to extensive BPU and stakeholder review and are comprehensive and thorough. While some intervenors in the original ZEC application and the recent renewal argued against PSEG's accounting methods and costs included to determine financial eligibility were flawed, the Board concluded that the application adequately demonstrated the need for ZECs to reflect New Jersey's public policy goals.

PSE&G's Return of Excess Collections

In October 2020, PSE&G filed to refund over $6 million to ratepayers for overcollections from the energy year ended May 31, 2020 in addition to a "stub period" covering early 2019.[182] In December 2020, the Board approved this filing, and directed PSE&G to update its tariff to reflect the adjustment through a RECCR. The RECCR was set to $(0.000155)/kWh and reduced the existing $0.0004/kWh ZECRC to $0.003845/kWh. Including New Jersey Sales Use Tax ("SUT"), the ZECRC declined from $0.004265/kWh to $0.0041/kWh and reduced the average residential consumer's bill by $0.11 per month.[183]

ZEC Record Keeping

PSE&G's recordkeeping of ZECs includes the ZECRC revenues collected from customers, inclusive of New Jersey SUT, and ZEC payments made to eligible nuclear generators which are accumulated into an interest earning account. The recordkeeping process is based on actual customer ZECRC collections and PSE&G makes an annual filing with the Board on the status of the collections and annual ZEC payments. As the asset owner of the distribution system, PSE&G has authority over all meter reads in their territory and has numerous controls in place to ensure all customer bill and system load data as well as receipts are accurate.

[178] Docket No. ER20080559, Application of PSEG Nuclear, LLC for the Zero Emission Certificate Program – Salem Unit 1.

[179] Docket No. ER20080557, Order Determining The Eligibility Of Salem Unit 1 Nuclear Generator To Receive Zecs.

[180] Docket Nos. ER20080559, ER20080557, ER20080558, In the Matter of the Application of PSEG Nuclear LLC for the Zero Emission Certificate Program – Hope Creek, Salem 1, Salem 2 (respectively).

[181] Docket No. E018080899 Application for the Receipt of Zero Emission Credits of Hope Creek Generating Station Submitted In the Matter of the Implementation of L. 2018, c.16 Regarding the Establishment of a Zero Emission Certificate Program for Eligible Nuclear Power Plants.

[182] Docket No. EO18080899, Docket No EO18091004 In the Matter of the Petition of Public Service Electric and Gas Company for Approval of a Zero Emission Certificate Recovery Charge.

[183] Docket Nos. EO18080899, EO18091004 Order Approving A Modified Zero Emission Certificate Recovery Charge Tariff.

The data used to calculate ZEC payments to generators is submitted by PSEG Power (PSEG Nuclear) to the Board annually. Data collection for the nuclear units, which are operated and either wholly owned or jointly owned by PSEG Power and not PSE&G, the subject of this audit, is directly linked with the electricity generated and sold into the PJM market. This data is already collected and certified for PJM's planning and settlement process, and subject to separate, external review and verification. PSEG Nuclear provides substantial financial information and records to the Board as part of these annual filings as well as the three-year filings. Numerous stakeholders and intervenors also review this information. Overland has no issues with the information provided to and reviewed by the Board for the ZEC program by PSE&G and PSEG Nuclear.

Affiliate Relationships

When EDECA restructured New Jersey's energy market, PSE&G divested its nuclear generation to its affiliate, PSEG Power. The relationship between PSE&G and PSEG Power as it related to ZEC payments is no different than with any other EDC in New Jersey. PSE&G does not buy power from PSEG Power's nuclear fleet, or any of its generation units.[184] PSEG Power is an exempt wholesale generator by FERC standards and sells the entirety of their output through ER&T, PSEG Power's energy marketing affiliate.[185] PSEG Power's nuclear plants sell directly into the PJM market and PSE&G procures power for its customers through annual BGS auctions from qualified electric suppliers.

PSEG Nuclear is under PSEG Power and subject to all affiliate separation controls addressed earlier in this chapter. As explained above, PSEG Power is subject to various restrictions that prevent PSE&G or its affiliates gaining unfair competitive advantage over any independent third party because of its affiliate status. Interactions between PSE&G and PSEG Power are identical to those between PSEG Power and any other EDC in New Jersey regarding market activity. This extends to limitations on information sharing, physical employee separation and cost allocation.

Planning and Reliability

PSE&G's Planning Decisions

PSEG's overall long-term planning strategy is based on maintaining long term system reliability, and this shapes its positions taken at PJM, FERC and the Board - the three primary authorities that govern PSE&G. Long term system reliability is focused on transmission and distribution for a regulated utility like PSE&G whose assets are mainly for energy delivery and not generation. PSE&G's planning decisions specific to electric supply are covered by the BGS auction process and sanctioned by the Board.[186] Decisions related to PSE&G's distribution delivery system are subject to Board approval though its rate

[184] PSEG recently sold its non-nuclear generation, including both fossil-fuel and renewable assets, to ArcLight Capital Partners and Quattro Solar INC., respectively.

[185] 134 FERC P 61138 (F.E.R.C.), 2011 WL 675709 (FERC Docket No. ER10-1743-000 ORDER ON AFFILIATE RESTRICTIONS).

[186] Response to OC-0235.

cases, and its transmission system are partially dictated by PJM and influenced by New Jersey state policy. Planning regarding sales within & outside PJM is housed within PSEG Power; PSE&G does not sell or purchase electricity but sources supply through the BGS auctions, except for a few small PURPA facilities discussed earlier.

Enhancements to Electric Delivery System

PSE&G's distribution system management is explained in Chapter 17. PSE&G's transmission planning is done through PJM acting as the central overseer and coordinator in its footprint; PSE&G's relationship with PJM as a transmission owner is set by the TOA which is subject to FERC approval. The TOA makes clear that PJM has responsibility for planning through its RTEP process, while Transmission Owners like PSE&G have the responsibility for decisions related to retirement, repairs and maintaining or replacing assets.[187]

The RTEP process includes two primary committees: the Transmission Expansion Advisory Committee for large projects and the Subregional RTEP Committees for lower voltage work. All projects regardless of voltage and project type, if they have any impact on the system, are reviewed as part of these committees.[188] This includes both baseline (required for PJM-determined reliability, market efficiency, operational performance, or public policy needs) and supplemental (required for Transmission Owner-determined needs) projects.[189]

PJM's process for running the RTEP is approved by FERC, and includes a competitive component as required under FERC Order No. 1000 that encourages transmission development by non-incumbent developers/owners. The RTEP process takes PSE&G's input and creates a PJM-wide plan that looks 15 years into the future to identify transmission overloads, voltage limitations and other reliability standards violations. This RTEP process produces PSE&G's baseline projects once it is approved by PJM's independent governing Board of Managers. Supplemental projects are focused on meeting local customer needs or public safety and are planned separately by the Transmission Owners; supplemental projects do not need approval from the PJM Board of Managers.[190]

Regardless of baseline or supplemental status, transmission projects need siting permission from the relevant states in which the transmission projects would be situated. In New Jersey, siting is done at the municipal level and passed up to the Board if the municipality denies the application or if the project crosses multiple municipalities.[191]

[187] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[188] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.
[189] Response to OC-1194.
[190] Response to OC-1193.
[191] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

Planning to Ensure Supply Reliability

PSE&G's planning for adequate delivery of supply is addressed in the PJM Reliability Assurance Agreement. The PJM Reliability Assurance Agreement sets obligations and standards for reliable operations across the regional PJM grid. Like the PJM tariff, it is filed with the FERC and requires FERC approval for modification. This includes stipulations for ensuring adequate capacity resources, providing assistance during emergencies and planning for future system needs.[192] These obligations set in the Reliability Assurance Agreement dictate LSE obligations that BGS auction winners take responsibility for.[193] This responsibility also applies to TPS who directly supply end-use consumers.[194] For customers not taking service from a TPS, the BGS auction ensures adequate supply as mandated in the Reliability Assurance Agreement by passing the LSE obligation onto the winning Suppliers. For planning to ensure supply reliability, PSE&G's power purchasing responsibility is handled through the BGS auction; PSE&G does not purchase power aside from a few small PURPA contracts, the bulk of its customers' power supply is procured through suppliers in the BGS auctions or is contracted by customers directly from TPS.

Effect on Ratepayers

PSE&G's planning process is mostly driven by decisions made by PJM and approved by the FERC, the Board, or local municipalities, and often directly reflect NERC or public policy mandates. In recent PJM planning-related matters, PSEG and PSE&G have advocated for load-serving Transmission Owners' rights in voting on planning decisions that focus on long-term cost saving over short-term cost cutting, and for the development of offshore wind to meet public policy goals.[195] Specific to transmission, PSEG has emphasized the strengths of incumbent transmission owners who have existing expertise in the geographic area and as LSEs have embedded concerns for reliability and resilience with a long-term outlook.[196]

PSE&G's transmission and distribution costs have risen in the past few years. Increasing transmission costs are shown in the BGS cost components section above. Although the delivery portion of the bill is a much smaller component than the electricity supply itself, it still has a measurable impact on ratepayers directly through increased consumer bills. Electric delivery system transmission enhancements specifically have increased customer prices as evidenced in the BGS prices charged to customers, but only after approval from either the Board (in the case of distribution) or the FERC or PJM (for transmission). There are, however, long-term benefits that are less directly measurable such as reductions in congestion which has the effect of lowering real-time location-specific prices which eventually will be reflected in lower BGS or TPS Supplier charges.[197]

[192] Response to OC-1195.

[193] Docket Nos. EX01050303, EO01100654, EO01100655, EO01100656 and EO01100657, order dated December 10, 2001, page 20.

[194] Response to OC-0434_TPS Agreement, page 5.

[195] Responses to OC-0613 and 0614, and Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

[196] Response to OC-0613.

[197] Interview of Jodi Moskowitz, Deputy General Counsel & RTO Strategy Officer Interview, on July 27, 2021.

6. GAS SUPPLY AND PROCUREMENT

Introduction and Overview

This chapter addresses Public Service Electric & Gas' (PSE&G) gas procurement and supply function for the distribution of gas to customers. The central components of gas procurement and supply include the demand forecast, cost of gas, and the delivery of sufficient gas supply at the PSE&G's city gate stations to meet the customer demand.

Summary of Findings

1. PSEG Energy Resources & Trade, LLC (ER&T) owns all contracts related to the rights to purchase, transport, and store natural gas, while PSE&G manages supply distribution and demand forecasting.
2. This arrangement creates inefficiencies associated with two organizations coordinating aspects of this process.
3. PSE&G ensures ER&T's compliance with the Requirements Contract through the performance of internal audits of ER&T's operations. These audits have historically covered limited aspects of ER&T's gas procurement processes and have occurred only twice in the past five years.
4. ER&T's hedging program is designed with the purpose of stabilizing gas prices to minimize bill impacts to retail customers from large price changes. However, there is no internal evaluation of hedge effectiveness, neither with the cost/benefit of hedged volumes, nor the consideration of changes to the quantity of hedged volumes.

Recommendations

6.1 The BPU should consider whether the benefits to customer of this arrangement continue to support this arrangement. Management should evaluate whether supply contract ownership and management should be moved to the regulated PSE&G utility, when practical. This would create synergies within the organization and centralize all gas supply processes within the PSE&G organization.

6.2 Since the internal audit function is the primary tool for ensuring ER&T compliance with the Requirements Contract, audits should be scheduled more frequently and explicitly include the contract elements covered under the audit scope.

6.3 ER&T should track the effectiveness of its hedging program to determine the overall impact to customers.

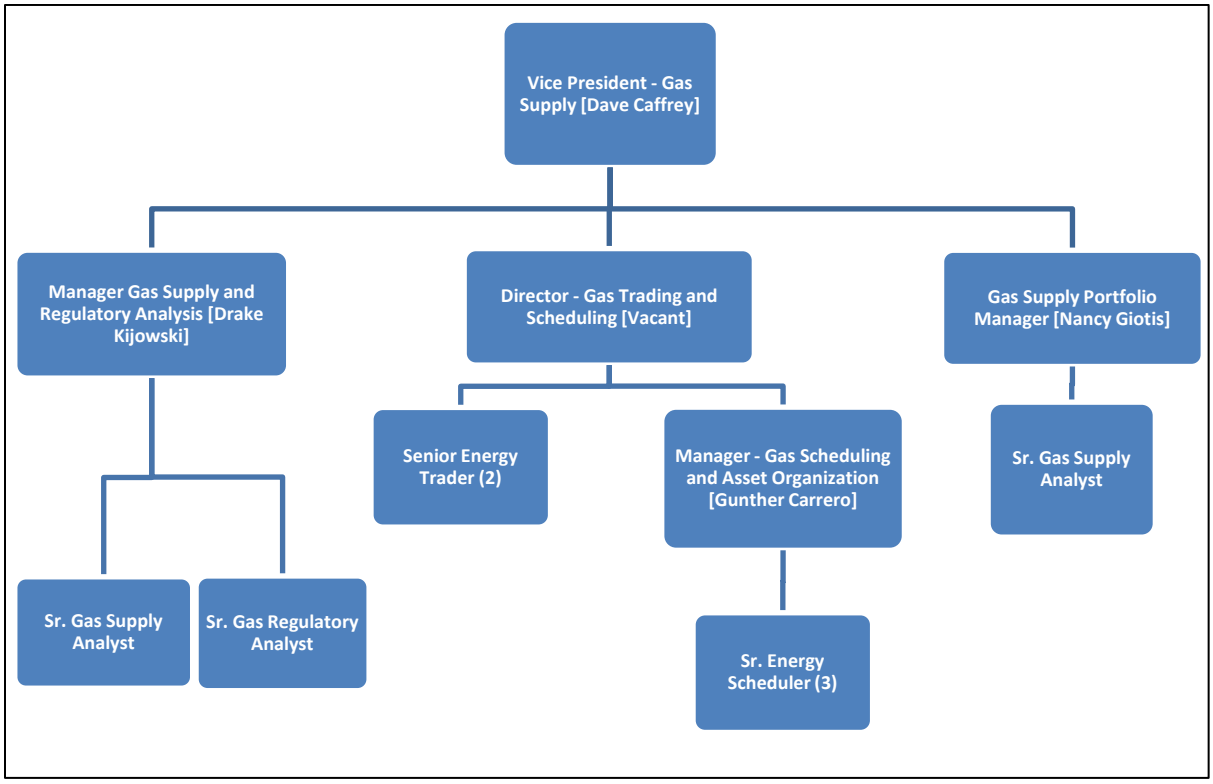
Gas Supply Organization

All gas commodity and capacity agreements are held by PSEG Energy Resources and Trade, LLC (ER&T), an unregulated subsidiary of PSEG Power. Basic gas supply service (BGSS) is provided to PSE&G under a requirements contract (discussed below), subject to Board oversight over the terms and conditions of service. While ER&T manages all aspects of gas acquisition, PSE&G has a separate operating department, Energy Supply Acquisition & Operations, that manages the compliance with the Requirements Contract and other regulatory obligations, validates BGSS invoices, and manages the revenues and expenses associated with gas procurement. The Sales and Revenue Forecasting group develops the Corporate Energy Forecast.

PSEG ER&T

The ER&T BGSS group is led by the VP – Gas Supply, who reports to the Chief Operating Officer - PSEG. The group performs all gas procurement and supply for PSE&G, manages the oil and gas procurement functions for the Long Island Power Authority (LIPA), and has historically procured fossil fuels for power generation plants operated by PSEG Power. Additionally, the VP – Gas Supply provides testimony and data supporting the Minimum Filing Requirements (MFRs) for PSE&G's annual BGSS filing with the Commission (although the filing is compiled with input from others in the PSE&G and ER&T departments). An organizational chart of the group as of June 2021 is shown below.

Table 6-1 – PSEG Energy Resources and Trade Organization Chart[1]



The department's functions are assigned to management employees and their direct reports as follows:

Director – Gas Trading and Scheduling – formulates seasonal, monthly and daily operating plans and directs the implementation of all gas supply acquisition, physical trading, and capacity utilization activities relating to the provision of physical gas service.

Manager – Gas Scheduling and Asset Organization – leads the Scheduling and Asset Optimization group in the scheduling on ER&T's seven pipeline suppliers of all purchases of natural gas for BGSS, off-system sales, and LIPA. Formulates and implements gas optimizations strategies.

Manager Portfolio Strategy & Analysis – responsible for the monthly, seasonal and annual gas operational plan, including development of forward financial sales and purchase strategies, planning for injections and withdrawals from storage based on seasonality requirements, reliability analysis for seasonal and peak day, and price risk exposure analysis.

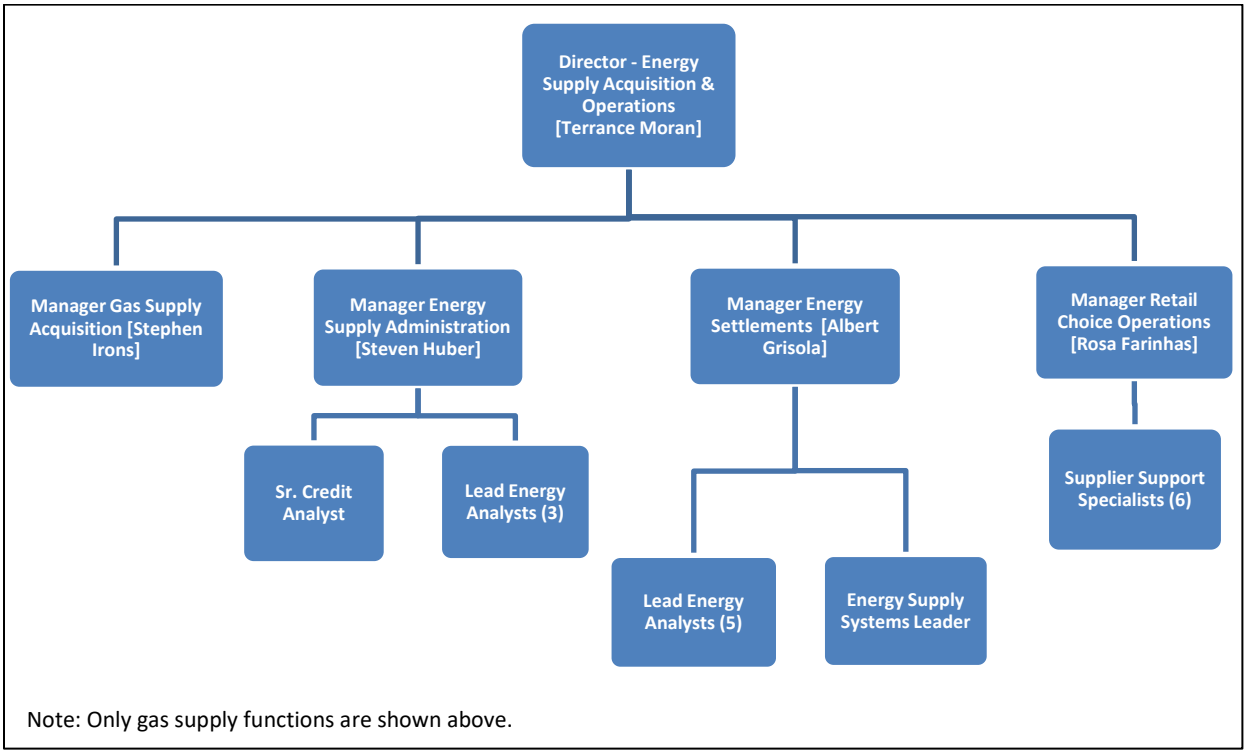
Manager – Gas Supply and Regulatory Analysis – develops and negotiates capacity contracts, participates in FERC gas pipeline proceedings, and represents the Company on the AGA Federal Regulatory Committee.

[1] Response to OC-0563.

PSE&G Energy Supply Acquisition & Operations

The Energy Supply Acquisition & Operations group oversees the procurement of electric and gas supply for PSE&G, including, the regulatory filing and approval process, and contractual oversight of suppliers, which includes the electric and gas settlement processes. The group also administers the Company's retail choice programs. While employees may support both electric and gas responsibilities, the gas procurement elements of the organization are represented on the chart below.

Table 6-2 – PSE&G Energy Supply Acquisition & Operations Organization Chart (as of June 2021)[2]



Note: Only gas supply functions are shown above.

Key roles and responsibilities in gas procurement activities are assigned as follows:[3]

Manager Gas Supply Acquisition – develops and executes all aspects of the BGSS procurement process, creates and/or reviews BGSS filing reports, meets with ER&T monthly regarding hedging program status, monitors actual and projected costs.

Manager Retail Choice Operations – manages all day-to-day inquiries from third party electric and gas suppliers (of which there are approximately 100 retail gas suppliers), oversees data transactions

[2] Response to OC-0563.
[3] Response to OC-0370 and Interview of Terrance Moran on August 11, 2021.

between PSE&G and suppliers, and maintains daily oversight of daily contract quantities (DCQ's) for firm suppliers.[4]

Manager Energy Settlements – performs daily tracking of volumes in the gas delivery system and reconciling PSE&G operating data to ER&T's invoiced quantities.

Manager Energy Supply Administration – responsible for credit management of retail suppliers (i.e., sufficiency of collateral), validation of the ER&T invoice cost, oversees onboarding of new third party gas suppliers, and managing the cash-out process for third parties.

PSEG Power ER&T – PSE&G Relationship

The Company believes that the ER&T organization provides a number of benefits to PSE&G and its ratepayers. ER&T assumed the risk associated with the recovery of fixed costs of the BGSS asset portfolio, which currently amount to $348 million per year. ER&T also assumed the obligations to meet the various credit requirements of all its pipeline and gas suppliers. ER&T assumes the counterparty risk from off system sales customers. Finally, ER&T's gas procurement function is a relatively small part of a larger ER&T organization that involves market-facing commercial activity across multiple products – natural gas, oil, LNG, propane and power.[5]

ER&T also operated a retail marketing affiliate, PSEG Energy Services, which was focused on the electricity market. The entity, formed in 2016, did not sell natural gas and stopped taking new customers in 2018 due to incompatibility with the Company's long term strategic plan, as well as difficulties in acquiring customers.[6]

The ER&T organization has recently undergone a transformation due to the recent sale of its entire fossil generation portfolio in the Northeast U.S. The sale, which closed in February 2022, removed 6,750 MW of production from PSEG Power's asset base.[7] PSEG Power retains its ownership interests in three nuclear plants and a fossil power plant in Hawaii.[8] The asset sale has resulted in the reduction of the size of the ER&T organization by 38 FTE's, 4 of whom were in ER&T's "VP-Gas Supply" organization supporting ER&T's BGSS supply functions.[9]

The separation of gas procurement functions between ER&T and PSE&G has led to the adoption of processes and procedures that cause some level of inefficiencies and duplication. The annual BGSS filing, an obligation of the regulated utility, PSE&G, is sponsored by ER&T's Vice President of Gas Supply. In addition, ER&T must create invoices for services rendered to PSE&G, which must be reviewed and validated by PSE&G, then paid to ER&T.

[4] For firm customers who exceed the DCQ over a month, the overage is added to the contracted supply in a future month.

[5] Response to OC-0561.

[6] Response to OC-0903.

[7] PSE&G Form 10-K, FYE 12/31/2021, page 95.

[8] PSE&G Form 10-K, FYE 12/31/2021, page 36.

[9] Interview of David Caffery on August 2, 2021.

ER&T recovers, subject to Board approval through annual BGSS filings, it's administrative and general (A&G) costs from PSE&G ratepayers. The mechanism does not allow ER&T to add any profit margin to the A&G recovery costs.[10] Recent A&G expenditures are shown on the following table.

Table 6-3 – ER&T Administrative and General Costs Billed to PSE&G, 2016-2021

Effective Period	A&G Costs	Cost per DTh
Oct '21 - Sep '22	$ 8,025,435	$ 0.03969
Oct. '20 - Sep '21	$ 7,146,870	$ 0.03592
Oct '19 - Sep '20	$ 7,004,200	$ 0.03566
Oct '18 - Sep '19	$ 7,172,710	$ 0.03698
Source: PSE&G Annual BGSS filings, 2017-2021.		

Oversight of ER&T's obligations under the Requirements Contract, as well as the efficiency and effectiveness of the gas procurement function, is carried out through the internal audit process, and via SOX controls around billing for BGSS. The Internal Audit Services group (part of the PSEG Services organization) has performed two audits of ER&T's gas procurement function in the last five years. Key observations from the audits were:

BGSS Audit dated August 23, 2018 (rated as "Some Improvement Required")

- Discrepancies were identified on the 2017 Annual Supply/Demand filing with the BPU. More rigorous review of the data prior to submission was recommended.
- No formal documented process or procedures existed for calculating billing penalties related to interruptible customers.
- The observed residential hedge procedures were not consistent with the documented policy, and the quarterly hedge report was not completely reviewed prior to BPU submission.

BGSS – PSE&G Costs dated December 12, 2019 (rated as "Some Improvement Required")

- The Natural Gas Received Report (NGRR), which is used by PSE&G to determine the total monthly quantity of gas delivered to PSE&G's gas distribution system, contained a minor error when the report was transitioned to automatic generation. The error was corrected within one month.

According to the audit reports, remediation activities to address the audit observations were identified and implemented in a reasonable timeframe. However, it is unclear, based on the frequency of the audits, how often ER&T is expected to be audited, and which internal controls and processes are covered with each audit. The significant costs that are associated with gas procurement and the provision of this service through an unregulated subsidiary under a contractual arrangement should

[10] Response to OC-0565.

result in more frequent internal audits of ER&T's compliance with the Requirements Contract and the propriety of invoiced costs to PSE&G.

PSEG Power ER&T and PSE&G Requirements Contract

In an order dated April 17, 2002, the BPU approved the transfer from PSE&G to PSEG ER&T all contracts related to the rights to purchase, transport, and store natural gas. The requirements contract, executed in connection with the asset transfer, obligates ER&T to provide Basic Gas Supply Service (BGSS) to PSE&G's retail tariff customers and contract cogeneration customers. Significant provisions in the Requirements Contract include:[11]

- BGSS is the retail gas supply service, by which ER&T provides all needed firm and non-firm gas to PSE&G to meet the natural gas requirements of its customers, including:
    - PSE&G's firm obligations
    - PSE&G's balancing services
    - PSE&G's non-firm supply obligations
    - PSE&G's non-tariff service agreements
- To meet this obligation, ER&T holds all the necessary firm transportation, storage and gas purchase contracts to reliably serve PSE&G.
- ER&T provides administrative and management services to PSE&G related to the wholesale delivery of gas, including:
    - Load scheduling
    - Load balancing
    - Mitigation of price volatility
    - When appropriate, input into decisions regarding whether to interrupt service and when to call upon peak shaving
- PSE&G maintains peak shaving facilities, for which ER&T pays operating and maintenance costs.
- Deliveries of BGSS services are to be made to PSE&G at pipeline or peak shaving interconnections.
    - ER&T is responsible for transportation of gas to the Points of Delivery, and PSE&G is responsible for transportation of gas from the Points of Delivery.
- ER&T is the sole supplier of the BGSS full requirements services.
- The quality of gas delivered to PSE&G shall conform with the specifications of ER&T's interstate transportation providers, with the exception of refinery, landfill, and peaking gas, which shall be blended.
- The pressure of gas delivered to PSE&G shall conform with the specifications of ER&T's interstate transportation providers.
- PSE&G may recall all BGSS assets upon a default by ER&T.

[11] Response to OC-0360.

- ER&T warrants that:
  - It holds good Title to gas it sells.
  - It holds sufficient entitlements to provide the full requirements services.
- PSE&G is responsible for curtailing interruptible loads when appropriate.
- Payment: PSE&G pays ER&T monthly for these services:
  - All gas supply and capacity charges
  - Balancing
- Non-tariff service to cogenerators is provided.
- The contract is subject to regulatory oversight, and ER&T shall supply expert witness testimony in any BPU proceeding concerning the gas component of any rate.

The Requirements Contract has been amended three times, in 2007, 2014, and 2022. In these instances, the only modification was to the term of the contract. The 2014 amendment extended the term until March 31, 2019 but added an evergreen clause allowing for year-to-year automatic renewals unless terminated by either party with at least 24 months written notice.[12]

Most recently, in its annual BGSS filing dated June 1, 2021, PSE&G requested the Board's approval to execute another amendment to the Requirements Contract that would provide for a 5-year term extension with an automatic year-to-year renewal thereafter, subject to a two-year notice requirement.[13] The Board approved the five-year extension to the Requirements Contract, with no changes to the contract provisions, in an order dated April 6, 2022.[14]

Given the recent sale of the PSEG Power fossil fleet, ER&T is now focused on PSE&G gas supply services, largely extinguishing any continuing rationale for those functions to reside outside of the utility. We recommend that the BPU revisit this structure and consider the transfer of these functions back to PSE&G.

BGSS Purchases

Overview

PSE&G is responsible for preparing a forward-looking annual demand forecast. Using the demand forecast provided by PSE&G, ER&T prepares a forward-looking supply plan. The supply and demand requirements are weather normalized. PSE&G files this data with the NJBPU in an Annual Supply/Demand Report.

[12] Response to OC-0360.

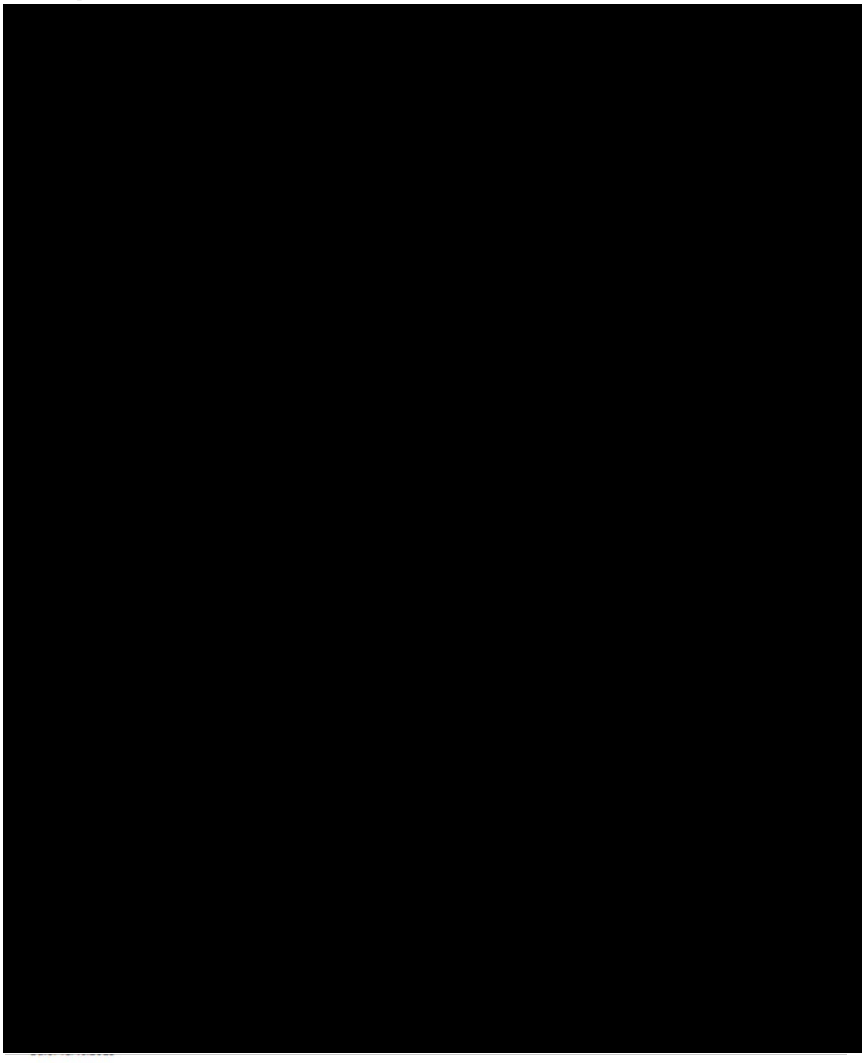
[13] Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing*, June 1, 2021, Item 1, Attachment A - Testimony of David F. Caffery.

[14] Docket No. GR21060878, Decision and Order Approving Initial Decisions and Stipulation for Final Rates, April 6, 2022.

To accommodate gas demand, ER&T manages a contract portfolio of natural gas transportation and storage capacity on seven different pipelines, in addition to both LNG and propane supplies from facilities on the PSE&G distribution system used for peaking purposes. The majority of its gas supply over the course of the year is sourced from the lower priced Marcellus/Utica supply regions. Furthermore, ER&T holds over 70 Bcf of storage capacity in the Marcellus/Utica region which provides the ability to Inject low priced gas during the April through October period, and then withdraw this lower priced inventory in winter months in lieu of paying higher winter prices.[15] The facilities supplying PSE&G gas operations are shown on the map below.

Table 6-4 – PSE&G Gas Facilities[16]

[BEGIN CONFIDENTIAL]



[END CONFIDENTIAL]

[15] Response to OC-0360, *Gas Supply Plan*.
[16] Response to OC-0369 (Confidential).

Peak Day Forecasting

PSE&G's Gas Sales & Forecasting group develops the Corporate Energy Forecast (CEF), updated on an annual basis and reviewed periodically during the year, to determine monthly and annual energy sales that are used by ER&T to project gas supply requirements. The CEF analyzes factors such as customer usage and industry trends utilizing econometric models that incorporate economic, demographic, and weather explanatory variables. This energy forecast, along with the peak day model (a separate model that analyzes the relationship between daily sendout and weather and day type), generates a peak day forecast and any additional capacity needs.[17]

In general, firm customer sales consumption is highly correlated with weather trends observed during the winter heating season. The CEF uses a heating degree day (HDD) model to determine peak day requirements. Interruptible customers, however, have been observed to switch from interruptible rate schedules to other rate schedules and have energy demands that are less weather dependent. Thus, the CEF also includes a demand component that is more fixed in nature. The model also considers factors such as weekdays/weekends, holidays, and snowstorms.[18] The most recent peak day forecast is shown on Attachment 6-1 and summarized on the table below.

Table 6-5 – Peak Day Gas Requirements and Supply Summary, 2021-2026

	(in MDTh)				
	2021-2022	**2022-2023**	**2023-2024**	**2024-2025**	**2025-2026**
Pipeline Firm Transportation	1,428.5	1,428.5	1,428.5	1,428.5	1,428.5
Storage	894.2	894.2	894.2	894.2	894.2
Peaking Supply	570.3	570.3	570.3	570.3	570.3
Subtotal - PSEG Firm Supply	**2,893.1**	**2,893.1**	**2,893.1**	**2,893.1**	**2,893.1**
FTS DCQ	310.3	309.4	310.1	311.0	311.5
Total PSEG Gas Supply	**3,203.3**	**3,202.4**	**3,203.2**	**3,204.1**	**3,204.5**
Total Peak Day Capacity Requirements	3,173.2	3,217.1	3,242.2	3,272.2	3,298.4
Surplus (Deficiency)	**30.1**	**(14.7)**	**(38.9)**	**(68.1)**	**(93.9)**

Source: Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing,* June 1, 2021, Item 16.

Peak day requirements for firm customers have not exceeded total pipeline and peaking capacity at any time since the beginning of 2012.[19]

Consistent with industry practice, a reserve margin is added to the Peak Day Sendout Forecast to come up with the Total Peak Day Capacity Requirement shown on the table above. The reserve margin considers average daily temperatures below 0°F, the probabilities of third party under deliveries, and pipeline/peaking plant disruptions.

[17] Response to OC-0368.
[18] Response to OC-0367.
[19] Response to OC-0731.

The reserve margin element of the Total Peak Day Capacity Requirement is the result of a probabilistic determination at various firm demand levels in satisfying the criteria of a 3% Loss of Load Probability (LOLP) when taking into consideration supply and weather variabilities. The LOLP is a probabilistic model developed by ER&T. To determine the LOLP, ER&T develops two separate probability distributions. In the first distribution, a composite of probability distributions is made of the daily capacity reliability of each supply source including pipeline transportation and storage contracts, TPS firm (FTS) deliveries, and LNG and LPA supplies. In the second distribution, the probability of occurrence of various levels of firm demand are determined in days/year. These daily capacity and firm demand probability distributions are then combined to evaluate the loss of load in days per year. In light of system characteristics, customers, supply options, and historical experience, ER&T and PSE&G consider the 3% LOLP to be an acceptable risk of a shortfall in supplies to meet firm demand.[20]

The criteria is that there will be 1 day In 33 years that a supply shortfall would occur (1 day per year divided by 33 years = 3% LOLP). The criteria were selected based on the cost and consequences of a supply shortage versus the additional capacity cost and availability to mitigate the supply shortage.

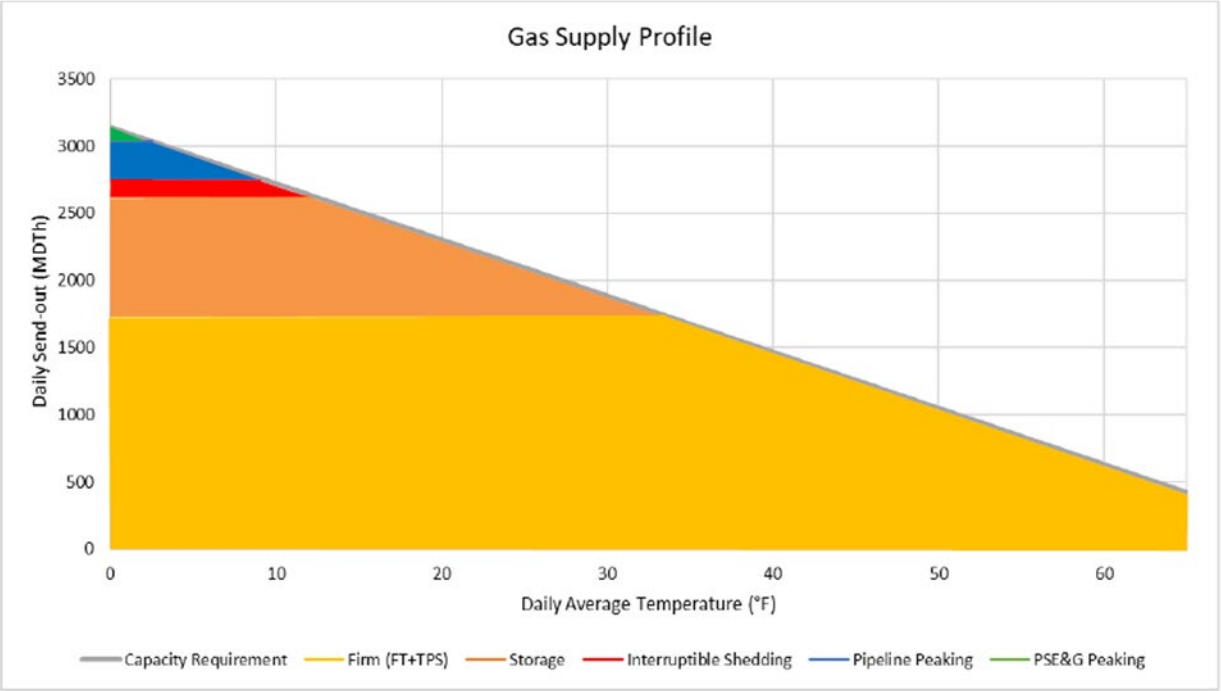
PSE&G has not experienced an actual loss of load in the last 15 years. PSE&G has, however, experienced a number of force majeure events on the Transco and Texas Eastern pipeline systems that resulted in the reduction of the pipelines' ability to operate at their fully contracted capacity levels during the past 5 to 10 years. These incidents have occurred outside winter months when PSE&G's load requirements were lower.[21] Furthermore, there have been no curtailments of PSE&G's firm gas customers during the past decade.[22]

Gas Supply Sourcing

Approximately 47% of PSE&G's peak daily gas requirements is provided from ER&T's firm gas transportation capacity. ER&T satisfies the remainder of PSE&G's requirements from storage contracts, contract peaking supply, liquefied natural gas and propane. Based upon the availability of natural gas beyond PSE&G's daily needs, ER&T sells gas to others and has historically used it for its generation fleet.[23] The utilization of supply sources is depicted on the following chart.

[20] Response to OC-0379.
[21] Response to OC-0765.
[22] Response to OC-0730.
[23] PSE&G Form 10-K, FYE 12/31/21, page 6.

Table 6-6 – Gas Supply Profile[24]



The Company periodically reviews its pipeline transportation, storage, and peaking capacity supplies to ensure that the optimal mix of capacity assets are maintained to meet its forecasted peak day and seasonal requirements at the lowest possible cost.

As illustrated on Table 6-6 above, based on the Company's latest forecast, the Company is projected to experience a shortfall in peak day supply commencing in 2022-2023 which will increase throughout the five year forecast period.

The Company has been active in adding capacity over the past few years. In 2020 it participated in an open season for Transco's Regional Energy Access Project which provides for an expansion of the Transco system between the Marcellus supply region in northeast Pennsylvania and central and southern New Jersey. The Company has entered into a precedent agreement with Transco providing for 60,000 Dth/d of new firm transportation capacity to help meet the projected shortfall in peak day supply for the 2024/2025 winter and beyond, and to meet increased gas requirements in the Mount Laurel and Camden areas of its distribution system. Transco filed its certificate application for REA at FERC on March 26, 2021. Transco anticipates placing the REA project into service effective December 1, 2024. A summary of recent additions to pipeline capacity is shown below.

[24] Response to OC-0369 (Confidential).

Table 6-7 – Pipeline Capacity Enhancements

Pipeline Company	Receipt Point	Capacity Added (Dth/d)	Contract Term	In-Service Date
Texas Eastern	Lambertville, NJ	30,000	15 years	2019/2020 winter
Algonquin	Lambertville, NJ	15,000	15 years	2019/2020 winter
Transco Gateway	Transco Mainline	54,000	15 years	2019/2020 winter
Columbia	Hanover, NJ	6,250	expires 3/2022	2019/2020 winter
Transco Regional Energy Access	Leidy, PA	60,000	17 years	2023/2024 winter
Source: Response to OC-772.				

Additionally, ER&T was a shipper in the PennEast project which was expected to provide increased capacity from the Marcellus shale region, as well as provide a new independent source of pipeline supply, and thereby increase the reliability of the Company's portfolio of firm pipeline transportation capacity. PennEast notified FERC late last year that it was ceasing development of the project. Hence, ER&T has not included the supply in its current supply forecast.[25]

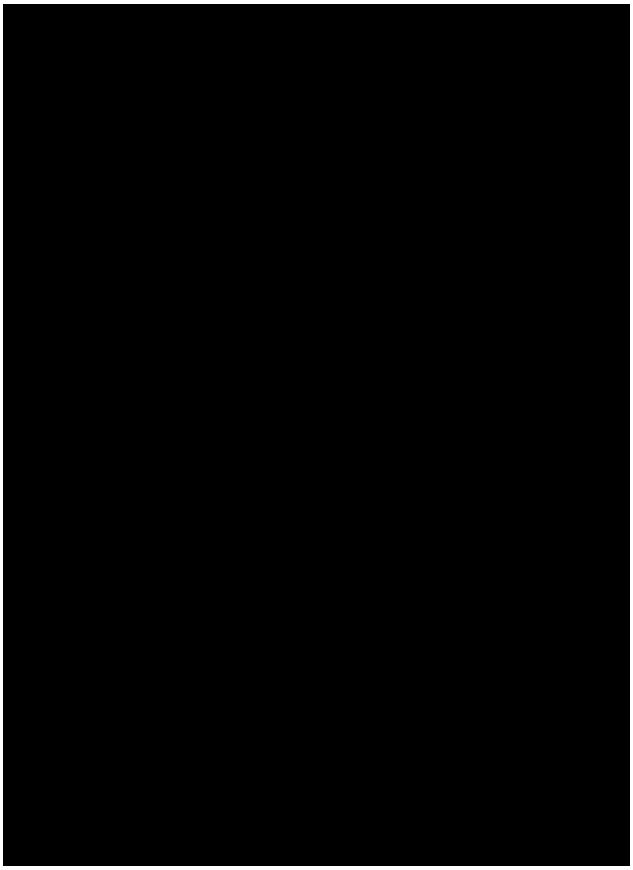
Supplier Diversity

ER&T manages its supply risk through the diversification of its transportation portfolio. As shown on the table below, no individual supplier exceeds 20% of the Company's annual procured volume. Furthermore, the risk is mitigated through its extensive pipeline transportation network and substantial storage capacity.

[25] Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing*, June 1, 2021, Item 18.

Table 6-8 – Largest Gas Suppliers (BGSS), 2018-2020

[BEGIN CONFIDENTIAL]



[END CONFIDENTIAL]

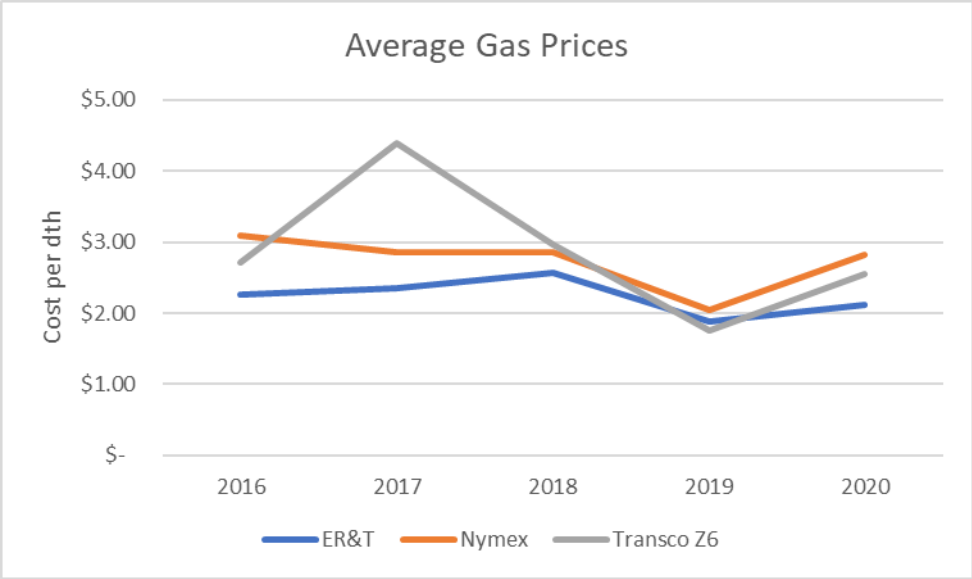
Gas Prices

Gas supply prices are determined partially by the ER&T's hedging program, with the remainder purchased at monthly or daily indices. The hedging program accounts for approximately 50% of PSE&G's annual RGS sales[26] and covers approximately 65% of supply when storage volumes are considered.[27] The Company's hedging program is discussed in greater detail in the following section.

The overall impacts of ER&T's purchasing strategy can be measured, at a high level, by comparing PSE&G's commodity pricing to industry benchmarks. The trends have been favorable in recent years, as shown below.

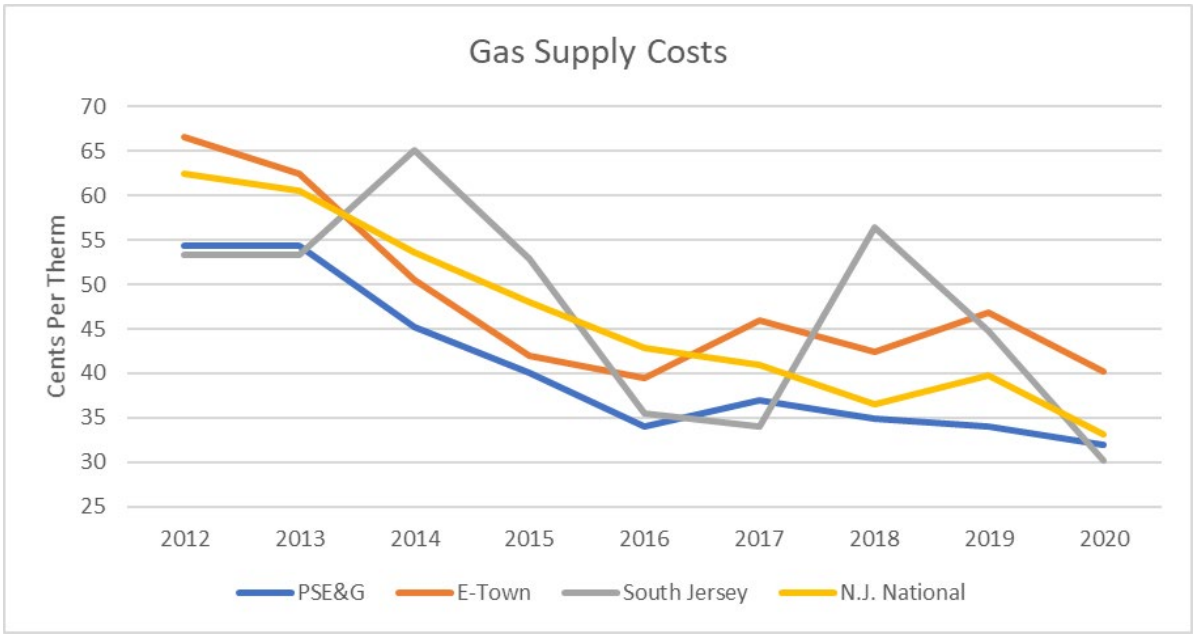
[26] Response to OC-0365.
[27] Interview of David Caffery on August 2, 2021.

Table 6-9 – Comparison of ER&T Commodity Prices to Industry Benchmarks[28]



Furthermore, ER&T's purchasing strategies have generally been effective in providing residential customers with competitive prices when compared to other New Jersey GDC's, as shown on the table below.

Table 6-10 – New Jersey GDC Gas Supply Costs, 2012-2020[29]



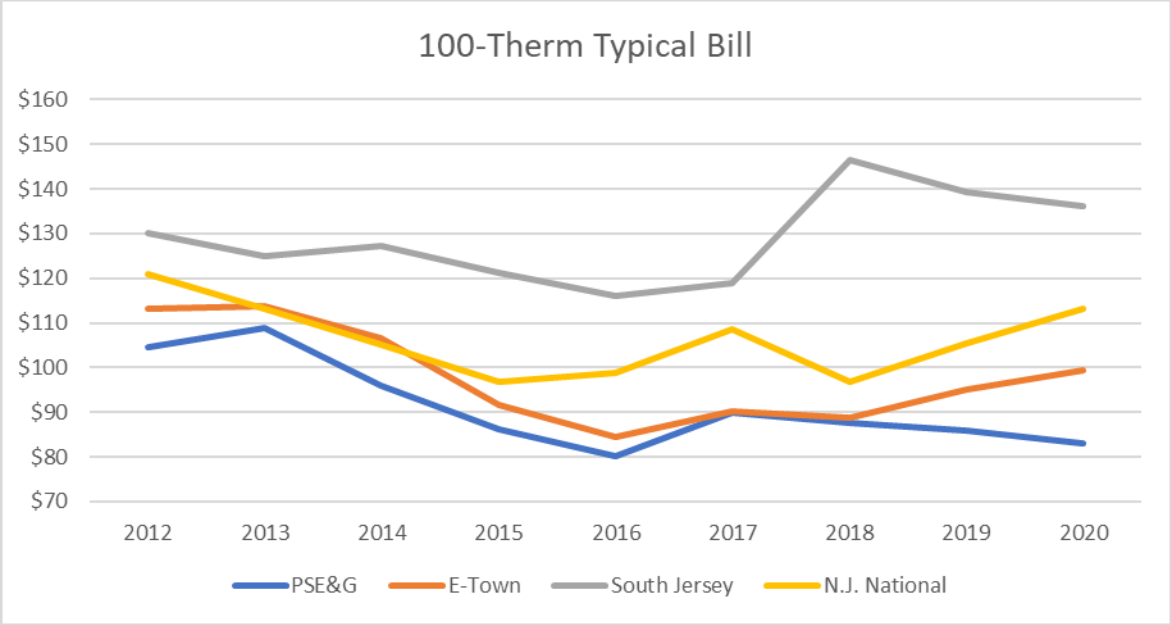
[28] Response to OC-0760.
[29] Responses to OC-0363 and 0761.

ER&T leverages its storage assets to purchase and store significant quantities of gas in the lower-priced summer months for use during the winter, thereby reducing the impacts of spot purchases during the higher cost winter months.

Residential prices are set through annual BGSS filings. Using PSE&G's forecasting models and projected costs (based on forward Nymex prices) provided by ER&T, the Company obtains Board approval for its commodity charge, which is fixed for 12 months. The Company also receives approval for changes to its balancing charge, comprised of the costs associated with transportation, storage and peaking supplies, as well as carrying costs for its inventory in storage.

As the largest GDC in New Jersey, PSE&G benefits from scale economies and can apportion these costs over a larger customer base than other New Jersey utilities. As a result, the Company has consistently had the lowest average residential customer pricing, as illustrated on the following table.

Table 6-11 – New Jersey GDC Typical Bills, 2012-2020[30]



The Company uses several methods to true-up the actual cost of gas with BGSS rates. As part of the annual filing, prior year actual cost variances are reconciling items in the computation of the forward BGSS rate. In addition, PSE&G has the option to issue customer refunds through bill credits without additional Board approval. The Company has returned commodity charges totaling $910 million through bill credits between 2012 and 2020.[31]

[30] Responses to OC-0363 and 0761.
[31] Response to OC-0377.

Furthermore, the BGSS authority allows PSE&G the ability to put in place two self-implementing BGSS increases on December 1 and February 1 of up to 5%. PSE&G imposed a 5% increase in December 2021, followed by an additional 5% increase in February, 2022. The BGSS authority granted by the Board also allows for PSE&G to reduce the BGSS rate at any time, in response to market conditions.

Hedging Program

ER&T established its current hedging policy in 2009, which has remained unchanged in the subsequent years.[32] The Company uses two methods to hedge its gas supply for residential customers: the Non-Discretionary Method and the Dollar Budget Method. These programs are defined as follows:[33]

Non-Discretionary Method – The Non-Discretionary Method involves hedging a relatively ratable volume of gas over an 18 month period prior to the effective winter or summer season.

Dollar Budget Method – The Dollar Budget Method involves the development of a monthly budget of dollars that will be spent equally over a maximum of 18 months prior to the effective winter or summer season. The volumes of gas that will be purchased each month for the prospective winter or summer season will vary based on the price for that future period on the day the hedges are entered into.

Because the Dollar Budget Method assigns a fixed monthly cost for forward gas purchases, there is a risk, during an increasing price environment, that the targeted volume will not be met.

Hedged volumes are evenly split between the two methods. For the winter season, ER&T hedges 17.5 bcf under each method (representing 230,000 dth per day of total estimated consumption). For the summer season, ER&T likewise hedges 17.5 bcf under each method (representing 160,000 dth per day of total estimated consumption). Annual hedged volumes total 70 bcf. The hedged portion amounts to approximately 50% of annual residential demand. Commodity costs associated with the residential hedging program are shown in the following table.

[32] Response to OC-0768.
[33] Response to OC-0382.

Table 6-12 – Commodity Hedging Costs, 2016-2021

Calendar Year	Commodity Hedge Cost
2016	$ 145,160,045
2017	$ 154,642,235
2018	$ 166,240,727
2019	$ 158,921,442
2020	$ 146,390,000
2021	$ 149,906,457

Source: Responses to OC-770 and OC-1694.

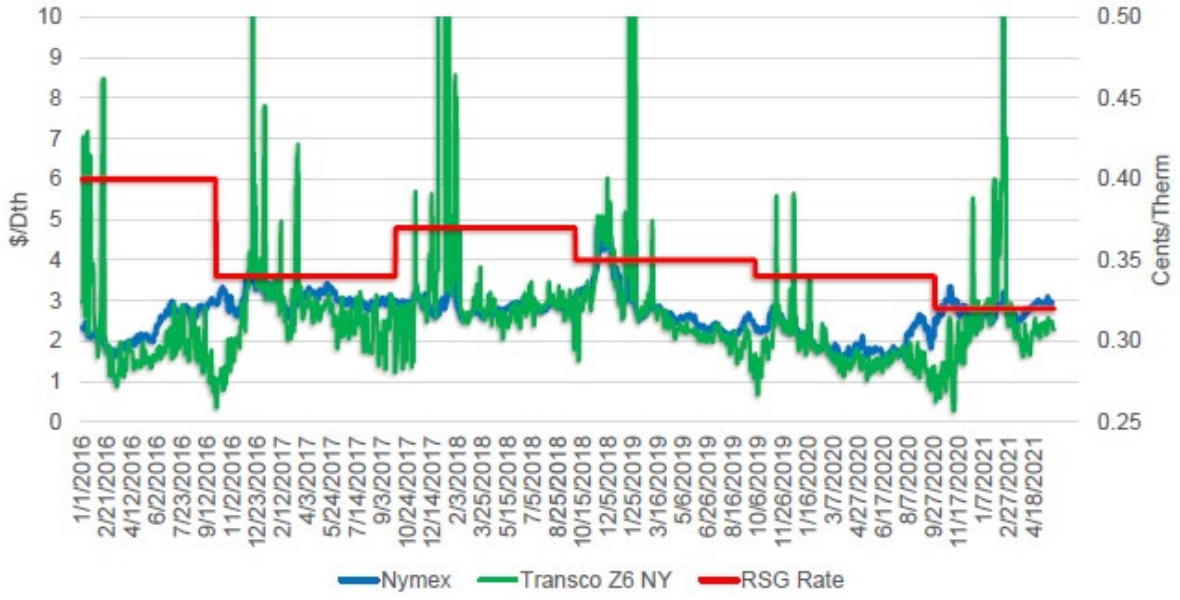
As of June 1, 2021, the Company hedged approximately 96% of its planned volume for the 2021 summer period, approximately 59 % of its planned volume for the 2021-2022 winter period and approximately 37 % of its planned volume for the 2022 summer period.

In addition to its transportation and peaking assets, ER&T maintains approximately 70 Bcf of storage assets under contract with various pipeline suppliers. These storage assets are used to supplement flowing gas supplies when customer demand on the Company's distribution system increases during the winter period. The Company typically injects gas into storage during the April through October timeframe, targeting a level of approximately 97% full by October 31st. The Company's storage portfolio allows the Company to purchase gas supplies during the April through October timeframe and withdraw this gas for use during the peak winter months, thereby providing a further hedge on behalf of its customers against winter price volatility.[34] When these stored volumes are taken into consideration, the total annual hedged supply increases to 65% of residential demand.

While PSE&G compares monthly hedged costs with current market prices and reports these results quarterly to the BPU, PSE&G and ER&T do not perform analysis of gains and losses associated with the hedging program. The Company believes the sole purpose of the hedging program is to reduce volatility in the commodity prices over the short-term, thereby providing more stable rates to customers, as illustrated on the following chart.

[34] Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing*, June 1, 2021, Item 18.

Table 6-13 – RSG Rate Vs. Transco Z6 and Nymex, 2016-2021[35]



While price stability is an obvious benefit in a well-functioning hedging program, the Company could incorporate additional tools to evaluate the effectiveness of its hedging strategy. An obvious comparison of hedged prices would include a measure against unhedged twelve month prices – the weighted average cost of gas ("WACOG"). In addition, hedged volumes, which have been fixed since 2009, may not be optimized based on year-to-year market conditions.

Off System Sales

ER&T is obligated under the Requirements Contract to supply 100% of PSE&G's gas demand, as determined through PSE&G's daily forecasting process. However, ER&T may sell excess supply to third parties. Profit margins from these sales are split between ER&T and PSE&G, where approximately 75% are allocated to PSE&G and returned to retail customers through the BGSS rate setting process, and approximately 25% are retained by ER&T.[36]

Market conditions change over time which can result in significant changes in the Company's off-system sales results. The Company has experienced significantly decreased margins in off-system sales and capacity release transactions over the past few years. A number of significant pipeline expansions from the Marcellus and Utica supply regions, representing over 9 Bcf/d of new capacity, were placed into service during 2017/2018, providing additional outlets for these shale gas supplies. The increased ability of these pipelines to move additional volumes to market has resulted in a large decrease in the basis

[35] Response to OC-0387.
[36] Interview of David Caffery on August 2, 2021.

differentials between the Marcellus and Utica supply region and the Transco Z6 market, where the Company makes the majority of its off-system sales. The Company anticipates this extensive pipeline capacity buildout will continue to put significant downward pressure on capacity release and off-system sales margins for the foreseeable future.[37]

The Company's 2021 off-system sales benefitted from a much colder February than normal during which the Company was able to maximize its sales volumes and margins.[38]

The table below provides a summary of the capacity release and off-system sales by the Company for the prior eight calendar years.

Table 6-14 – Off -System Sales, 2014-2021

Year	BGSS-RSG OSS Revenue	BGSS-RSG OSS Cost	BGSS-RSG OSS Margins
2014	$ 327,717,529	$ 143,452,710	$ 184,264,819
2015	$ 197,662,767	$ 61,941,827	$ 135,720,940
2016	$ 145,423,895	$ 86,729,138	$ 58,694,758
2017	$ 156,240,095	$ 96,425,765	$ 59,814,330
2018	$ 194,555,168	$ 124,011,106	$ 70,544,017
2019	$ 79,655,383	$ 59,067,798	$ 20,587,585
2020	$ 96,122,477	$ 75,386,530	$ 20,735,947
2021	$ 163,784,140	$ 123,967,006	$ 38,817,133

Source: Responses to OC-773 and OC-1695.

Third Party Suppliers

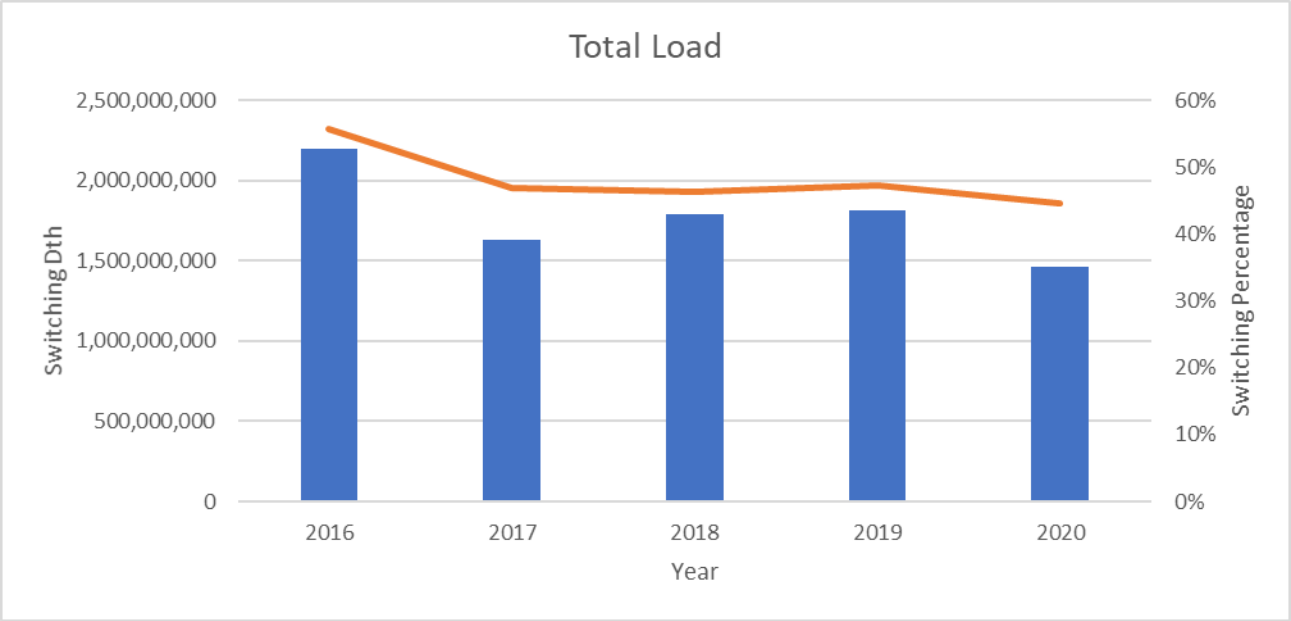
All of PSE&G's retail customers have the option of purchasing their gas supply from a third party supplier as an alternative to BGSS service from PSE&G. The Company does not market its BGSS product, as it is a non-competitive, default service.[39]

No pipeline capacity or commodity for transportation customers is reserved. PSE&G believes that it is the responsibility of the third-party suppliers to make whatever arrangements they need to make to ensure their ability to reliably serve transportation customers.[40]

Volumes supplied to PSE&G customers by third parties has fluctuated somewhat over the past few years, although the overall percentage of third-party supply has been stable. The quantity variances are therefore likely due primarily to changes in weather conditions year-to-year.

[37] Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing*, June 1, 2021, Item 18.
[38] Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing*, June 1, 2021, Item 18.
[39] Response to OC-0376.
[40] Response to OC-0379.

Table 6-15 – Third Party Switching – 2016-2020 (Total Company)[41]



While overall supply has remained stable, PSE&G's residential customer base has moved away from third party suppliers over the past few years. The percentage of volumes has decreased 42% over the past five years, as shown below.

Table 6-16 – Third Party Switching – 2016-2020 (Residential)[42]

[41] Response to OC-0433.
[42] Response to OC-0433.

Risk Management

The Company asserts that its primary risk management strategy regarding the gas supply portfolio is the residential hedging program.[43] However, the Company has also identified natural gas supply disruptions as an enterprise risk. Specific events and mitigation activities are summarized on the table below.

Table 6-17 – Risk Management Summary – Gas Procurement

[BEGIN CONFIDENTIAL]

[redacted]

[END CONFIDENTIAL]

The Company has further analyzed the impact of gas supply curtailment vulnerability with its main pipeline suppliers.

Table 6-18 – Gas Curtailment Vulnerability

[BEGIN CONFIDENTIAL]

[redacted]

[END CONFIDENTIAL]

Risks factors are reviewed and evaluated at least annually through the Company's enterprise risk management program.

[43] Response to OC-0364.

Information systems

During the audit period, PSE&G's IGAS information system supported the gas supply function. This system generally consisted of a database and separate web service to support an electronic bulletin board for suppliers, stored customer usage and supplier information, supported reporting needs and served as a portal for suppliers to submit daily nominations for gas delivered to the PSE&G system. However, the system lacked a user interface and had limited reporting and invoicing capabilities. Therefore, the IGAS system has been replaced with a new third-party solution ("Gastar") that contains an integrated electronic bulletin board and database which will provide enhanced communications and management of third-party supplier gas deliveries, along with a built-in user interface, improved data auditability, and invoicing capabilities.[44] The cutover to the Gastar system was completed on September 1, 2021.

[44] Response to OC-0361.

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Attachment 6-1

Peak Day Gas Requirements and Supply
May 2021

Supply	(MDTh)				
	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026
Transco FT	432.4	432.4	432.4	432.4	432.4
Transco FT (DTI)	32.2	32.2	32.2	32.2	32.2
Transco FT (Cove Point)	20.0	20.0	20.0	20.0	20.0
Transco FT (Gateway)	54.0	54.0	54.0	54.0	54.0
Texas Eastern FT	246.5	246.5	246.5	246.5	246.5
Tennessee FT	36.4	36.4	36.4	36.4	36.4
FT from Lebanon:					
Texas Eastern	180.7	180.7	180.7	180.7	180.7
DTI/Transco	49.7	49.7	49.7	49.7	49.7
Columbia	12.5	12.5	12.5	12.5	12.5
Subtotal	**242.9**	**242.9**	**242.9**	**242.9**	**242.9**
Transco/Telco FT (Leidy)	330.2	330.2	330.2	330.2	330.2
Columbia (Hanover)	18.8	18.8	18.8	18.8	18.8
Algonquin	15.0	15.0	15.0	15.0	15.0
Pipeline Firm Transportation	**1,428.5**	**1,428.5**	**1,428.5**	**1,428.5**	**1,428.5**
Refinery Gas	-	-	-	-	-
Total Firm FT Supply	**1,428.5**	**1,428.5**	**1,428.5**	**1,428.5**	**1,428.5**
Storage	894.2	894.2	894.2	894.2	894.2
Transco Peaking	13.2	13.2	13.2	13.2	13.2
Transco LGA	275.4	275.4	275.4	275.4	275.4
PSEG Burlington LNG	82.0	82.0	82.0	82.0	82.0
LPA	199.7	199.7	199.7	199.7	199.7
Total Peaking Supply	**570.3**	**570.3**	**570.3**	**570.3**	**570.3**
PSEG Firm Supply Subtotal	**2,893.1**	**2,893.1**	**2,893.1**	**2,893.1**	**2,893.1**
FTS DCQ (1)	310.3	309.4	310.1	311.0	311.5
Total PSEG Gas Supply	**3,203.4**	**3,202.4**	**3,203.2**	**3,204.1**	**3,204.5**
Peak Day Sendout Forecast (2)	3,031.0	3,067.0	3,094.0	3,123.0	3,149.0
Total Peak Day Capacity Requirements (3)	3,173.2	3,217.1	3,242.2	3,272.2	3,298.4
Surplus / (Deficiency) (3)	**30.2**	**(14.7)**	**(39.1)**	**(68.1)**	**(93.9)**

(1) Forecasted FT-S DCQ (January)
(2) Based on Corporate Energy Forecast, Gas - 2021
(3) 3% Loss of Load Probability

Source: Docket No. GR21060878, *PSEG 2021-2022 BGSS-RSG Initial Filing,* June 1, 2021, Item 16.

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7. REMEDIATION COSTS

Introduction and Overview

Under environmental law, PSE&G is responsible for the costs of remediating environmental contamination of property due to hazardous substances that the Company generated. A primary source of contamination is former manufactured gas plant (MGP) operations. Past BPU orders have established a process by which PSE&G can recover reasonably incurred costs from customers to remediate such sites. Costs are initially deferred; carrying costs are permitted on unamortized balances; and the deferral is relieved by customer charges based on total projected sales (both electric and gas) for the seven-year rolling recovery period.[1] The customer recovery mechanism is known as the Remediation Adjustment Charge (RAC), which is a component of the electric and gas Societal Benefits Charges.[2]

The deferred balance recognized by PSE&G for its historical remediation of former MGP sites for the past three calendar years is as follows:

Table 7-1 - Deferred MGP Remediation Costs (RAC)

PSE&G Deferred MGP Remediation Costs (RAC)	
Date	**Amount**
December 31, 2018	$174,600,337
December 31, 2019	$158,279,182
December 31, 2020	$133,681,576
Source: Response to OC-0080 Supplemental Note: The amounts above exclude deferrals associated with estimated future spending.	

Summary of Findings

1. While not directly affecting employee incentive compensation pay outs, the remediation of environmental contamination at former MGP sites is assessed internally both in terms of total spend and milestone achievement. In recent years, PSE&G has spent less on remediation than forecasted, but this has been primarily a function of schedule adjustments and a one-time reclassification rather than actual cost savings to forecast. Despite this, the Company has achieved over 80 percent of its targeted milestones.

[1] This is a description of the activity that takes place in the regulatory asset associated with the Remediation Adjustment Clause. A separate regulatory asset is tracked by the Company which functions as an offset to projected undiscounted environmental liabilities recorded by the Company. The balances in this second regulatory asset were approximately $321.0 million, $357.0 million, and $320.3 million, as of December 31, 2018, December 31, 2019, and December 31, 2020, respectively (see Response to OC-0080 Supplemental).

[2] The calculation also includes a true-up of prior deferrals which results when actual sales differ from projected sales.

2. Recent spending has been concentrated on a few of the 38 former MGP sites. In addition, a significant portion of the work has been performed by a limited number of remediation specialty vendors PSE&G manages its spending through competitive bidding supplemented by a formal change order process.
3. The reasonableness and prudency of costs is promoted through two complementary controls – an annual site-level estimate of costs that is reviewed by a senior vice president in Operations and used by Accounting to record associated liabilities and a quarterly evaluation by Accounting and Environmental Projects to identify changes in pricing or scope for use in establishing these same recorded liabilities.
4. Total estimated costs to remediate all former MGP sites has increased slightly over the past three years. This is largely due to changes in remediation strategy at some sites that involves higher initial spend but lower expected monitoring and maintenance on a prospective basis.
5. Over half the former MGP sites have been completely remediated, and the remainder have mandatory completion dates ranging from 2022 to 2026. PSE&G plans to be meet those specified deadlines or to request extensions as permitted by regulation.
6. Environmental remediation at former MGP sites has been the subject of two recent audits by PSEG's Internal Audit function. No significant issues were identified in either audit. In addition, Sarbanes Oxley testing identified no significant deficiencies or material weaknesses associated with financial reporting of this remediation work.
7. Problems with the completeness and accuracy of detailed information provided to the auditors did not affect historical RAC filings submitted to the BPU. The Company expects to employ a new system sometime in the second half of 2022 which, in part, addresses issues with the current tracking system that resulted in these errors.
8. An audit recommendation concerning additional disclosures to be filed with the BPU made by the previous auditor was adequately addressed by PSE&G.

Performance

The management of remediation activities associated with PSE&G's former MGP sites resides within the Environmental Projects group which is a part of PSE&G's Electric Transmission and Distribution organization.[3] The MGP remediation program is conducted within a framework set out in a series of Project Management Directives (PMDs) for Site Remediation Projects (SRP).[4] SRP-PMD-08 documents the key performance indicators and metrics that the Company is to track for this program.[5]

Key performance indicators and metrics for the remediation program fall into two distinct groups. The first group is designed to evaluate how much the Company has spent while the second group assesses how well PSE&G has remained on schedule.[6]

[3] Responses to OC-0450 and 0940.
[4] Response to OC-0450.
[5] Response to OC-0811.
[6] SMP-PMD-08 attachment provided in Response to OC-0811 (Confidential).

A summary of the actual costs and forecast amounts for PSE&G's remediation program for each of the past three years is as follows:

Table 7-2 - Site Remediation Spending

PSE&G Site Remediation Spending			
Year	**Forecast**	**Actual**	**Difference**
2018	$79,143,500	$59,162,563	($19,980,937)
2019	55,867,100	50,275,697	(5,591,403)
2020	81,069,260	46,435,379	(34,633,881)
Source: Attachment to the Response to OC-1361 (Confidential) Note: The difference noted above is a calculation based on forecast and actual amounts.			

The Company provided the following explanations for significant deviations from the annual forecast:[7]

2018:

- ($9.8 million) – Dredging at the Paterson Gas Plant site was rescheduled due to weather
- ($3.7 million) – Mobilization for the Hackensack Gas Works site was rescheduled due to an extended award process
- ($3.1 million) – The contract award for the Passaic Gas Works site soil remediation was lower than estimated

2019:

- ($6.9 million) – Gas main replacement at the Paterson Gas Plant site was changed from a deferral of remediation costs to capital gas main replacement (i.e., PSE&G property, plant & equipment)

2020:

- ($35.6 million) – Mobilization for the Harrison Gas Plant site was rescheduled due to the contract review and award schedule being longer than anticipated

For calendar years 2018 to 2020, PSE&G established schedule-driven project milestones for its various MGP sites. The table below summarizes the Company's achievement of these milestones:

[7] Attachment provided in Response to OC-1361 (Confidential).

Table 7-3 - Site Remediation Project Milestones

PSE&G Site Remediation Project Milestones			
Year	Achieved	Total	% Achievement
2018	63	69	91.3%
2019	72	88	81.8%
2020	77	91	84.6%

Source: "Remediation Milestones" attachment provided in Response to OC-0447 (Confidential).
Note: Milestones categorized "at risk" were treated as not achieved.

PSE&G provided a brief explanation for each project milestone missed. In some cases, the inability to achieve a sequence of milestones at a particular MGP site was due to the same underlying reason.[8] Through the first five months of 2021, PSE&G set 16 milestones, all but one of which were achieved.[9]

Neither the budget nor the schedule performance indicators cited above were incorporated into employee incentive compensation payouts.[10]

According to the Company, there has been no external benchmarking concerning the remediation of manufactured gas plant sites since the beginning of 2018.[11]

Recently Incurred Costs

The RAC has a fiscal year running from August 1 of one year to July 31 of the following year. Costs are tracked by former MGP site and consist of costs paid to third parties for the investigation and clean-up of these sites (net of insurance proceeds and other miscellaneous recoveries) along with an interest component.[12] According to the Company, it has not included any internal labor, overhead, or material costs in its recovery from ratepayers of the remediation of former MGP sites.[13] While the Company incurred costs at 38 different MGP sites in the 3 RAC fiscal years ending July 31, 2020, its spending was focused on just a few of these sites each year. The following table summarizes the PSE&G expenditures for that time period as well as noting the significant insurance proceeds that partially offset these expenditures (the amounts are based on details provided by the Company and, for reasons mentioned later in this chapter, may not agree to the RAC filings submitted by PSE&G to the BPU):[14]

[8] "Missed Remediation Milestones" attachment provided in Response to OC-0447 (Confidential).
[9] "Remediation Milestones" attachment provided in Response to OC-0447 (Confidential).
[10] Response to OC-1361 (Confidential).
[11] Response to OC-0449.
[12] December 23, 2020 PSE&G petition and attachments concerning its RAC 28 matter.
[13] Response to OC-0444.
[14] Response to OC-0444. Costs associated with letters of credit are not included in the following two tables (see Response to OC-0809).

Table 7-4 - Remediation Cost Expenditures by Former MGP Site

PSE&G Remediation Cost Expenditures by Former MGP Site				
Description	**Aug 2017 - Jul 2018**	**Aug 2018 - Jul 2019**	**Aug 2019 - Jul 2020**	**Cumulative 3-Year Period**
West End Gas Works	$18,167,487	$3,185,501	$755,728	$22,108,716
Plainfield Gas Works	275,045	9,025,788	12,016,274	21,317,107
Paterson Gas Plant	3,443,005	7,032,105	9,764,700	20,239,810
Market Street Gas Works	6,283,368	9,389,099	2,950,792	18,623,259
Harrison Gas Plant	5,553,571	8,674,735	3,308,100	17,536,406
Hackensack Gas Works	640,987	11,442,898	1,211,385	13,295,270
Camden Coke Plant	3,153,907	3,613,881	376,290	7,144,078
Halladay Street Gas Works	100,008	793,021	3,677,043	4,570,072
Camden Gas Plant	175,836	688,867	2,548,770	3,413,473
Other	3,937,866	5,058,082	3,720,023	12,715,971
Subtotal	**41,731,080**	**58,903,977**	**40,329,105**	**140,964,162**
Insurance Recoveries	(6,000,000)	(6,000,000)	-	(12,000,000)
Total	**$35,731,080**	**$52,903,977**	**$40,329,105**	**$128,964,162**

Sources: Responses to OC-0444 (some summing required) and OC-0809.
MGP = Manufactured Gas Plant
Note 1: Expenditures summarized above do not include those associated with the gas main replacement at Paterson Gas Plant charged to PSE&G base capital.
Note 2: In some instances, source documents did not total properly by insignificant amounts.

Differences between costs summarized in the immediately preceding table and those summarized earlier in the chapter are due to differences in the time periods being measured.

Most of the costs incurred at these former MGP sites involved services provided by a handful of vendors as demonstrated in the following table:

Table 7-5 – PSEG Remediation Cost Expenditures by Vendor

PSE&G Remediation Cost Expenditures by Vendor				
Description	**Aug 2017 - Jul 2018**	**Aug 2018 - Jul 2019**	**Aug 2019 - Jul 2020**	**Cumulative 3-Year Period**
Creamer Environmental, Inc.	$20,857,939	$10,906,364	$2,112,500	$33,876,803
Posillico, Inc.	-	8,110,257	11,177,104	19,287,361
Ferreira Construction Company	2,125,536	5,158,806	7,768,052	15,052,394
Sevenson Environmental Services Inc.	-	10,819,448	576,427	11,395,875
Paulus Sokolowski & Sartor, Inc.	2,221,809	4,414,825	3,717,704	10,354,338
Panther Technologies, Inc.	4,499,101	5,142,711	142,955	9,784,767
Charter Environmental	3,437,588	2,900,000	-	6,337,588
Connell Foley	1,128,747	1,645,318	2,052,973	4,827,038
PPG Industries, Inc.	-	539,337	2,304,766	2,844,103
Other	7,460,360	9,266,911	10,476,624	27,203,895
Subtotal	**41,731,080**	**58,903,977**	**40,329,105**	**140,964,162**
Insurance Recoveries	(6,000,000)	(6,000,000)	-	(12,000,000)
Total	**$35,731,080**	**$52,903,977**	**$40,329,105**	**$128,964,162**
Sources: Responses to OC-0444 (some summing required) and OC-0809.				
Note 1: Expenditures summarized above do not include amounts paid to Ferreira Construction Company to replace gas main at the Paterson Gas Plant which were ultimately charged to PSE&G base capital.				
Note 2: In some instances, source documents did not total properly by insignificant amounts.				

Services provided by these vendors included, but were not limited to, mobilization and site preparation, remedial action – soils, backfill of excavation, and site restoration and demobilization.[15] PSE&G states that all MGP remediation projects are competitively bid on a lump sum and unit cost basis. After a contract award, increases in costs are only permitted through approved change orders for additional units or a change in scope.[16]

According to the Company, it does not incorporate any specific performance objectives in its contracts with vendors who perform remediation services at its former MGP sites.[17]

Oversight of Costs

According to the Company, costs incurred are monitored for reasonableness and prudency primarily through two complementary controls. The first control involves an annual site level estimate for material environmental remediation projects prepared by Environmental Projects & Technical Services. This estimate is reviewed by the Senior Vice President of Electric Transmission & Distribution and is used

[15] Response to OC-0444. Exceptions to this general observation included Connell Foley which provided legal services and Paulus, Sokolowski & Sartor, Inc. which provided various services such as engineering oversight and documentation of contractor activities.

[16] Response to OC-1356.

[17] Response to OC-1358.

by Accounting Services to record appropriate liabilities. The second control involves a formal quarterly meeting held between the Assistant Controller – PSE&G and the Director of Environmental Projects to review active MGP remediation projects and to determine whether any changes in pricing or scope require an update to the overall liability recorded by PSE&G for this work.[18]

The effectiveness of these controls, especially as it relates to reasonableness, is dependent in large part on the reliability and accuracy of the estimates. To assess how accurate PSE&G has been historically in estimating the costs of remediating its former MGP sites, we requested information concerning its actual spending to date as well as its projected costs to complete remediation for various points in time over the past three years. This particular information is filed with the BPU on an annual basis for each fiscal year ended June 30.[19] These schedules show the following changes to the total costs to complete remediation:

Table 7-6 - Total Costs Projected to Remediate former MGP Sites

PSE&G Total Costs Projected to Remediate Former MGP Sites				
Description	**June 30, 2017**	**June 30, 2018**	**June 30, 2019**	**June 30, 2020**
Total Spent to Date	$912,743,413	$952,074,312	$1,010,258,388	$1,047,770,355
Estimated Costs to Complete	325,086,306	281,092,529	315,092,882	300,279,347
Total Expected Costs	**1,237,829,719**	**1,233,166,841**	**1,325,351,270**	**1,348,049,702**
Change from Previous Year		**(4,662,878)**	**92,184,429**	**22,698,432**
Source: "MGP Estimates" attachment provided in response to OC-0445.				
Note: Some totals may not agree with source documents by rounding.				

Over a three-year period, PSE&G's total projected costs to remediate its former MGP sites increased by less than 9 percent. The most significant changes to PSE&G's total expected costs to complete remediation occurred between June 30, 2018 and June 30, 2019 and to a lesser extent during the following fiscal year. The reasons for these changes in expectations are as follows:[20]

- A $73 million increase between June 30, 2018 and June 30, 2019 at the Harrison Gas MGP site was due to a change in remedial strategy. When originally budgeting for environmental remediation at this site, the Company planned to employ a slurry wall around the property to "contain" on-site contamination since its preferred method of remediation, soil excavation, could not be used because of water infiltration concerns from the nearby Passaic River. While this approach had the advantage of minimizing costs at the onset of the project, it requires constant monitoring and potential additional maintenance outlays in the future. After submitting the budget, PSE&G began a pilot study to determine whether in-situ stabilization could be used at the Harrison site instead. This process involves mixing the contaminated soil with cement and hardening it in place. The pilot study was a success, and while implementation

[18] Response to OC-0450.
[19] Responses to OC-0445, 1355, and 1356.
[20] "Changes to Remediation Costs" attachment provided in Response to OC-0445 and Response to OC-1356.

costs were higher, and the schedule needed to be modified to accommodate the change in approach, the Company determined it was a cost-effective alternative for this particular site. The Company asserts that this method of in-situ stabilization eliminated hazards involving an existing gas transmission line, does not hinder future site development, and requires no on-going maintenance after remediation is complete.

- A $12 million increase between June 30, 2018 and June 30, 2019 at the Hackensack MGP site was due primarily to a reclassification of estimated sediment remediation costs from those originally assigned to "river" clean up to the Hackensack MGP site "land."
- An $8 million increase between June 30, 2018 and June 30, 2019 at the Paterson Gas MGP site was due to a change in the capping approach along with higher-than-anticipated installation and restoration costs related to a gas main replacement.
- A $9 million increase between June 30, 2019 and June 30, 2020 at the Paterson Gas MGP site was due primarily to a reclassification of estimated sediment remediation costs from those originally assigned to "river" cleanup to the Paterson Gas site "land."
- A $4 million increase between June 30, 2019 and June 30, 2020 at the Camden Gas MGP site was due to a change in remedial strategy from use of slurry walls to in-situ stabilization (see first bullet above).

Projected costs to remediate the former MGP sites are primarily developed to support the environmental liability that PSE&G must recognize to comply with Generally Accepted Accounting Principles. The offset to this liability is a second regulatory asset account, separate and distinct from the regulatory asset account that captures historical spending and customer contributions over a 7-year period. (See Footnote 1 which quantifies this second regulatory asset balance for the past three years.)

It also should be noted that the preceding table excludes estimates to remediate local rivers, such as the Hackensack and Passaic Rivers that federal and state agencies allege have been contaminated by PSE&G and hundreds of other companies. As of 2020, PSE&G estimates the costs to remediate such rivers to be approximately $88 million.[21]

According to the Company's most recently provided report on completion status, PSE&G indicated that eighteen former MGP sites were still to be remediated. Soil remediation at the last of these sites is projected to be completed by February, 2025, which represents a delay of approximately 32 months from projections made three years ago by the Company. The groundwater remediation at the last of these sites is projected to be completed by May 2026. While some of the delay was attributed to COVID-19 and changes to remedial strategy at the Harrison Gas MGP site, the most common explanation given by PSE&G was increased time required for access to off-site properties.[22]

The New Jersey Department of Environmental Protection has set mandatory completion dates for each former MGP site. For those sites that have not received a No Further Action Determination, the dates

[21] "MGP Estimates" attachment provided in Responses to OC-0445 and 1360.
[22] "Summary Schedule Matrix" attachment provided in Response to OC-0445.

range from May 6, 2023 to May 6, 2026. PSE&G expects to meet all mandatory timeframes or will request an extension as required and allowed by regulations.[23]

In addition to the aforementioned controls, a review of the Site Remediation Project Management Directives also uncovered the following important internal controls:[24]

- Managers are assigned to each project, and they are responsible for cost performance among other specified duties (SRP-PMD-01, page 2),
- Competitive bidding is employed to obtain the lowest total cost quotation for materials and services for work scope greater than $100,000 (SRP-PMD-02, p. 6 and SRP-PMD-09),
- Project budgets must be approved by the Director of Environmental Projects prior to the authorization of corresponding work (SRP-PMD-03, page 3),
- Contracts are modified via Field Change Memorandums (FCMs) which clarify root cause and project impacts. Before an FCM is accepted and approved, all extra work will be evaluated for alternatives along with cost and schedule impacts. FCMS are the precursor to Project Change Requests (PCRs) and/or Scope Change Requests (SCRs) (SRP-PMD-03, pages 2, 4),
- Changes to project budget cash flows and/or estimates must be approved by appropriate levels of management (SRP-PMD-03, page 3),
- On a monthly basis, actual current period and cumulative costs are compared to the budget and forecast so that significant variances can be identified and addressed (SRP-PMD-03, page 4),
- Performance of each former MGP site is measured by key performance indicators (both budget-related and schedule-related) (SRP-PMD-08),
- Proper management approval will be obtained be invoices are paid. 10% of billed amounts will be retained from all construction-related third party invoices and not released until satisfactory work completion has been established (SRP-PMD-09, page 2).

Historical Reviews of Remediation Costs

According to the Company, remediation costs recovered from ratepayers have not been audited either internally or externally since January 1, 2018.[25] However, our review of recently issued audit reports indicates that an audit was performed in 2018-2019 on *Environmental Remediation Sites – Business Operations*, and another audit was completed by Corporate Environmental, Health & Safety in 2021.[26]

The *Environmental Remediation Sites – Business Operations* audit had the following objectives:

- Evaluate that the remediation project plan is adequate to ensure work is performed within budget and completed timely.

[23] Response to OC-1364.
[24] Attachments provided in Response to OC-0811 (Confidential).
[25] Response to OC-0446.
[26] Attachment provided in Responses to OC-0352 and 1359.

- Evaluate the effectiveness and prudency of controls used to manage site remediation costs.
- Assure remediation costs are accurately recorded and reported for reimbursement / recovery.

The audit covered calendar year 2018 and concluded that the controls evaluated were adequate, appropriate, and effective to provide reasonable assurance that risks were being managed and objectives should be met. No moderate or high risk observations were noted. Ultimately, Internal Audit concluded that the matter was Well Controlled, which is its most favorable opinion.[27]

The 2021 audit was focused on the PSE&G Resource Recovery location at Paulsboro, New Jersey, one of the 38 former MGP sites. Remediation activities audited included, but were not limited to:

- Soil overburden excavation and disposal
- Contractor management
- Execution of soil sampling plan
- Perimeter air monitoring
- In-situ soil stabilization

Field visits included the evaluation of site conditions, work practices, and job-site records to assure conformance with contractual and regulatory requirements. The audit team concluded that PSE&G Environmental Remediation had mature and effective environmental and health and safety programs, support, and oversight to assure ongoing compliance. No audit findings were identified in this report.[28]

A review of Sarbanes Oxley testing results indicated that no deficiency or significant deficiency (there were no material weaknesses) identified during the time period 2018 to 2020 was specifically related to the remediation of form MGP sites.[29]

Other Matters

According to the Company, former MGP sites are investigated and remediated in accordance with New Jersey Department of Environmental Protection regulations rather than through a negotiated process. In addition, the schedule to complete the MGP remediation program is based on New Jersey Department of Environmental Protection regulatory and mandatory timeframes. PSE&G believes its PMDs establish the basis for ensuring that its MGP program meets these timeframes.[30]

During our review, PSE&G provided the auditors details of its recent expenditures. In some cases, the totals from this detail did not match the information submitted to the BPU by the Company in its RAC filings, and in other cases, the detail did not sum properly. The Company attributed these discrepancies,

[27] Audit No. 18-AU-15 provided in Response to OC-0785 (Restricted).
[28] Attachment provided in Response to OC-1359 (Restricted).
[29] Response to OC-0005.
[30] Response to OC-0811.

in part, to software errors and indicated that a solution would be forthcoming in the second half of 2022.[31] PSE&G asserts that its RAC filings are not affected by these software errors.[32]

Prior Audit Recommendation

In the last affiliate transactions and management audit, the auditor made the following recommendation:

> *We recommend the following be added to the minimum requirements associated with PSE&G's annual remediation adjustment charge filing:*
>
> - *The disclosure of all internal control deficiencies, significant deficiencies, or material weaknesses related to Remediation Adjustment Charge (RAC) expenditures or cost recoveries,*
> - *The identification of remedial steps taken by management to correct such deficiencies, significant deficiencies, or material weaknesses, and*
> - *The summarization of additions, deletions, or amendments to the Company's Site Remediation Project Directives during the applicable RAC period under review.*

As noted in the section of this report discussing prior audit recommendations, PSE&G accepted this recommendation without qualification. Overland requested proof that this recommendation had been implemented, and the Company provided its response to Data Request No. G-RAC-0018 from its RAC 28 filing, which demonstrates that the Company is providing the recommended information.[33]

[31] Responses to OC-0809, 0810, and 1833.
[32] Response to OC-1362.
[33] Response to OC-0807.

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8. DEFERRAL OF COSTS

Introduction and Overview

As a result of the ratemaking process, PSE&G defers the recognition of costs if it is probable that there will be a corresponding recovery of those costs in future rates. These cost deferrals are frequently referred to as regulatory assets. Similarly, the recognition of obligations is deferred if it is probable that a refund to customers in future rates will take place (regulatory liabilities).[1] Given their close connection with the ratemaking process, these deferrals are often the subject of much scrutiny when the utility petitions for changes in its rates. PSE&G's last base rate case was filed in 2018 and had a test year end of June 30, 2018. Since that time, the balances of the then existing regulatory assets and liabilities have changed while new regulatory assets and liabilities have been created. The following table summarizes the most significant of these cost deferrals (regulatory assets) and obligations (regulatory liabilities):[2]

Table **8-1 – Cost Deferral and Obligations Detail**

PSE&G Cost Deferrals and Obligations			
Category	**June 30, 2018**	**April 30, 2021**	**Change**
Pension and Other Post-Retirement	$1,445,381,766	$1,491,388,945	$46,007,179
Deferred Income Tax Regulatory Assets	511,454,221	1,248,604,995	737,150,774
Manufacturing Gas Plant Remediation Costs	496,427,319	425,960,847	(70,466,472)
Asset Retirement Obligation	164,536,544	187,541,367	23,004,823
BRC Settlement	351,926,598	164,389,348	(187,537,250)
Green Programs Recovery Charge	111,130,538	127,464,024	16,333,486
Societal Benefits Charges	17,571,223	102,258,329	84,687,106
Storm Damage	-	101,182,515	101,182,515
COVID-19 Deferral (E&G)	-	65,253,238	65,253,238
Uncertain Tax Positions	56,400,188	6,570,123	(49,830,065)
Clean Energy Program	224,165,427	-	(224,165,427)
Deferred Income Tax Regulatory Liability	(216,626,692)	(251,974,199)	(35,347,507)
Excess Accumulated Deferred Income Taxes	(2,866,758,407)	(2,836,850,330)	29,908,077
Other	112,156,634	96,278,393	79,481
Net	**$407,765,359**	**$928,067,595**	**$536,259,958**
Source: Response to OC-0080 (some summing required).			

Summary of Findings

1. The most significant new cost deferrals recognized by the Company since the settlement of its last base rate case are its new Storm-Related Cost Deferrals and the COVID-19 Deferral.

[1] PSEG 2020 Form 10-K, page 92.

[2] The balances presented are consistent with those presented at calendar year-end in the FERC Form 1. Amounts disclosed in the FERC Form 1 are largely the same as those presented in SEC filings such as the Form 10-K, but there can be differences between the two. PSE&G specifically identified Accounting Standards Codification 980 (Regulated Operations) as a reason why the two might not agree (see Response to OC-0080).

Cumulatively, they account for approximately one-third of the net increase in PSE&G's deferrals since mid-2018.

2. Either of two events typically trigger the deferral of storm-related costs:

    - A sustained interruption of electric service outside the control of the utility that affects 10 percent or more of the customers in one of its operating areas, or
    - A sustained interruption of electric service outside the control of the utility that is associated with a declaration of a state of emergency.

    In this context, "sustained" is defined as non-momentary and in excess of five minutes. The listed criteria are consistent with exceptions that the BPU has permitted utilities to employ when calculating CAIDI and SAIFI metrics.
3. Given these criteria, PSE&G is averaging nearly two major storm events per year since the BPU first began allowing costs to be segregated for deferral consideration. As applied by PSE&G, once a triggering event has occurred (whether isolated to a specific geographic region or not), qualifying costs incurred for a major storm event are deferred for the Company's entire service territory.
4. In the case of declared states of emergency, PSE&G may defer storm-related costs even if its customers are unaffected if the Company incurs costs to prepare for a storm believed to be imminent.
5. Costs eligible for deferral are those that would typically be expensed and which are prudently incurred and incremental in nature. Costs which would otherwise be capitalized are not deferred.
6. Eligible storm-related costs are tracked through use of work orders by the Company. A dedicated employee has also been assigned the task of coordinating the accounting for each major storm event among other internal controls employed.
7. Upon receipt of the BPU Order authorizing deferrals in July 2020, PSE&G has been setting aside prudently incurred incremental costs related to COVID-19, incurred starting in early March 2020, in a regulatory asset account. As of June 30, 2021, these costs total approximately $82 million. In addition, PSE&G has submitted another $34 million to the BPU which the accounting profession does not recognize as eligible for regulatory asset recognition. A third group of potential costs has been identified but not yet been quantified.
8. PSE&G has quantified few cost savings associated with COVID-19, which are to be netted against prudently incurred incremental costs when the BPU determines how much should ultimately be recovered in rates.
9. PSE&G employs a similar set of controls to isolate COVID-19 related costs as it does for qualifying storm-related costs.
10. The last audit of PSE&G's regulatory assets and liabilities performed by Internal Auditing Services involved the eleven months from January 1, 2017 to November 30, 2017. In addition, Internal Auditing Services did not include an audit of these assets and liabilities in their 2021 audit plan.

Recommendations

8.1 Given the critical role operating areas play in determining which storm-related costs can be deferred, we recommend that PSE&G formally notify the BPU in advance in writing of any plans to increase or otherwise subdivide its current New Jersey operating areas on a prospective basis. In addition, until the BPU decides that the consequences of this decision on the deferral of future PSE&G storm restoration costs are acceptable, the criteria for determining whether an event is major or not will be based on historical definitions of PSE&G's operating areas.

8.2 If not already included in its 2022 plan, we recommend that Internal Auditing Services perform audit(s) in the next twelve months of PSE&G's most significant regulatory assets and liabilities as well as those that have been created since 2017, such as the post-2018 base rate case storm-related cost deferrals and the COVID-19 cost deferral. Thereafter, all of PSE&G's regulatory assets and liabilities should undergo internal audit at least once every three years, or the Company should justify why they do not warrant such examination. In addition to determining whether the regulatory assets and liabilities are properly presented and disclosed in the Company's financial statements, the audits should ensure compliance with regulatory policy, precedent, and rules in addition to confirming that internal controls associated with these regulatory assets and liabilities are appropriate and operating effectively. All related audit reports should be made available to BPU staff or their delegates, upon request.

Changes in Deferred Balances Since the Last Rate Case

The cumulative balance of the regulatory assets and liabilities identified in the preceding table increased by approximately $536 million since the end of the test year used by the Company in its last base rate case. The deferrals that had the largest impact on this change were:

- Deferred Income Tax Regulatory Assets ($737 million increase)
- Storm Damage ($101 million increase)
- Societal Benefits Charges ($84 million increase)
- BRC Settlement ($187 million decrease)
- Clean Energy Program ($224 million decrease)

The reasons the balances in these deferrals changed over this time period are as follows:[3]

1. Deferred Income Tax Regulatory Assets – Pursuant to the settlement of the 2018 Base Rate Case, PSE&G agreed to a 10-year flowback to customers of its accumulated deferred income taxes from previously realized tax repair deductions as well as the current flowback of tax benefits from ongoing tax repair deductions as realized. The former resulted in the recognition of a regulatory

[3] Responses to OC-0080, 0663, and 0792, and Decision and Order Adopting Initial Decision and Stipulation (Docket Nos. ER18010029 and GR18010030, page 7). In addition, the FERC Form 1 provided in Response to OC-0255 provided information regarding the nature of the Clean Energy Program deferred asset.

liability (for the flowback to customers) and an offsetting regulatory asset (for the future recovery of that flowback through increased rate base) of $581 million as of September 30, 2018 while the latter resulted in recognition of approximately $114 million through April 30, 2021.

2. Storm Damage – PSE&G identified four different storm events that occurred in 2019, 2020, and early 2021 that it believed qualify for new deferral treatment. The most significant of these storms was Tropical Storm Isaias which accounted for $72 million of the $101 million of storm restoration costs deferred as of April 30, 2021. (See below for further discussion of this deferral.)
3. Societal Benefits Charges – One component of the SBC is uncollectible account costs associated with electric service. In response to the COVID-19 pandemic, PSE&G voluntarily suspended shut offs resulting from non-payment as well as interest charges on late payments. However, PSE&G now has a large overdue accounts receivable balance from customers who may be unable to pay all amounts owed which increases the bad debt expense (e.g., uncollectible account costs) recognized by the utility.
4. BRC Settlement – Subject to the terms of the 2018 Distribution Base Rate Case (BRC) Settlement, storm restoration costs occurring from 2010 to 2018 were authorized by the BPU to be amortized over a 5-year period (nearly $66 million per year).
5. Clean Energy Program – The BPU-approved future funding requirements for the Energy Efficiency and Renewable Energy programs are tracked on a fiscal year that generally runs from July to June. As a result, the deferred asset balance is highest in June, prior to its future recovery from customers through the SBC mechanism, and lowest in the second quarter of the calendar year when recovery has largely already taken place.

The focus of our effort in this audit is on the two matters that transpired since the resolution to PSE&G's last base rate case. Those two deferrals are the deferral associated with storm events occurring subsequent to June 30, 2018 and the deferral associated with the COVID-19 pandemic.[4] Cumulatively, those two deferrals increased by over $166 million between June 30, 2018 and April 30, 2021 and account for nearly one-third of the increase in PSE&G's net regulatory asset and liability balances between those two dates.

Storm-Related Cost Deferrals

Overall Precedent

Beginning in 2010, PSE&G's customers experienced a number of extreme weather events over a 3-year period, including Hurricane Irene and Superstorm Sandy. With each event, the utility incurred significant incremental restoration costs. The BPU issued an order in 2013 directing PSE&G and other New Jersey utilities to file a report quantifying all extraordinary costs incurred as a result of the Major Storm Events

[4] In discussing the deferred storm costs that have occurred since the settlement of the last base rate case, we will consider the historical precedent involving such costs.

in 2011 and 2012. These filings were intended to serve as the basis for the BPU to determine the prudency of such costs which was a condition for approval of the right to recover such costs from ratepayers in then current or future base rate filings. PSE&G quantified approximately $241 million of incremental O&M costs and $126 million in capital expenditures, including some costs related to 2010 storm events. In determining the prudence of PSE&G's costs, the BPU accepted a stipulation between various parties which deemed the vast majority of such costs was prudent and reasonable and therefore eligible for future rate recovery.[5] The stipulation also made it clear that PSE&G would not seek recovery of any additional costs related to these Major Storm Events. Subsequently, PSE&G was granted recovery of deferred storm costs over a 5-year period as part of its 2018 base rate case filing.

Composition of Recent Deferred Storm Costs

As noted previously, storm restoration costs deferred by PSE&G since its last base rate case have grown to $101 million through April 30, 2021 and are attributed to the following major storm events:

Table 8-2 - Major Storm Cost Deferrals

PSE&G Major Storm Cost Deferrals April 30, 2021		
Description	**Date of Storm**	**Amount**
Severe Storm	7/22/2019	$12,166,311
Severe Storm	6/3/2020	14,793,121
Tropical Storm Isaias	8/4/2020	72,243,472
Winter Storm	1/31 - 2/23/2021	1,979,611
Total		**101,182,515**
Source: Responses to OC-0080 and OC-0668.		

The basis for deferring these costs and the steps PSE&G takes to ensure that costs it believes qualify for this special ratemaking treatment are discussed below.

Triggering of Deferred Storm Costs

As PSE&G's customers were being affected by major storm events beginning in 2010, the Company started petitioning the BPU in 2011 to be granted similar treatment as other New Jersey utilities were receiving for the deferral of incremental storm damage costs.[6] Shortly thereafter, the BPU issued orders that found PSE&G's request "was reasonable" for authority to defer incremental costs incurred in response to qualified storm events.[7] According to the Company, this authorization permitted it to ". . .

[5] Approximately $0.4 million of incremental O&M costs were removed from PSE&G's original total.

[6] Qualifying costs for the two utilities, Jersey Central Power and Light Company and Rockland Electric Company, were not identical (Response to OC-0667).

[7] I/M/O the Petition of Public Service Electric and Gas Company and Atlantic City Electric Company's Request for Deferral Accounting Authority for Storm Damage Restoration Costs, Dkt. Nos. EO11090518 & GO11090519 and I/M/O the Petition of Public Service Electric and Gas Company's Request for Deferral Accounting Authority for Storm Damage Restoration Costs, Dkt. Nos. EO12110995 & GO12110996, Order (N.J.B.P.U. Dec. 19, 2012); I/M/O the Petition of Public Service Electric and

defer unreimbursed storm related costs not otherwise recoverable through base rates or insurance, subject to the requirement that PSE&G cooperate with Staff in the Board's then upcoming review of the prudency of the New Jersey utilities' storm-related costs incurred in responding to major storms in recent years."[8]

In practical terms, PSE&G typically defers storm costs when one of two events occurs:[9]

- A sustained interruption of electric service resulting from conditions beyond the control of the utility which affect at least 10 percent of the customers in an operating area; or
- A sustained interruption occurring during an event, which is outside the control of the utility and is of sufficient intensity to give rise to a state of emergency or disaster being declared by state government.

Both of these events are largely consistent with those defined in the New Jersey Administrative Code (NJAC) as permitted "major event" exceptions when utilities report the performance metrics of Customer Average Interruption Duration Index (CAIDI) and System Average Interruption Frequency Index (SAIFI).[10] Both of these events also are dependent on whether or not customers experience or are expected to experience a "sustained" interruption of service. According to PSE&G, the term "sustained" in this context, and as defined by NJ Administrative Code Section 14:5-1.2, is an interruption of service which is not classified as a momentary event interruption and which lasts longer than five minutes.[11]

Trigger Associated with Percentage of an Operating Area's Customers

When an event qualifies as a major storm pursuant to the first criteria listed above, PSE&G deems the event to extend to all operating areas of the utility.[12] Because PSE&G's four operating areas have similar numbers of electric customers, an interruption as short as six minutes affecting as few as 2.3 percent (approximately 50,000) of the utility's customers could trigger the deferral of storm costs for the entire PSE&G service territory.[13]

Gas Company and Atlantic City Electric Company's Request for Deferral Accounting Authority for Storm Damage Restoration Costs, Dkt. Nos. EO11090518 & GO11090519, and I/M/O the Petition of Public Service Electric and Gas Company's Request for Deferral Accounting Authority for Storm Damage Restoration Costs, Dkt. Nos. EO12110995 & GO12110996, Order (N.J.M.P.U. Feb. 20, 2013). See also In re the Board's Establishing a Generic Proceeding to Review the Prudency of Costs Incurred by NJ Utility Companies in Response to Major Storm Events in 2011 and 2012, Docket No. AX13030196 (Order, March 20, 2013).

[8] Response to OC-0667.

[9] PSE&G states that it may decide not to defer incremental costs when these conditions are met or may not incur incremental costs in all instances (Response to OC-0664).

[10] NJAC 14:5-1-2. According to PSE&G, other events which qualify for performance metric exclusion – unscheduled interruptions for "load shedding" and when mutual aid is extended to another utility – are not used for cost deferral purposes (Response to OC-0664). As will be explained later in the chapter, PSE&G's customers do not actually have to experience a sustained interruption of service if a declaration of emergency is declared.

[11] Response to OC-1026. PSE&G has applied this definition of "sustained" consistently from 2012 to present.

[12] "Major Storm – Cost Process" attachment provided in Response to OC-0517 (Confidential), page 2. The genesis of this PSE&G position stems from NJAC 14:5-1-2 which states that "[d]ue to an [Electric Distribution Company's (EDC's)] documentable need to allocate field resources to restore service to affected areas when one operating area experiences a major event, the major event shall be deemed to extend to those other operating areas of that EDC, *which are providing assistance to the affected areas*." (emphasis added) See also the Response to OC-1028.

While PSE&G has maintained the same four operating areas since the 1990s,[13] the Company states that there is no regulatory requirement to notify the BPU of a change in the number or location of its operating areas (a.k.a. divisions) nor a requirement to obtain BPU approval for such changes although it "would likely provide informal notice to BPU Staff" of plans to make changes if the situation arose in the future. The Company asserts that it is responsible to define its operating areas, stating that the definition of "operating area" in the BPU's regulations is the same for all purposes, including for storm restoration, and is: "a geographical subdivision of each EDC's franchise territory as defined by the EDC. These areas may also be referred to as regions, divisions or districts." N.J.A.C. 14:5-1.2 (underlined emphasis added).[14]

Since 2010, PSE&G has averaged over one major storm event per year associated with service interruptions that are triggered by the "10 percent of customers in an operating area" criterion.[15] Although we are not aware of plans to do so by the Company, a further subdivision of PSE&G's service territory into smaller operating areas would only increase the likelihood that PSE&G would classify future weather incidents as "major events" and thus receive special ratemaking treatment of costs to restore service.[16]

Absent a change by the BPU to a more objective criteria of defining a major storm event (e.g., 2.5 percent of a utility's total New Jersey customers without service for more than 5 minutes) that is free from bias, we recommend that PSE&G formally notify the BPU in advance in writing of any plans to increase or otherwise subdivide its current New Jersey operating areas on a prospective basis. In addition, until the BPU decides that the consequences of this decision on the deferral of future PSE&G storm restoration costs are acceptable, the criteria for determining whether an event is major or not will be based on historical definitions of PSE&G's operating areas.

Trigger Associated with States of Emergency

Although not originally included in the definition of a major storm event in the BPU's Decision and Order Approving Stipulation in Docket No. AX13030196,[17] PSE&G has included declared states of emergency as

[13] Interview of Donna Powell, Assistant Controller, and Robert Egner, Manager of Utility Business Strategy, on August 12, 2021.

[14] Response to OC-1027. See also NJAC 14:5-1.2.

[15] Response to OC-0668. Of the 22 different events identified by PSE&G (costs associated with "Sandy" and "Sandy Trailing Costs" were treated as one event based on information obtained during the interview of Donna Powell, Assistant Controller, and Robert Egner, Manager of Utility Business Strategy, on August 12, 2021), 13 were attributed to the requirement that 10% of customers in an operating area experience a sustained interruption of service, including 3 of the 4 "major storm events" occurring since the settlement of the last base rate case.

[16] For instance, if PSE&G's total electric customer base of approximately 2,460,000 customers was sub-divided equally among 10 divisions rather than 4, the criteria requiring 10% of customers in an operating area to have a sustained service interruption would be triggered if 24,600 customers (2,460,000 ÷ 10 divisions x 10% = 24,600) were affected rather than the current 57,100 to 68,600. Although we note that PSE&G is not required to classify all events meeting these triggers for deferral recovery and may consider other factors in making such a determination, in this case, increasing the number of operating areas from 4 to 10 could lead to the triggering of a "major event" if only 1% of the utility's customers were impacted assuming they are all located in one operating area.

[17] March 20 Order at 2.

a trigger for deferring storm restoration costs because of its inclusion in NJAC 14:5-1.2, which identifies events that can be excluded from the determination of CAIDI and SAIFI metrics.[18]

Since the BPU began permitting the deferral of storm restoration costs, PSE&G has identified 9 different events which the Company believes qualify for major storm event treatment due to declarations of states of emergency.[19] While not as frequently invoked as the criterion associated with the percentage of operating area customers affected by a storm, the historical frequency that this criterion has been triggered is approximately once every 16 months for PSE&G.

A state of emergency can be declared by the Governor of New Jersey for the entire state or just a portion of it. In addition, municipal emergency management coordinators can proclaim a state of local emergency within the applicable municipality they oversee. In both cases, the states of emergency can be declared or proclaimed in advance of a storm if it is believed to be imminent. As was the case for the criterion concerning the percentage of operating area customers affected by an outage, PSE&G defers qualifying incremental storm restoration costs for its entire service territory if a state of emergency is declared by the governor irrespective of the geographic scope of such declaration. In addition, while PSE&G management cannot recall deferring storm restoration costs pursuant to a municipal proclamation in the past, PSE&G would defer all qualifying costs attributable to its response to a local emergency, even those originating from other divisions.[20]

When PSE&G relies on a state of emergency as the criterion which triggers a cost deferral, the number of its customers actually impacted by storm is inconsequential.[21]

While the issuance of declarations and proclamations of states of emergency is inherently a subjective decision, PSE&G states that neither it nor its affiliates have lobbied state or local officials to take such actions in the past.[22]

Types of Costs Eligible for Deferral

Nature of Costs

According to the Company, no storm restoration costs that are capitalized are assigned special deferred storm cost treatment. Examples of capitalized costs include the replacement of electrical service wires, transformers, and poles.[23]

That leaves costs that typically would be expensed in the period incurred, also referred to as operations and maintenance (O&M) costs. According to PSE&G, not all O&M costs incurred during a major storm

[18] Response to OC-0667.
[19] Response to OC-0668.
[20] Response to OC-1029.
[21] Response to OC-1030.
[22] Response to OC-1031.
[23] Response to OC-0666.

event are eligible for deferral. Only those O&M costs associated with a major storm event that are both prudent and incremental and not otherwise recovered in base rates or through insurance recoveries are deferred.[24]

While a determination of prudence is a subjective matter and frequently a source of disagreement between parties,[25] establishing whether or not an expenditure is incremental in nature is a more straightforward exercise. Per the Company, incremental O&M costs consist of material (brackets, clamps, surge arresters, etc.), outside services and other (mutual aid crews, vegetation management crews, meals, hotels, etc.), and overtime labor and associated payroll taxes.[26] O&M internal labor costs incurred during normal working hours are not considered incremental and are not deferred.[27] PSE&G has applied this same definition of incremental costs since at least 2012.[28]

The Company also incurs non-incremental and incremental restoration costs associated with storm events that do not meet the major storm criteria previously discussed. Coupled with non-incremental major storm restoration costs, these costs are expensed as incurred.[29] While a certain level of these costs are included in the Company's requested cost of service, any favorable outcomes in actual spending on these costs are not used to offset proposed deferrals of qualifying restoration activity.[30]

Timing of Costs

Costs that PSE&G deems eligible for deferred storm restoration cost treatment can be incurred before a storm actually impacts the utility's service territory. Examples include costs to acquire and mobilize mutual aid and third-party assistance and to set up staging areas.[31] As a result, PSE&G can and has deferred storm "restoration" costs that had minimal impact on its utility's customers if a storm changes course based solely on the declaration of a state of emergency made by the Governor of New Jersey.[32,33]

[24] Responses to OC-0082 and 1030.

[25] In the past, $0.4 million, or ¼ or 1%, of costs deferred by PSE&G following Superstorm Sandy were subsequently removed as part of a settlement between various parties. Both the BPU and the Division of Rate Counsel found these particular costs to be excessive. As a result, PSE&G issued subsequent guidance to its employees concerning improvements in documentation of future meal expenditures. (attachment to the Response to OC-0793 (Confidential))

[26] Response to OC-0666.

[27] Response to OC-0665.

[28] Response to OC-1030.

[29] Response to OC-1030 Update.

[30] Informal clarification provided by Donna Powell, Assistant Controller, on December 3, 2021. For instance, while PSE&G requested approximately $13 million in its last base rate case for non-major storm restoration and non-incremental major storm restoration (see OC-0665), actual under-spending on these types of costs are not used to reduce proposed qualifying restoration costs on major storm events if they were to occur. The rationale for this is that the reduced level of effort devoted to non-major storms and non-incremental major storms has been redirected to other activities that had lower levels of requested cost of service treatment.

[31] Response to OC-1030.

[32] Response to OC-1034. As noted previously, states of emergency can be declared if a storm is thought to be imminent. The Company indicated that Hurricane Joaquin, Hurricane Hermine, and winter blizzards in January 2015 and February 2021 all are examples of events that triggered cost deferrals but had limited impact on system performance or at the very least, had less severe impacts than originally expected. In the case of the 2021 storm, PSE&G deferred costs that were less than $2 million.

[33] There are also a few isolated instances in which a state of emergency was declared, and PSE&G chose not to defer storm restoration costs. Eight of these events occurred from 2018 to 2021. PSE&G attributes its decisions concerning these

While the actual storm event is typically confined to a 24-hour period which can span over one or two calendar days, a Nor'easter in 2010 was associated with a 4-day period, and PSE&G characterized a 24-day period in January and February 2021 as another singular event associated with the Governor's State of Emergency for that 24-day period.[34]

Restoration efforts can last days after a storm event has taken place. PSE&G continues deferring qualifying costs until mutual aid and contractor crews have returned to their home and/or base locations and internal crews have returned to their reporting locations. The latter generally occurs shortly after the last customer's utility service has been restored.[35]

Oversight of Costs

Once PSE&G has determined that a major storm event has transpired, then eligible costs must be segregated and deferred for future recovery. This is accomplished by use of work orders which are specifically associated with a particular storm event.[36] Internal controls employed by the Company to ensure that all appropriate costs have been captured while excluding any extraneous costs are as follows:[37]

- Supervisor approval of employee-submitted time,
- Reports that identify unusual payroll results (e.g., missing approvals, excessive hours submitted, etc.) for further investigation,
- Review of supporting documentation of invoices for proper approvals and segregation of duties,
- Distribution of accounting guidance and meal guidance to managers and administrators,
- Establishment of a centralized collection point for mutual aid and third-party invoices.,
- Management reporting that tracks costs from inception to completion, and
- Assignment of a manager in Utility Finance to coordinate the accounting of each major storm event.

Conclusion

According to the Company, it is unaware specifically how other New Jersey utilities identify major storm events or define which restoration costs are eligible for deferral.[38] While this knowledge would be helpful in ascertaining whether PSE&G has taken a reasonable approach in its treatment of storm

events to the minimal impact the storm had on its system and the resulting minimal incremental costs (see Response to OC-1472).

[34] Response to OC-0668 (some calculations required). In the interview of Donna Powell, Assistant Controller, and Robert Egner, Manager of Utility Business Strategy, on August 12, 2021, the interviewees indicated that the latter event involved five closely-spaced storms that resulted in the governor extending a declared state of emergency for a protracted period of time.

[35] Response to OC-1030.

[36] "Major Storm – Cost Process" attachment provided in Response to OC-0517 (Confidential), page 3, and 0081.

[37] Responses to OC-1033, 0517, and 1032. Some of these controls are not unique to deferred storm restoration costs.

[38] Response to OC-1025. In contrast ten years earlier, PSE&G petitioned the BPU for storm cost treatment which was consistent with that received by other utilities in New Jersey, implying that it was very much aware of ratemaking precedent concerning this matter in the past.(see Response to OC-0667).

restoration costs, we will have to rely on alternative data points instead. These primarily consist of 1) Company representations that it has been relatively consistent in its handling of major storm identification and deferred cost eligibility over an extended period of time and 2) historical BPU decisions that have largely accepted PSE&G's requested outcomes. The implication is that the BPU has also accepted the manner in which PSE&G has defined the underlying costs that are eligible for deferral. While we do not know if this is necessarily the case, we believe the information summarized above should assist in a thorough adjudication of the matter in future proceedings.

COVID-19 Deferral

Background

In its Order Authorizing Establishment of a Regulatory Asset for Incremental COVID-19 Related Expenses in Docket No. AO20060471, the BPU recognized the extraordinary actions being taken by public and private sector entities in addressing the COVID-19 pandemic, some of which were voluntary and others which were mandated. The BPU also acknowledged that New Jersey utilities' responses to the pandemic could cause them to incur significant and extraordinary expenditures that could result in negative financial impacts.

As a result, the BPU authorized the creation of a COVID-19 regulatory asset for each of the state's regulated utilities which would capture "prudently incurred incremental costs related to COVID-19" beginning on March 9, 2020 and extending through the latter of September 30, 2021 or 60 days after the governor announces the public health emergency is no longer in effect.[39] In doing this, the BPU recognized that the catastrophic health emergency was outside the control of the utilities and was a non-recurring event. In a subsequent order, the BPU extended the date that prudently incurred incremental COVID-19 costs could be set aside in a regulatory asset to December 31, 2022.[40]

In addition to identifying prudently incurred incremental costs related to COVID-19, the utilities were to track federal and state assistance received as a result of the pandemic and any associated savings. Details of the regulatory asset were to be filed with the BPU on a quarterly basis. The BPU also ordered that all affected utilities file a petition addressing potential rate recovery, prudency determinations, and appropriate periods of recovery concerning this regulatory asset by December 31, 2021 (or within 60 days of the close of the regulatory asset period, whichever is later).[41]

[39] Board order attachment provided in Response to OC-0795. If the governor does not announce the end of the public health emergency, it will be replaced by the automatic termination of the public health emergency pursuant to New Jersey statute.

[40] September 14, 2021 BPU order in Docket No. AO20060471 provided in Response to OC-1439.

[41] Board order attachment provided in Response to OC-0795.

The details of COVID-19 costs, savings, and offsets filed by PSE&G with the BPU as of June 30, 2021 is as follows:[42]

Table 8-3 - Detail of COVID-19 BPU Filing

PSE&G Detail of COVID-19 BPU Filing June 30, 2021	
Description	**Amount**
Costs:	
Incremental Bad Debt Expense	$42,221,000
COVID-19 Preparation and Response	41,444,000
Incremental Accounts Receivable Carrying Charge	17,615,000
Forgone Distribution Fee Revenues	10,220,000
Personal Protection Equipment	6,602,000
Direct COVID-19 Overtime Labor	1,669,000
Total Incremental Costs	119,771,000
Savings and Cost Offsets:	
Federal and State Offsets (A)	(8,431,000)
COVID-19 Confirmed Savings	(1,316,000)
Total Savings / Cost Offsets	(9,747,000)
COVID-19 Incremental Costs Less Savings	110,024,000
Carrying Cost	6,238,000
Total Submitted to the BPU	**$116,262,000**
Source: Attachment provided in response to OC-1438.	
(A) Recalculated based upon PSE&G's current application of the relevant tax credit.	

While the preceding table depicts the amounts filed by PSE&G with the BPU, it does not represent the amounts recorded by the Company as a regulatory asset, which were significantly less in total. Amounts associated with "lost revenues" or "lost income" are not allowed to be recognized as a regulatory asset under Generally Accepted Accounting Principles and thus, the following table reconciles the total filed amount with the amount recorded by the Company in its financial statements as of June 30, 2021:[43]

[42] The auditor requested information as of April 30, 2021 to be consistent with other information summarized in this chapter. The Company provided June 30, 2021 instead (see Response to OC-1438).

[43] In addition, there are certain amounts recorded by the Company for financial statement purposes that were not filed with the BPU related to timing differences (see attachment provided in Response to OC-1438).

Table 8-4 - Reconciliation of BPU Filing to Financial Statements

PSE&G Reconciliation of BPU Filing to Financial Statements June 30, 2021	
Description	**Amount**
BPU Filing Total	$116,262,000
Less GAAP Disallowances:	
Accounts Receivable Carrying Charges	(17,615,000)
Forgone Distribution Fee Revenues	(10,220,000)
Carrying Charges	(6,238,000)
Total Incremental Costs	(34,073,000)
Timing Differences Recorded for Financial Statement Purposes	(539,000)
Rounding	1,000
Total	**$81,651,000**
Electric Deferral (SAP Acct No. 1823810)	$18,572,000
Gas Deferral (SAP Acct No. 1823820)	63,079,000
Total Submitted to the BPU	**$81,651,000**
Source: Attachment provided in response to OC-1438.	

PSE&G Reconciliation of BPU Filing to Financial Statements June 30, 2021	
Description	**Amount**
BPU Filing Total	$116,262,000
Less GAAP Disallowances:	
Accounts Receivable Carrying Charges	(17,615,000)
Forgone Distribution Fee Revenues	(10,220,000)
Carrying Charges	(6,238,000)
Total Incremental Costs	(34,073,000)
Timing Differences Recorded for Financial Statement Purposes	(539,000)
Rounding	1,000
Total per GAAP General Ledger	**$81,651,000**
Electric Deferral (SAP Acct No. 1823810)	$18,572,000
Gas Deferral (SAP Acct No. 1823820)	63,079,000
Total per GAAP General Ledger	**$81,651,000**
Source: Attachment provided in response to OC-1438.	

Costs Deferred by PSE&G

In its initial quarterly filing regarding its COVID-19 deferral (June 30, 2020), the Company defined the types of costs which it included in its proposed deferral as follows:[44]

- Incremental bad debt expense – Due to the shut-off/collection moratorium, customers who may not be able to pay for their energy usage have continued to receive service while the Company's accounts receivable balance grows. To recognize the additional difficulty in collecting these balances, PSE&G records a reserve for uncollectible accounts with an associated offset to bad debt expense. Because PSE&G's electric bad debt expense is recovered through the Societal Benefits Clause, it is not accumulating those costs in the COVID-19 deferral. The only costs that are being deferred are those associated with gas bad debt expense.
- COVID-19 preparation and response – This component includes costs associated with establishing remote reporting sites in order to ensure proper social distancing such as leased office space and storage trailers (primarily for gas operations, propane service, fork lifts, dumpsters, port-a-johns, washing stations, generators, shower stations, light towers, water, electrician services, cleaning and sanitizing, and security). PSE&G has also included the cost of its pandemic hotline in this classification of costs. According to the Company, all of these costs would not have been incurred but for the pandemic.
- Incremental accounts receivable carrying charge – This represents the carrying cost of higher accounts receivable (resulting from the COVID shut-off moratorium) over what was included in the 2018 base case revenue requirement.
- Forgone distribution fee revenues – These costs include the value of waived commercial and industrial late fees and forgone reconnection fees since the onset of the COVID-19 shutdown.
- Personal protection equipment – These costs include items required to protect both customers and employees such as coveralls, booties, respirators, gloves, goggles, hazmat bags, face shields and masks, protectors, hoods and liners, and sanitation kits. According to the Company, additional personal protection equipment required to perform activities during the pandemic have been purchased and tracked separately from PSE&G's historical usage.
- Direct COVID-19 overtime labor – This includes overtime associated with "first team" planning activities, ordering materials, establishing remote work sites, giving and receiving training, respirator fit tests, additional hospital circuit patrols, and travel and non-productive time spent at remote work sites. According to the Company, it tracks all COVID-related activity separately.

Costs which were not quantified in either the first quarterly filing or the one associated with June 30, 2021, but which PSE&G has listed as "to be determined" include forgone distribution volumetric revenues and lost productivity.

[44] Quarterly report attachment provided in Response to OC-0795.

These costs were netted with some minor "confirmed" savings which included reduced operating expenses at the Newark building, janitorial services, headquarter shuttle service, and business unit employee meal expense[45] and an estimated $8 million (as of June 30, 2021) federal employee retention credit ("ERC") which was enacted as part of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act).

Oversight of Costs

According to PSE&G, it tracks the costs attributed to the COVID-19 pandemic in a similar manner as those tracked for major storm events. Specific work orders are created, and most (if not all) of the previously cited internal controls over storm restoration costs are applicable to the COVID-19 matter.

Just like qualifying storm restoration costs, straight time labor is not considered incremental and, therefore, not included in the deferral.[46]

Historical Reviews of Cost Deferrals

Besides the consideration that is given to cost deferrals by independent auditors as part of their comprehensive audit of PSEG's financial statements, cost deferrals were also the subject of an audit performed by Internal Auditing Services in late 2017 / early 2018. Given that this audit precedes the creation of the COVID-19 deferral or the deferred storm restoration costs that were incurred subsequent to the settlement of the last base rate case, the two deferrals that have been discussed at length above were not the subject of Internal Auditing Service's work at the time.

Internal Auditing Service's objective was to evaluate the adequacy and operating effectiveness of processes and controls over the proper representation of deferred assets and liabilities in financial statements. The period of time audited was January 1, 2017 to November 30, 2017. The overall opinion of this audit was that "some improvement [was] required" because the deferred damaged claim asset account contained balances at the time that should have been reclassified to capital or O&M expense. At the time of the audit, it was expected that the vast majority of the amount to be removed from the deferred asset account would eventually be classified as plant in service.[47,48]

Internal Auditing Services had no plans to audit cost deferrals, regulatory assets, or regulatory liabilities in 2021.[49] That means none of these assets and liabilities have been audited by Internal Auditing Services for at least four years.[50] Given the significance of these costs (almost $4 billion before such assets and liabilities are netted and nearly $1 billion after being combined) and the ever-changing

[45] Response to OC-1035.
[46] Response to OC-0795.
[47] Response to OC-0083 including attachment.
[48] The deferred damage claim asset account was included in "Other" in Table 8-4 above.
[49] Attachment provided in Response to OC-0352.
[50] As noted previously, the last audit was conducted in late 2017 / early 2018.

regulatory landscape (e.g., tax reform, clean energy and energy efficiency programs, COVID-19 deferrals, etc.) that impacts their recognition and quantification, we believe these assets and liabilities deserve more frequent scrutiny than once every four years or more by Internal Auditing Services.

If not already included in its 2022 plan, we recommend that Internal Auditing Services perform audit(s) in the next twelve months of PSE&G's most significant regulatory assets and liabilities as well as those that have been created since 2017, such as the post-2018 base rate case storm-related cost deferrals and the COVID-19 cost deferral. Thereafter, all of PSE&G's regulatory assets and liabilities should undergo internal audit at least once every three years, or the Company should justify why they do not warrant such examination. In addition to determining whether the regulatory assets and liabilities are properly presented and disclosed in the Company's financial statements, the audits should ensure compliance with regulatory policy, precedent, and rules. All related audit reports should be made available to BPU staff or their delegates, upon request.

9. NON-RATE RELATED REVENUES

Introduction and Overview

According to the Company, the non-operating gains and other revenues recognized by PSE&G since the last rate case, except those derived from utility rates, consist of the following:

Table 9-1 – PSEG Non-Rate Related Revenues -Non-Operating Income

PSE&G Non-Rate Related Revenues and Income Non-Operating Income					
Description	**FERC Acct**	**Elec / Gas**	**Distribution / Transmission**	**2019**	**2020**
Portion of Electric Applicance Service Business Re	415	Electric	Distribution	$36,564,221	$39,778,065
Tax Gross-Up Charged on Sundry CIAC Work	421	Electric	Transmission	4,274,117	4,273,084
Tax Gross-Up Charged on Sundry CIAC Work	421	Electric	Distribution	2,590,062	2,275,617
Rabbi Trust Fund Gains (Losses)	421	Electric	Distribution	1,365,898	2,025,675
Allconnect Revenues	421	Electric	Distribution	367,800	182,982
Tax Gross-Up Charged on Sundry CIAC Work	421	Gas		679,174	208,599
Rabbi Trust Fund Gains (Losses)	421	Gas		607,702	1,168,305
Total				**$46,448,974**	**$49,912,327**
Source: Response to OC-1307 and attachment provided in response to OC-1308.					
FERC Account Number Descriptions:					
Acct No. 415 - Revenues from Merchandising, Jobbing and Contract Work					
Acct No. 421 - Miscellaneous Nonoperating Income					

The most significant of these revenues are those associated with PSE&G's appliance service business. According to the Company, it began accounting for the appliance service business differently beginning on January 1, 2019.[1] On that date, it began segregating the portion it attributed to electric service offerings and recorded 50% of the margins above-the-line and 50% below-the-line in conformance with New Jersey Administrative Code 14:4-3.6(r).[2] Margins related to gas service offerings continued to be recorded 100% above-the-line. The amount included in the table above only captures the below-the-line revenue associated with the electric competitive service offerings.[3] The vast majority of below-the-line

[1] Per PSE&G, it did not offer new electric appliance service business products or services in 2019 or 2020. Instead, it classified the same products and services it had always offered differently beginning in 2019 (see Response to OC-1576 (Confidential)).

[2] According to New Jersey Administrative Code 14:3-3.6(r2), ". . . 50% of the total margins [of electric public utilities and related competitive business segments of electric public utilities] shall be recorded in respective competitive service revenue accounts and treated above-the-line for ratemaking purposes and credited to ratepayers via a credit to the market transition charge, or distribution service charge."

[3] Response to OC-1307.

expenses are recorded in FERC Account 416, which totaled $27,561,766 and $30,513,923 in 2019 and 2020, respectively.[4,5] The resulting below-the-line margins in each year were approximately $9 million.

In addition to these accounts, we also are aware of gains and losses on dispositions of property (FERC Accounts 421 and 421.2) that the Company did not identify above. Since the settlement of the last base rate case, PSE&G has recognized net gains of $3,490,938; $1,597; and $942,994 in 2018, 2019, and 2020, respectively.[6]

The amounts presented in the preceding table are exclusive of operating revenues not derived from utility rates. These are detailed in Attachment 9.1, the most significant of which are related to PSE&G's transmission of electricity, along with a short description of how each are shared with ratepayers.

Summary of Findings

1. The most significant non-operating non-rate related revenues recognized by PSE&G since its last base rate case are those associated with its electric appliance service business. Prior to 2019, all appliance service business margins were attributed to the natural gas business and fully credited to the benefit of PSE&G's customers. Beginning in 2019, without offering any new services, PSE&G started attributing a portion of its appliance service business to electric operations, which has a different statutory sharing convention between ratepayers and shareholders.
2. Approximately $18 million of annual electric appliance service business margins were allocated equally above- and below-the-line in 2019 and 2020, resulting in a net decrease of customer/ratepayer benefits in each year of approximately $9 million as compared to the methodology employed by the utility in prior years.
3. In the past, PSE&G has proposed a 50/50 sharing of gains and losses on the disposition of its property between ratepayers and shareholders. Black box settlements implicitly incorporate this proposal. In 2019 and 2020, dispositions of PSE&G property were minimal.
4. PSE&G chose not to share an allocated gain of $3.2 million with ratepayers on the sale of a park adjacent to PSEG's Newark headquarters in the first half of 2018 because the land was not directly owned by the utility. This occurred despite the fact that PSE&G was routinely charged for its share of this land in the years leading up to the sale by the owner, PSEG Service Company. In reviewing this transaction, we also discovered that the allocation bases for annually charging PSE&G for this land and assigning the gain on disposition were different.

[4] FERC Form 1 attachments provided in Response to OC-0255.

[5] Attachment provided in Response to OC-1576 (Confidential). Some immaterial amounts of below-the-line expense were charged to FERC Accounts 419 (Electric – Interest and Dividend Income), 421 (Miscellaneous Nonoperation Income), 426.4 (Expense for Civic, Political and Related), and 426.5 (Other Deductions).

[6] Responses to OC-0436, 0437, and 0255 (FERC Form 1 attachments).

Identified Components of Non-Operating Non-Rate Related Revenues

As identified by management, the following non-rate related revenues were recorded by PSE&G in non-operating income:[7]

- Portion of Appliance Service Business Revenues – This consists of 50% of appliance service business attributed to electric offerings.[8] The remaining 50% is recorded above-the-line and credited to customers. As noted previously, below-the-line expenses associated with these revenues are predominately recorded in FERC Account 416.
- Tax Gross-Up Charged on CIAC Work – This represents an offset to tax expense resulting from work associated with contributions in aid of construction and is not included in rates.[9]
- Rabbi Trust Fund Gains – This includes the proceeds from the sale of and the net gains (losses) on securities in the Rabbi Trust Fund, which is a non-qualified benefit plan to provide supplemental retirement and deferred compensation benefits to certain key employees. These gains are not included in rates.
- Allconnect Revenues – Allconnect shares a portion of the revenues with PSE&G when customers who call to move and sign-up with Allconnect (a provider that assists in setting up home services such as internet, cable, utilities, water, etc.). These revenues are not included in rates.

Electric appliance service business revenues comprise over three-quarters of all non-rate related revenues recorded below-the-line as Identified by PSE&G. The new treatment of these revenues was signaled by PSE&G in its direct testimony in its last base rate case. At that time, PSE&G forecast that $34 million in margin revenue of its appliance service business was related to gas services and $18 million to electric services. It proposed to fully credit to the benefit of customers the gas portion of these margin revenues and to credit half of the electric portion for a cumulative direct offset of PSE&G revenue requirements of $43 million ($34 million + 50% of $18 million).[10]

A detail of the utility's accounting for the electric appliance service business demonstrates that the margins attributed above- and below-the-line in 2019 and 2020 were approximately equal.[11]

[7] Response to OC-1307 and attachment provided in Response to OC-1308.

[8] Electric appliance service offerings included Appliance Part Service Order, Automatic Water Heater, Contracts, and Heating, Ventilation and Air Conditioning (see attachment provided in Response to OC-1576 (Confidential)).

[9] In the last management audit, it was further explained that this is associated with customers making contributions who make the Company whole for the tax timing difference created by the contribution. Property is added to rate base at zero cost.

[10] Section VII of Scott Jennings Direct Testimony in the 2018 PSE&G Base Rate Case Filing, pages 66-68 (see attachment provided in Response to OC-1576 (Confidential)).

[11] Attachment provided in Response to OC-1576 (Confidential).

Gains and Losses on Disposition of Property

In recent years, PSE&G's gains and losses on dispositions of property have been relatively insignificant, especially in 2019 and 2020. The following table shows the details of these gains and losses:

Table 9-2 – PSEG Gains and Losses on Disposition of Property

PSE&G Gains and Losses on Disposition of Property				
Description	**Entity or LOB Selling Property**	**2018**	**2019**	**2020**
Sale of Headquarter Plaza	PSEG Service Company	$3,214,942	$0	$0
Grant of two easements in Roseland, NJ	Transmission	275,996		
Sale of 230 sq feet in Burlington Township, NJ	Transmission	-	1,597	-
Sale of 1.005 acres in Montgomery, NJ	Distribution	-	-	436,048
Grant of easement for 0.026 acres in North Berge	Transmission	-	-	2,500
Sale of 0.7427 acres in River Edge, NJ	Distribution	-	-	(31,172)
Sale of MD Helicopter Model 369FF	Transmission	-	-	535,618
Subtotal		**$3,490,938**	**$1,597**	**$942,994**
Gain on Disposition of Property (Acct 421.1)		$3,490,938	$1,597	$974,165
Loss on Disposition of Property (Acct 421.2)		-	-	(31,172)
Rounding		-	-	1
Subtotal		**$3,490,938**	**$1,597**	**$942,994**
Sources: Responses to OC-0437 Corrected and OC-0255 (FERC Form 1 attachments).				
Note: Sales of property involving former manufactured gas plant locations have been excluded from the table as they are accounted for in the Remediation Adjustment Clause process.				

According to the Company, no recent BPU decision has specified how PSE&G is to share the gains and losses from sales of property between ratepayers and shareholders. However, the BPU has issued decisions involving other New Jersey utilities which summarize the Board policy on the matter. For instance, in a 2014 decision involving United Water Toms River, Inc., the BPU stated:[12]

> *. . . the Board's **normal practice of 50/50 sharing loses (sic) and/or gains from the sale of property between ratepayers and shareholders** will result in a higher rate base because the net book value exceeds the purchase price of the property. (emphasis added)*

Per PSE&G, recent black box settlements of its base rate case petitions implicitly incorporate this 50/50 sharing policy.[13]

[12] I/M/O the Petition of United Water Toms River, Inc. for Approval to Sell Its Administrative Offices as a Result of Superstorm Sandy, Dkt. No. WM14070708, Order (N.J.B.P.U. Sep. 30, 2014).

[13] Response to OC-0435. 50/50 sharing is limited to Account No. 421.1. It does not include either equity in earnings of subsidiary companies (Account No. 418.1) or miscellaneous non-operating income (Account No. 421) (Response to OC-0436). Miscellaneous non-operating income has ranged from negative $6.0 million to negative $10.1 million per year from 2018 to 2020 and is primarily comprised of tax gross-ups on Contributions in Aid of Construction (Response to OC-0438). See discussion earlier in this chapter.

A review of PSE&G's filed testimony in its most recent base rate case indicates that the Company proposed a pro forma adjustment to share 50 percent of the PSE&G gains on the sales of property, net of associated income tax, with customers based on a historical 5-year average.[14]

However, when reviewing the detail supporting the Company's rate case filings, it was noted that the gain on the sale of the Headquarter Plaza property was not included in the Company's computation of its 5-year average. The Headquarter Plaza property is a park which sits adjacent to the PSEG leased headquarters building in downtown Newark, NJ. It was sold to Prudential on May 9, 2018, which falls within the parameters of the utility's 12+0 base rate case filing.[15] When asked about this exclusion, the Company indicated that it specifically excluded the gain on the sale of the Headquarter Plaza property from the gains reported in the last rate case because it was not considered PSE&G property.[16] PSE&G believes gains and losses only are to be shared if the associated property is included in rate base.[17]

Even though PSE&G did not explicitly own the Headquarter Plaza property, it was annually charged for its proportionate share of the maintenance of the property by PSEG Service Company based on a combination of nearby headquarters space utilization and allocations of residual PSEG Service Company costs. The maintenance costs associated with this park consisted of landscaping, trash and snow removal, etc. PSE&G asserts that, as these costs were directly related to the office personnel utilizing the adjacent park, the allocation of these maintained costs were based on the occupancy of the adjacent leased building. This differs from the allocation of the gain on the disposition of the property which was based on the Enterprise allocation factor of 56 percent.[18] As the ownership of the park property spanned many decades leading to the resulting gain on sale of that property, the PSEG Service Company determined that the most appropriate allocation methodology was the "Enterprise Allocation" method.

Given that the sale of Headquarter Plaza occurred during the test year of PSE&G's last base rate case and, thus outside the scope of our review, we did not investigate the matter further.

[14] Direct Testimony of Scott Jennings, Docket Nos. ER18010029 and GR18010030, page 78 and page 86 (R-2). The initial Company petition was based on the 5 years ended December 31, 2016. Its final revised petition was based on the 5 years ended June 30, 2018 (the test year).

[15] Supplemental Response to OC-0861.

[16] Response to OC-0862.

[17] Response to OC-1305.

[18] Response to OC-0861.

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Public Service Electric and Gas Company

BPU Management Audit

Electric Revenues (except those derived from utility rates)

Response OC-1308

FERC Account	FERC Account Name	Amount 2020	Amount 2019	Description	
Electric Distribution & Transmission Operating Revenues					
450	Forfeited Discounts	405,688	3,642,420	Represent late payment charges due to failure of customers not paying their electric bills on or before a specified date	100 % of theses revenues are offset to base distribution rates in the distribution rate case
451	Miscellaneous Service Revenues	**13,176,715**	**14,307,521**		
	Appliance Service Business (ASB) Revenues	13,125,325	12,310,106	Please refer to our response OC-1037 for detail description.	Electric ASB Revenues shared with rate payers as detailed in OC-1037
	Sundry Sales Revenues from service re-connects	51,390	1,997,415	Electric service reconnect fees	100 % of theses revenues are offset to base distribution rates in the distribution rate case
454	Rent from Electric Property	**9,542,621**	**9,523,635**		
	Rental Income	39,331	33,471	Various income from rental involving distribution utility property.	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	CATV Pole Rentals	165,879	102,922		
	Wireless Pole Top Revenues	129,269	69,217		
	Electric Distribution Camera Attachments	566	-		
	Fiber Optic Revenues	3,694,709	3,372,612		
	Electric Dist. Total Rent from Electric Property	**4,029,754**	**3,578,222**		
	Right of Way Rental Revenues	671,628	1,067,506	Represents Transmission Right of Way Rental Revenues	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Transmission Wireless Attachment Revenues	4,841,239	4,877,907	Transmission revenues from various wireless attachment revenues	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Transmission Total Rent from Electric Property	**5,512,867**	**5,945,413**		
456	Other Electric Revenues	**11,654,652**	**(844,845)**		
	Sundry sales - Wheeling revenues	20,108	80,798	Represent revenues from electric web fee that customer pay in order to have access to their interval data	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	Tax Adjustment Credit (TAC) Over/Under	(2,274,685)	(14,664,712)	This represents the over/under accumulated difference between the required flow back of taxes under the distribution tax mechanism vs. what was flow back base on volume.	100 % is charged or credited through the TAC distribution clause mechanism
	SL2 loan payoff w/o misc. Bal	248	408	This was a miscellaneous cash pay-off of solar loans, under the distribution solar loan program.	100% of the revenues are offset to the Distribution Solar loans program revenue requirement
	Sundry sales Revenues	182,150	466,704	Sundry sales metering application fee revenues	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	NUG net metering & PJM Scheduling revenues	1,156,371	442,482	This represents the non-utility generation net metering revenues and revenues received from PJM scheduling, system control & Dispatching, Other facility credit revenues	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	EE17 market revenue sharing	62,402	-	Represent revenues sharing from Uplight partnership with PSE&G.	100% of the revenues are offset to Distribution Energy Efficiency program revenue requirement
	Transitional PJM Revenue Credits	-	1,809	Misc. PJM revenue	revenues offset to base rates
	Electric Dist. Total Other Electric Revenues	**(853,406)**	**(13,672,511)**		
	Transmission Studies Revenues	137,306	268,621	These are revenues received for transmission planning feasibility and impact studies performed by PSE&G Transmission Planning that are billed to customers through PJM.	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Trans-Interconnection Agreements	7,718,905	7,822,020	Transmission revenues from various transmission interconnection agreement.	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Transmission Ancillary services	4,651,847	4,737,025	Represents Transmission revenues received from PJM for Scheduling, System Control & Dispatch of the PJM network.	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Transmission Total Other Electric Revenues	**12,508,058**	**12,827,666**		
456.1	Revenues from Transmission of Electricity of Others	**612,000,752**	**604,139,103**		
	E-Point-To-Point Service Credits	20,350,375	8,350,795	Represents transmission revenues received from PJM for Point to Point Service revenues.	share 50% of the revenues with Transmission rate payers as per the Formula Rate protocol.
	Network Transmission Service	624,162,015	546,981,434	Represents transmission revenues by which transmission owners recover their annual transmission costs and revenue requirements from PJM network customers	PSE&G transmission revenue for providing transmission service through PJM
	Formula Rate True-UP Revenue	(32,511,638)	48,806,874	The True-up Adjustment for 2019 and 2020 respectively represents the estimate true-up revenues recorded for 2019 and 2020, offset as a Regulatory Asset	Transmission rate revenues recorded as the true up between the filed pro forma transmission revenue requirement and the actual revenue requirement based on the final FERC Form 1

Public Service Electric and Gas Company

BPU Management Audit

Response OC-1308

Electric Revenues (except those derived from utility rates)

FERC Account	FERC Account Name	Amount 2020	Amount 2019	Description	
Gas Operating Revenues					
487	Forfeited Discounts	226,122	1,150,119	late payment charges due to failure of customers not paying their gas bills on or before a specified date	100 % of theses revenues are offset to base distribution rates in the distribution rate case
488	Miscellaneous Service Revenues	**30,713,274**	**29,129,820**		
	Appliance Service Business (ASB) Revenues	30,667,284	28,544,129	Please refer to our response OC-1037 for detail description.	100% of Gas ASB Revenues are offset to base distribution rates in the distribution rate case
	Sundry Sales Revenues from service re-connects	45,990	585,330	Gas service reconnect fees	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	Service Reconnects	-	361	Gas service reconnect fees	100 % of theses revenues are offset to base distribution rates in the distribution rate case
493	Rent from Gas Property	3,000	366,180	Various income from rental involving distribution utility property.	100 % of theses revenues are offset to base distribution rates in the distribution rate case
495	Other Gas Revenues	**11,901,277**	**12,771,114**		
	Tax Adjustment Credit (TAC) Over/Under	8,852,623	8,145,786	This represents the over/under accumulated difference between the required flow back of taxes under the distribution tax mechanism vs. what was flow back base on volume.	100 % is charged or credited through the TAC distribution clause mechanism
	Sundry sales - Wheeling revenues & RMLD roy	(457,000)	112,412	Sundry sales metering application fee revenues	100 % of theses revenues are offset to base distribution rates in the distribution rate case
	Peak Shaving Revenues	3,424,273	4,512,916	represent revenues from Peak shaving facilities	100% of the revenues are offset to BGSS gas supply program
	EE17 market revenue sharing	81,381	-	represent revenues sharing from Uplight partnership with PSE&G.	100% of the revenues are offset to Distribution Energy Efficiency program revenue requirement

10. RECOMMENDATIONS AND REVIEW OF PREVIOUS ANALYSIS

Introduction and Overview

The following chapter summarizes the acceptance by the Company of the recommendations made in the prior audit report based on the responses the Company provided in 2012 and shortly thereafter. The impact that the rejection of previous recommendations had on Company operations and the implementation of those accepted will be addressed in the topical chapters throughout this report. In addition, this chapter highlights the significant issues that arose during the conduct of the prior audit that potentially warrant consideration in this audit.

Summary of Findings

1. PSE&G accepted in their entirety 42 of 72 recommendations made by the prior auditors which equates to a 58 percent acceptance rate. Of the recommendations that were deemed to be especially important by the prior auditors, the Company accepted 46 percent of them without qualification.
2. PSE&G also partially accepted an additional 7 recommendations made by the prior auditors.
3. The Company provided the bases for disputing recommendations not accepted in comments publicly filed with the BPU in 2012.
4. While the Company has historically communicated its implementation of audit recommendations through informal updates made by the legal department to BPU Staff, verification of the implementation of remedial action has not been performed.
5. The prior auditors identified in the 2012 report the following 2011 events for recommended consideration in the next (now current) audit:
    - The LIPA contract
    - PSEG proposed nuclear expansion
    - The Susquehanna-Roseland reliability project
    - Power outages due to Hurricane Irene and other storms

Recommendation

10.1 We recommend that implementation plans and/or actions taken by the company to respond to recommendations made in this affiliate transactions and management audit be tested by PSEG's Internal Auditing Services group for comprehensiveness and effectiveness on an annual basis until all accepted recommendations have been implemented. The results of this review should be provided to the BPU in a timely manner upon request, and associated workpapers should be made available for review by the BPU, as requested.

Overview

In January of 2012, Overland Consulting released a report on its *Audit of Relationships Between Public Service Electric and Gas Company and Its Affiliates and a Comprehensive Management Audit of Public Service Electric and Gas Company.* The report contained 72 recommendations for improvement.[1] While the Company asserts that there was no subsequent BPU Order requiring the filing of an implementation plan to address these recommendations, it provided the Staff informal updates on these matters for over two years to supplement its initial response to the audit report filed on July 13, 2012.[2] PSE&G's acceptance of the recommendations is summarized in the following table:

Table 10-1 - Company Acceptance of Prior Audit Recommendations

PSE&G Company Acceptance of Prior Audit Recommendations						
Category	**Chapter No.**	**Accepted**	**Partially Accepted**	**Superseded**	**Not Accepted**	**Total**
PSEG Services Corporation	3	1	-	-	-	1
Appliance Service Business	4	-	-	-	1	1
Executive Management and Corporate Governance	6	3	1	-	2	6
External Relations	9	2	-	-	-	2
Accounting and Property Records	12	3	-	-	1	4
Demand Response, Energy Efficiency, Renewable Generation (A)	14	3		-	3	6
Non-Utility Generation Contracts	15	-	-	-	1	1
Power Supply and Transmission Affiliate Issues (B) (C)	16	3	2	-	3	8
Interconnection and Non-Power Services	17	6	-	-	6	12
Gas Procurement and Supply (D)	18	-	-	-	5	5
Electric Delivery and Operations Management (B)	19	4	1	1	-	6
Gas Delivery and Operations Management	20	1	2	-	-	3
Customer Service and Meter Reading	22	3	-	-	-	3
Salary, Wage and Compensation, and Benefits (B)	23	4	1	-	-	5
Productivity and Utilitzation Level of the Workforce	24	1	-	-	-	1
Development, Training, Evaluation, and HR Activity	25	4	-	-	-	4
Labor Relations, Affirmative Action, and Equal Employ Opp	26	3	-	-	-	3
Remediation Costs	27	1	-	-	-	1
Total		**42**	**7**	**1**	**22**	**72**

Sources: Prior audit report and response to OC-0443 (August 2014 Implementation Update) (Confidential).

(A) The status of one recommendation was obtained from the company's July 13, 2012 comments on the report (attachment to OC-0443).
(B) The company qualifies its acceptance of some recommendations, so they are depicted above as partially accepted.
(C) One "recommendation" in the prior audit report had no suggested course of action, so it was not counted.
(D) Although the company "agrees" with one recommendation, it asserts that no further action is necessary, so it is treated as "Not Accepted" for purposes of this table.

In total, 58 percent of all recommendations were accepted by the Company without qualification. According to PSE&G, all accepted recommendations were implemented.[3]

[1] One listed recommendation had no suggested course of action, so it was not included in the 72 recommendations noted above. Several recommendations were identified in the Executive Summary but not in the individual, topical chapters. These were also omitted from the table above.

[2] Response to OC-0443 (Confidential).

[3] Response to OC-0443_PSEG Audit Implementation Update Aug 2014 (Confidential).

In its audit report, Overland identified 15 recommendations as having the greatest potential impact in terms of financial materiality, quality of service, or regulatory compliance.[4] These largely were a subset of the 72 recommendations mentioned previously, although 2 of the 15 concerned actions to be taken in the conduct of the next affiliate relationship and management audit of PSE&G, and thus could not be implemented until recently.[5] Of the remaining 13 highlighted recommendations, PSE&G accepted without qualification 6 of them, which equates to 46 percent of these recommendations.[6]

As part of our effort in this audit, we have reviewed the Company's implementation of the prior audit recommendations either implicitly or explicitly when assessing the Company's current situation. We focused on those recommendations that were identified as being of particular importance. Specific action to be taken on these recommendations is generally addressed in each relevant chapter (in both Phases I and II). The Company's responses to the prior audit recommendations are summarized in the following sections.

Audit Recommendations Not Accepted

The prior audit recommendations not accepted to any degree by PSE&G and the reasons for their rejection are as follows:[7,8,9]

1. PSE&G should monitor its fully allocated cost per hour on a more frequent basis (e.g., monthly or quarterly) to ensure that its floor price covers the fully allocated cost of providing appliance services, thereby ensuring continual compliance with EDECA standards (Chapter 4 – Appliance Service Business).

   Reason for not accepting the recommendation: PSE&G believes its biannual filing to the BPU and the requirement that it provide a 30-day notice for any modifications to the terms and conditions of its service offering are sufficient to assure compliance with EDECA. It does not believe the benefits of implementing the recommendation outweigh the costs.

[4] One of the 15 highlighted recommendations was only discussed in the Executive Summary of the prior management audit report and is in addition to the 72 recommendations identified in the topical chapters. This recommendation concerned improving the relationship between corporate management and the Company's regulators and policy makers. While it was not addressed by PSE&G in its informal updates, the Company provides a number of examples of action it took subsequent to the prior audit to interact and engage with Board Staff, which we interpret as acceptance of the recommendation (see Response to OC-0800).

[5] These 2 recommendations concerned the consideration of the then new contract with LIPA in the next management audit and the resolution of audit scope issues between the Company and the Staff and its auditors at the outset of the next management audit. While the LIPA contract was incorporated into the scope of the current management audit, differences in opinion concerning the appropriate scope of the current management audit between the Company and Staff's auditors were still being addressed months into the current audit.

[6] This includes the recommendation concerning the remediation of the relationship between corporate management and the Company's regulators and policy makers that was presumed to have been accepted (see earlier footnote).

[7] This list excludes those recommendations that were partially accepted or accepted with qualifications. As summarized in Table 10-1, these total 22 and include 4 that were highlighted by Overland as having the "greatest potential impact."

[8] Response to OC-0443_2013 – 7 PSEG Audit Implementation Update 7 11 13 (Confidential).

[9] Chapter references in the following section are to the prior management audit report.

2. The President of PSE&G should be added to the PSE&G Board of Directors, consistent with general industry practice (Chapter 6 – Executive Management and Corporate Governance). (HIGH PRIORITY)

   Reason for not accepting the recommendation: PSE&G does not believe that diversified holding companies typically include the president of the utility on the utility's board of directors. The Company also expresses concern that adding a second non-independent board member to a then 5-member PSE&G board would put it in peril of failing to meet a New Jersey requirement to have at least 40 percent of board members who qualify as being independent. Finally, it believes the structure of the PSE&G Board consisting of independent directors and the CEO of PSE&G is effective and the PSE&G President's current accessibility to the PSE&G board is an adequate substitute for inclusion on the board.

3. The Company should consider setting a dollar cap on the delegation authority provided to the Chair of the Audit Committee for eligible products and services offered by the external auditor between regularly scheduled Audit Committee meetings (Chapter 6 – Executive Management and Corporate Governance).

   Reason for not accepting the recommendation: PSE&G believes that the requirement for the Chair of the Audit Committee to report after-the-fact to the Audit Committee any changes that he/she has unilaterally approved the external auditor to perform is an adequate check and balance.

4. To conform to industry guidance and practice and to promote the appearance of independence, the Internal Auditing Services group headed by its vice president should report administratively to the PSEG CEO rather than to the CFO as is currently the case (Chapter 12 – Accounting and Property Records).

   Reason for not accepting the recommendation: PSE&G believes that its administrative reporting structure for internal audit is justified because many other companies employ it.

5. PSE&G should prepare an assessment of the growth potential of the PJM DR Economic Program and develop strategies for promoting optimum participation levels (Chapter 14 – Demand Response, Energy Efficiency, and Renewable Generation).

   Reason for not accepting the recommendation: PSE&G believes that 2012 implementation of changes to the Economic Load-Response Program make utility intervention in the market unnecessary.

6. PSE&G should commit all 40 MW of centralized solar capacity in the RPM auctions held in May, July, and September 2011 (Chapter 14 – Demand Response, Energy Efficiency, and Renewable Generation).

Reason for not accepting the recommendation: PSE&G asserted in 2012 that uncertainties surrounding the construction / permitting of individual solar generators could lead to inaccurate forecasting regarding the availability of solar generation and put it at risk of incurring PJM penalties.

7. PSE&G should consider treating the pole top solar output as a reduction to the BGS-FP load pool (Chapter 14 – Demand Response, Energy Efficiency, and Renewable Generation).

   Reason for not accepting the recommendation: PSE&G notes that comparisons of pole-attached solar panels and non-utility generation (NUG) facilities is problematic for several reasons, including the relative size of each, the inherent unpredictability of solar power, and the likelihood that PJM would allow solar to function as a load reducer. In addition, PSE&G argues that since solar energy is not full requirements energy, it would lead BGS suppliers to purchase ancillary and other services to support this energy, introduce risk into the BGS supply equation, and result in increases in prices that would outstrip the revenue collected by pole-attached solar.

8. Attorneys who represent PS Power in power market commercial matters should be excluded from PSE&G's NUG contract negotiating teams (Chapter 15 – Non-Utility Generation Contracts).

   Reason for not accepting the recommendation: PSE&G asserted in 2012 that the attorney in question held a different position in the organization than portrayed in the report. The Company said he was uniquely suited to perform the tasks assigned, and he obtained favorable settlement terms for the utility, which were specifically reviewed by the Staff of the BPU and Division of Rate Counsel.

9. PSE&G should review the advantages and disadvantages of outsourcing BGSS Gas procurement to ER&T (Chapter 16 – Power Supply and Transmission Affiliate Issues). (HIGH PRIORITY)

   Reason for not accepting the recommendation: PSE&G asserted in 2012 and continues to believe that the current retail gas supply procurement structure gives the BPU considerable oversight, has facilitated the development of a competitive retail gas supply market, provides the customer with meaningful choice. Given that competitive retail rates produced by the status quo have been the lowest or near the lowest since the BGSS contract became effective, the Company continues to assert that this structure is beneficial and should be retained.

10. PSE&G should develop and advocate separate utility positions on PJM and FERC issues (Chapter 16 – Power Supply and Transmission Affiliate Issues).

    Reason for not accepting the recommendation: PSE&G asserted in 2012 and continues to assert that there is no evidence that PSE&G's positions are not in the best interests of ratepayers. On some PJM committees, the PSEG companies are only permitted one vote, which is reached through consensus. PSEG companies follow all applicable standards of conduct. PSE&G believes a divergence of positions held by different PSEG companies would increase the likelihood that

such views would be dismissed. Finally, the Company in 2012 raised its First Amendment constitutional right to take positions that it believes are in the best interests of its customers and shareholders. PSE&G currently maintains that representation of the Company's interests before PJM and FERC are appropriate.

11. If PSEG continues to vote a unified corporate position at PJM, it should join the generation owners sector (Chapter 16 – Power Supply and Transmission Affiliate Issues).

    Reason for not accepting the recommendation: Based on statistics taken from the audit report, PSE&G suggests that a change in sector assignment would not have resulted in a different voting outcome at PJM. Additionally, it believes the reasons given to reject Recommendation No. 10 above are also relevant for this recommendation.

12. PSE&G should charge PS Power for the interconnection metering costs it incurred but did not bill to PS Power prior to 2010 (Chapter 17 – Interconnection and Non-Power Services).

    Reason for not accepting the recommendation: PSE&G asserted in 2012 and continues to maintain that the recommendation would violate the terms of a 1999 Interconnection Agreement between PSE&G and PSEG Fossil that is currently still in effect. In addition, all Interconnection Agreements with non-affiliated generators assign the responsibility of meter testing costs to PSE&G.

13. PSE&G should compare reported station power values to benchmark values on a monthly basis (Chapter 17 – Interconnection and Non-Power Services).

    Reason for not accepting the recommendation: PSE&G asserted in 2012 that the benchmarking study relied upon by the auditor in making its recommendation was flawed and conducted for an entirely different purpose. Imposing such a requirement would be undue burden and would not offer any improvement to the process.

14. PSE&G should charge tariff rates for station power delivered over local distribution facilities (Chapter 17 – Interconnection and Non-Power Services).

    Reason for not accepting the recommendation: PSE&G asserts that it is compliant with this recommendation as present charges for PSEG Power are based on a Board-approved tariff describing the charge for the facilities that are reserved for the delivery of the energy to the generating facility, and the energy portion is treated in accordance with the FERC-approved PJM netting process.

15. PSE&G should enter into a Services Agreement with PS Power (Chapter 17 – Interconnection and Non-Power Services). (HIGH PRIORITY)

Reason for not accepting the recommendation: PSE&G believes its 2010 FERC-approved Interconnection Agreement between PSE&G and PS Power is sufficient given the absence of findings of violations of applicable affiliate standards.

16. The New Jersey Radiation Response Fund fee should be paid directly by PS Power (Chapter 17 – Interconnection and Non-Power Services).

    Reason for not accepting the recommendation: The Company argued in 2012 that since PSE&G is identified as the operator of PSEG's nuclear plants (pursuant to the Radiation Protection Act), New Jersey law requires the State Treasurer to make an assessment against PSE&G to defray applicable expenses. According to the Company, PSE&G would be in conflict with state law if it were to adopt the recommendation.

17. PSE&G should review the metering arrangements for the PS Power units located within its zone and prepare memoranda describing the station power and metering arrangements for each plant (Chapter 17 – Interconnection and Non-Power Services). The memorandum should include:

    - Identify any station power take-offs that occur between the generator output terminal and the initial metering point;
    - Develop a reliable method for determining gross generation at the generator output terminals without any reductions for station power requirements;
    - Identify and describe station power take-offs that occur after the initial metering point;
    - Identify all external station power feeds serving the plant;
    - Estimate station power requirements for the plant and the expected power flow for each station power take-off and external feed; and
    - Describe the procedures for determining net generation for each plant.

    Reason for not accepting the recommendation: PSE&G believed and continues to assert that the contents of the proposed memoranda are already provided in other documents, specifically, the Interconnection service agreements between the Company and PJM, and thus are a duplication of effort that would not add any value to the process but would add unnecessary costs. PSE&G notes that these agreements are still effective.

18. PSE&G should employ Monte-Carlo Simulations or similar techniques to better communicate the gas demand drivers and forecast uncertainty. Likewise, PSEG ER&T should employ similar techniques to better communicate to PSE&G the forecast price and cost of gas to PSE&G delivery points (Chapter 18 – Gas Procurement and Supply).

    Reason for not accepting the recommendation: PSE&G asserted in 2012 that a Monte-Carlo simulation would not be particularly useful in predicting gas costs to PSE&G delivery points and in setting rates because NYMEX is the standard used by the BPU for the setting of retail gas rates and serves as a representative transaction price for buyers and sellers. PSE&G also believed that

the recommendation is based on a misunderstanding of the functions performed by PSE&G and ER&T as part of the BPU-approved Requirements Contract.

19. PSE&G should establish written performance expectations of ER&T. We suggest these expectations address transparency, accountability, and accuracy (Chapter 18 – Gas Procurement and Supply). Performance measures for consideration include:

    - Price volatility;
    - Potential cost and out-of-market outcomes tolerance;
    - Utilization of firm capacity; and
    - Capacity release target.

    Reason for not accepting the recommendation: PSE&G believed and continues to assert that the Full Requirements Contract with ER&T already satisfies the proposed additions to performance measures, especially since it is monitored and reviewed annually by both the BPU and Rate Counsel for prudence and the ultimate performance standard (residential cost of gas) has decreased steadily over time since 2009. PSE&G also implied that imposing additional performance measures could lead to residential customers paying higher rates.

20. PSE&G should reassess the value of its Gas Requirements Contract (Chapter 18 – Gas Procurement and Supply) by either:

    - Issuing a competitive bid request for proposals to prequalified bidders; or
    - Preparing a study and cost/benefit analysis of terminating the ER&T contract and submit the study in its next BGSS proceeding.

    (HIGH PRIORITY)

    Reason for not accepting the recommendation: See reason given for rejecting Recommendation No. 9 above.

21. PSE&G should amend the Gas Requirements Contract (Chapter 18 – Gas Procurement and Supply) to provide for the following provisions:

    - Advance written notification of any negotiations which could pose an obligation to PSE&G when the Gas Requirements Contract is terminated; and
    - Written support demonstrating the need, cost, and benefits of all negotiated contracts which pose an obligation to PSE&G when the Gas Requirements Contract is terminated.

    Reason for not accepting the recommendation: PSE&G claimed in its 2012 response that the recommendation was based on an incorrect assumption that upon the termination of the BGSS contract, PSE&G becomes responsible for third party obligations of ER&T. PSE&G asserted and continues to maintain that it meets with ER&T periodically to discuss the capacity requirements of PSE&G's firm customers and any planned capacity additions to meet such requirements. PSE&G also states that information of the type referred to in the recommendation is reviewed

during the annual BGSS review proceedings conducted by the BPU and, therefore, is not necessary.

22. The Gas Requirements Contract should be modified (Chapter 18 – Gas Procurement and Supply) to address:

    - Audits performed on behalf of the NJBPU;
    - Provide for intra-day nominations;
    - Approval of changes in Storage and Transportation contract quantities; and
    - Approval of firm gas supply contracts of longer than one year.

    Reason for not accepting the recommendation: PSE&G believed and continues to assert that the existing terms of the Requirements Contract addresses the concerns raised in the recommendation, including 1) the ability of the BPU to audit the BGSS contract at any time, and PSE&G's and ER&T's involvement in any internal audit concerning the BGSS; 2) the requirement of ER&T to meet all of the needs of PSE&G without ER&T having to make any nominations makes the modification of the Requirements Contract superfluous; and 3) approval rights by PSE&G of long-term gas supply agreements is neither necessary or appropriate since ER&T is ultimately responsible for the provision of full requirements service.

Audit Recommendations Partially Accepted

There were also an additional 7 recommendations which PSE&G partially accepted. These recommendations and the reasons for their partial acceptance asserted in the Company's 2012 public comments are as follows:[10]

1. Especially for executives whose responsibilities extend to that of the utility, we recommend that the O&C Committee reassess the weightings it assigns to goals associated with short-term and long-term executive compensation so that executives are motivated and have more incentive to attain goals associated with customer satisfaction, safety, and reliability and to those goals which they have some semblance of control. In addition, the committee should consider requiring a certain level of accomplishment with respect to customer satisfaction, safety, and reliability before short-term and long-term incentive compensation is triggered (Chapter 6 – Executive Management and Corporate Governance).

   Reason for only partially accepting the recommendation: In 2012, the Company claimed that further analysis was needed to assess whether short-term incentive compensation goals should be re-weighted. However, PSE&G was opposed to any changes to long-term incentive weightings as those weighting were designed to motivate participants, who had substantial responsibility, to achieve long-term corporate goals. With regards to the recommendation concerning incentive compensation triggers, PSE&G indicated that it had implemented this for

[10] Response to OC-0443 (July 13, 2012 response to audit report and August 2014 status update) (Confidential).

short-term incentive compensation for executives,[11] but for the reasons stated previously, it rejected the idea for long-term executive incentive compensation.

2. PSE&G and PS Power should develop compliance plans for ensuring utility and PS Power personnel operate independently to the maximum extent practical (Chapter 16 – Power Supply and Transmission Affiliate Issues).

   Reason for only partially accepting the recommendation: PSE&G states that it is already in compliance with this recommendation to the extent it is consistent with FERC Standards of Conduct. However, it should be noted that the Company has been granted a waiver by the FERC of certain affiliate restrictions in cases where there are no captive customers and no associated potential for affiliate abuse.

3. PSE&G should track meetings jointly attended by utility and PS Power personnel (Chapter 16 – Power Supply and Transmission Affiliate Issues).

   Reason for only partially accepting the recommendation: PSE&G stated and maintains that it has implemented this recommendation to the extent it applies to PSEG Marketing and Transmission Function employees consistent with the applicable rules of the FERC.

4. PSE&G should undertake a public education campaign to help promote understanding on the requirements and impact of meeting the 20% load reduction goal by 2020 (Chapter 19 – Electric Delivery and Operations Management).

   Reason for only partially accepting the recommendation: In its 2012 response, PSE&G only agreed with this recommendation if the BPU was willing to authorize recovery of costs associated with this type of educational program. PSE&G indicated at that time it was willing to discuss the matter further with Board Staff.

5. A program should be developed that prioritizes the replacement of all short sections of cast-iron operating above utilization pressure. The program should have a definitive start and end date consistent with prudent distribution system risk management (Chapter 20 – Gas Delivery and Operations Management).

   Reason for only partially accepting the recommendation: The Company's 2013 update to BPU staff noted PSE&G had filed its Energy Strong program in February 2013 which proposed to replace approximately 20% of the Company's cast iron pipe system (approximately 750 miles) over a six-year period. The filing included a proposed regulatory cost recovery mechanism. A settlement agreement, which authorized the expenditure of $350 million to replace and modernize 250 miles of low-pressure cast iron gas main In or near flood zones, was approved by the BPU on May 21, 2014.

[11] Given the clarifying comments made by the Company in its July 13, 2012 response, it is not clear that the recommendation has been interpreted properly by PSE&G. When reviewing this matter during the course of this audit, we will address any misinterpretations of prior audit recommendations.

6. PSE&G should conduct an in-depth study to explore the benefits of accelerating its cast-iron replacement program. The study should be accompanied with an assessment of possible regulatory cost recovery mechanisms. The final study along with its underlying assumptions should be formally presented and discussed with the New Jersey Board of Public Utilities (Chapter 20 – Gas Delivery and Operations Management).

   Reason for only partially accepting the recommendation: See reason given for partially accepting Recommendation No. 5 above.

7. Position descriptions should be expanded and provided for all positions (Chapter 23 – Salary, Wage and Compensation, and Benefits).

   Reason for only partially accepting the recommendation: In its 2012 response, PSE&G only agreed that descriptions at the director level and above within PSE&G will be reviewed and updated as deemed necessary as part of its succession planning model.

Superseded Audit Recommendations

In its 2012 response to the audit report, PSE&G identified one recommendation that was found to be moot since the program that was the subject of the recommendation was terminated prior to the issuance of the prior audit report.

The recommendation made by the prior auditors was as follows:[12]

1. PSE&G should continue and consider expanding its Utility Technology Degree Program to attract additional potential technical resources on a fast-track basis to mitigate expected attrition through retirements (Chapter 19 – Electric Delivery and Operations Management).

Other Considerations

During the course of our review, Overland observed that PSEG's Internal Auditing Services group performed internal audits of PSEG LIPA that included verification of the satisfactory completion of recommendations made by third parties.[13] When asked whether it had performed similar procedures on the recommendations made by the auditor in the previous BPU management audit, Internal Auditing Services indicated that it had not tested the effectiveness of each implementation plan. Instead, the Company highlighted the informal updates produced by the legal department to the BPU Staff as its response to the recommendations.[14]

[12] Response to OC-0443 (July 13, 2012 response to audit report) (Confidential).

[13] Examples include internal audits concerning Customer Operations – Complaints (Project Code: 19-AU-02-LI), Project Planning and Management (Project Code: 19-AU-05-LI), and Northstar (Project Code: 19-AU-10-LI) (response to OC-0354).

[14] Response to OC-0801.

We recommend that implementation plans and/or actions taken by the Company to respond to recommendations made in this affiliate transactions and management audit be tested by PSEG's Internal Auditing Services group for comprehensiveness and effectiveness on an annual basis until all accepted recommendations have been implemented. The results of this review should be provided to the BPU in a timely manner, upon request, and associated workpapers should be made available for review by the BPU, also upon request.

Significant 2011 Events

The prior audit report also identified a number of events that occurred in 2011 that the auditors believed warranted consideration in the next management audit conducted by the BPU. These include:

- PSEG's contract with the Long Island Power Authority;
- PSEG proposed nuclear expansion;
- The addition of the Susquehanna-Roseland reliability project to the federal Rapid Response Team; and
- Power outages due to Hurricane Irene and other storms.

An informal update provided by the Company to the Staff in August 2014 on some of the matters listed above noted that:[15]

- All work on the Susquehanna-Roseland reliability project had been completed between Roseland and Hopatcong with an expected in-service date for the whole project of June 2015.
- Customer satisfaction in Long Island PSEG had improved since PSEG began operating the system. PSEG Long Island had made significant strides in upgrading the electric system and had recently proposed a long-range plan to New York regulators to implement energy efficiency measures, distributed generation, and advanced grid technology programs.
- The process concerning an early site permit application for a fourth Artificial Island nuclear generating station was ongoing. Negotiations with the Army Corps of Engineers for a land swap to secure additional acreage next to Salem and Hope Creek were also continuing.

When developing the workplan for the current audit, Overland specifically incorporated tasks to address relevant matters above for review in this audit. For example, with respect to the LIPA contract, we have assigned audit effort in the areas of Affiliate Relationships, Organization Structure, and Strategic Planning to the matter. As with prior audit recommendations, the particular findings and recommendations that result from our review of these specific events will be addressed in each relevant chapter.

[15] Response to OC-0443 (August 2014 update) (Confidential).

11. ORGANIZATION STRUCTURE

Introduction and Overview

This chapter addresses the relationships between PSEG's regulated and non-regulated subsidiaries, including how management responsibilities are distributed throughout the organization and whether corporate performance measurements adequately consider the operating results of the PSE&G utility.

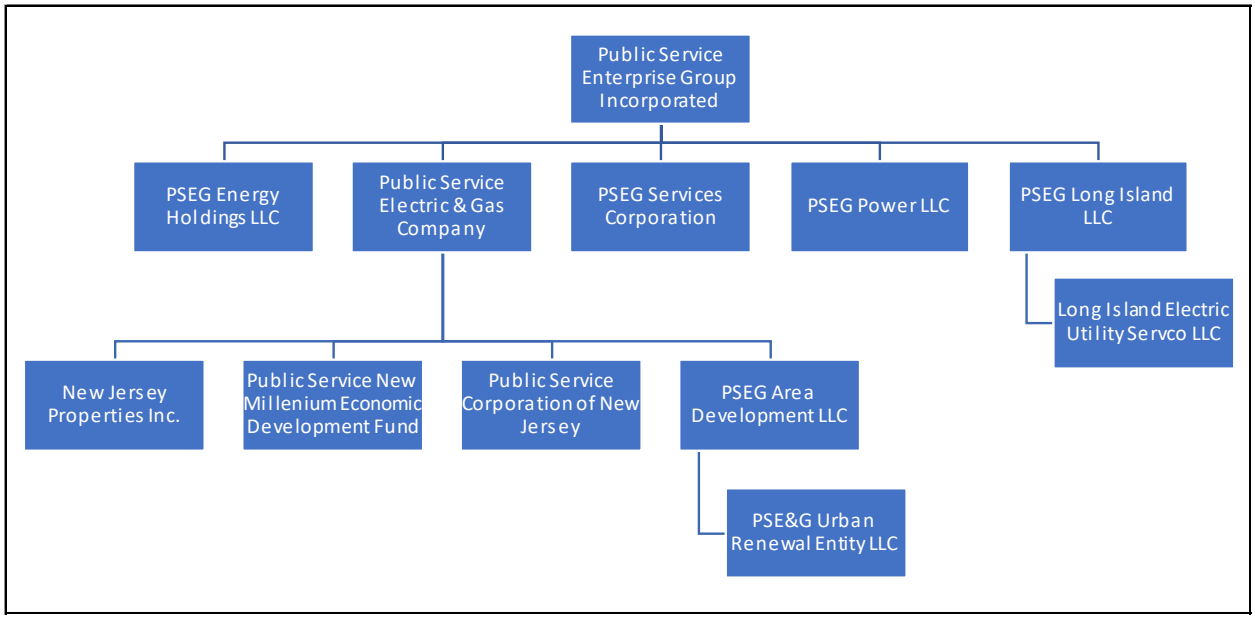
Summary of Findings

1. PSEG's organization has remained consistent over the audit period. PSEG LI was originally created as a subsidiary of PSEG Energy Holdings, but became a direct subsidiary of PSEG Enterprise Group in 2013.
2. PSEG subsidiary staffing levels has been constant for the past few years, except for some recent transfers of employees from operating companies to PSEG Services.
3. A number of management positions at PSEG LI were reorganized in 2022 in connection with the revised Operating Services Agreement, strengthening the direct reporting relationships within PSEG LI.
4. Executive management positions have changed due to corporate reorganizations, leading to the appointment of Kim Hanemann as the Chief Operating Officer and top executive for the PSE&G utility. Ms. Hanemann was internally promoted and has been with the utility for many years.
5. PSEG has recently announced the retirement of Ralph Izzo, its Chairman, President and CEO, and the appointment of Ralph LaRossa as his successor, with approval of PSEG's board.
6. PSE&G appears to have an appropriate weighting in PSEG Enterprise's balanced scorecard metrics, which are a component of the Company's executive and incentive compensation programs.

Legal Organization

Public Service Enterprise Group (PSEG) is the holding company for the regulated utility Public Service Electric & Gas Company (PSE&G) and several other operating subsidiaries, including a centralized service organization and power generation company. The legal entity organization structure is shown on the following chart.

Chart 11-1 – Public Service Enterprise Group Legal Organization (including PSE&G Subsidiaries)[1]



The primary business purpose of each principal PSEG Enterprise subsidiary is as follows:

- PSEG Power (Power) – Power is a multi-regional energy supply company that in 2020 provided wholesale electric power produced by electric generating plants it owns in various states, primarily in the Northeast and Mid-Atlantic regions. At the end of 2020 Power owned approximately 11,200 megawatts of nuclear, coal, gas and fuel oil generating capacity. Power is regulated by the Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission (NRC). In February 2022 PSEG sold its Fossil business unit, consisting of 13 natural gas-fired power plants, to ArcLight Capital for approximately $2 billion. Power's generation fleet currently consists of PSEG Nuclear, which operates two nuclear plants (Salem and Hope Creek), and partial ownership of the Peach Bottom generating station in Pennsylvania.
- Public Service Electric and Gas – PSE&G is a transmission and distribution utility providing retail electricity and natural gas to about 70% of New Jersey's population. It has approximately 2.3 million electric and 1.9 million gas customers and is regulated primarily by the New Jersey Board of Public utilities (NJBPU).
- PSEG Energy Holdings (Energy Holdings) – Through its primary subsidiaries Energy Holdings holds investments in domestic leveraged leases, in which it holds an equity interest. Energy Holdings also holds investments in offshore wind ventures.
- PSEG Services Corp (PSEG Services) – PSEG Services is a centralized service company that provides corporate management and administrative services shared by all subsidiaries, but principally by PSE&G, Power and PSEG LI. As a service company, Services is structured to charge

[1] Response to OC-0013, "Enterprise Org Chart 2015 01 01" and "PSE&G Org Chart 07 25."

its services to the subsidiaries it serves based on fully distributed cost (FDC). PSEG Services and its charges to the affiliates it serves are covered extensively in Chapter 3.

- PSEG Long Island (PSEG LI) – PSEG LI is a holding company existing to manage and operate the electric utility on New York's Long Island owned by the Long Island Power Authority (LIPA). The relationship between PSEG LI and LIPA is governed primarily by an Operations Services Agreement (OSA), which was recently amended. PSEG LI was formed on August 18, 2011 under PSEG Energy Holdings L.L.C. and then it was transferred under PSEG on December 31, 2013.

Organizational Staffing

PSEG is comprised of four principal operating subsidiaries. The employee headcount for these subsidiaries and their sub-units is summarized in the table below.

Table 11-1 – Employee Headcount by Subsidiary

Employee Headcount by Subsidiary				
Company	Employee Headcount			
	EoY 2018	EoY 2019	EoY 2020	6/30/2021
Long Island Electric Util	2,396	2,490	2,531	2,474
PSEG Long Island LLC	13	12	14	14
PSEG Long Island Total	**2,409**	**2,502**	**2,545**	**2,488**
PSEG Energy Res and Trade	1	1	1	1
PSEG Keys Energy Center LLC	29	28	29	26
PSEG Nuclear LLC	2	2	2	2
PSEG Power	1,934	1,856	1,628	1,555
PSEG Power Connecticut LLC	105	100	93	76
PSEG Power New York Inc.	49	44	42	40
PSEG US Services	2	2	2	2
PSEG Power Total	**2,122**	**2,033**	**1,797**	**1,702**
Delivery Company	6,600	6,424	6,360	6,458
Transmission Company	718	706	689	675
PSE&G Total	**7,318**	**7,130**	**7,049**	**7,133**
Internal Services	1296	1327	1397	1407
PSEG Services Total	**1296**	**1327**	**1397**	**1407**
PSEG Enterprise Corp. Total	**13,145**	**12,992**	**12,788**	**12,730**
Response to OC-940.				

Changes in operating subsidiary headcount during our review period are summarized as follows:

- Power – Corporate restructurings resulted in headcount reductions of 20% between the end of 2018 and mid-20021. Power's Nuclear Security and Laboratory Testing Services functions were transferred to PSEG Services during this period. The sale of the Company's fossil assets further

reduced headcount from the figures shown above. Approximately 375 employees were transferred to the buyer or terminated, while 125 employees moved to positions within PSE&G.[2]

- PSE&G - PSE&G's employment declined by 2 ½ percent between the end of 2018 and mid-2021. Much of this was due to attrition in the meter reading function as PSE&G installed meters with Encode-Receive-Transmit (ERT) technology, which converted manual reading routes to walk-by or drive-by routes. Meter reading attrition is continuing with the implementation of Advanced Metering Infrastructure (AMI), which began in the spring of 2021 and is expected to be completed in 2024.
- PSEG LI –Long Island's headcount during the review period was stable and there were no major internal reorganizations. The net change in headcount is due to a new "AMI Deployment" department created in 2019, which had 78 employees by mid-2021. As with PSE&G, deployment of AMI in Long Island should create force reductions in employment over time, primarily as a result of attrition in the meter reading function.
- PSEG Services – Headcount for PSEG Services increased approximately 20% during 2018 due to the transfer of Power's 270-employee Nuclear Security department from Power. Additional headcount increases through mid-2021 resulted from the insourcing of computer applications and desktop management activities that had previously been performed by a contractor. PSEG Services staffing are discussed further in Chapter 3.

Some organizational restructurings within the PSEG LI subsidiary occurred in 2022 in connection with the implementation of the revised Operations Services Agreement ("OSA") with LIPA. Certain management positions became full-time PSEG LI positions and reporting lines were changed to provide more direct oversight of PSEG LI operations to the subsidiary's executive management team. Positions that were required to be filled by fully dedicated PSEG LI employees include:[3]

- Managing Director and Vice President – Legal
- Director – Strategy & Planning
- Managing Director and Chief Information Officer
- Chief Information Security Officer
- Director – Human Resources

With ultimate responsibility for meeting performance standards, PSEG retains influence and "dotted-line" relationships with counterparts at PSEG LI.

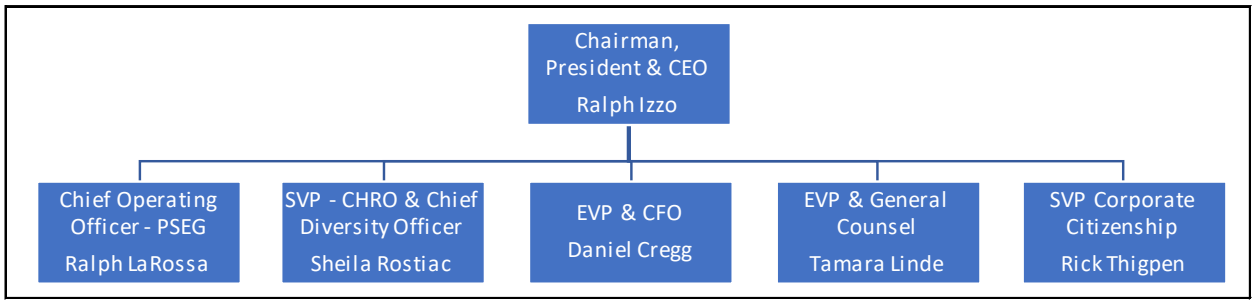
[2] Response to OC-1089.

[3] *Second Amended and Restated Operations Services Agreement*, December 15, 2021, Appendix 4.2(D)(1).

Executive Management Organization

PSEG is led by Ralph Izzo, Chairman, President & CEO. His direct reports are organized by function, not by operating subsidiary, as shown below.

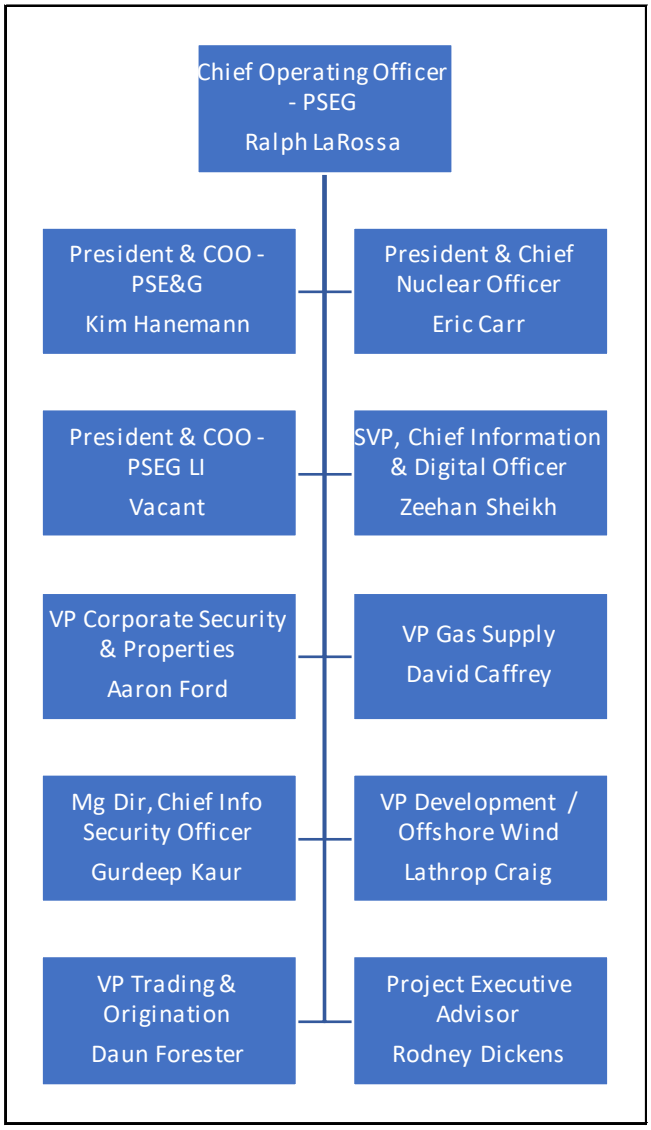
Chart 11-2 – PSEG Chairman, President & CEO Reporting Organization[4]



The executive management team are employees of PSEG Services, as they support all operating subsidiaries in their respective functional areas. The highest ranking executive of the PSE&G utility reports through Ralph LaRossa, the PSEG COO, rather than to the Chairman & CEO. Mr. LaRossa has a substantial number of direct reports involving multiple operating subsidiaries, as shown below.

[4] Response to OC-1817.

Chart 11-3 – PSEG Chief Operating Officer Reporting Organization[5]



Kim Hanemann, the President & COO of PSE&G is the highest ranking executive with exclusive oversight of the regulated utility. She was promoted to the position on June 30, 2021 upon the departure of David Daly. Mr. Daly also reported to PSEG Chief Operating Officer Ralph LaRossa, but prior to 2019 had reported directly to the PSEG President, CEO and Chairman, Ralph Izzo.

Mr. LaRossa was promoted to the PSEG COO position in 2018, having previously served as the President & COO of PSEG Power. In his current role, he directs operating functions in the PSE&G utility, PSEG Power and elements of PSEG Services. As a result, Mr. LaRossa oversees both the PSE&G's power procurement function and the PSEG Power supply function. The Company has implemented controls

[5] Response to OC-1817.

over the separation of PSEG Power and PSE&G's respective operations, which are more fully described in Chapters 2 and 6.

The Company has recently announced the Mr. Izzo's retirement and the appointment of Mr. LaRossa as PSEG's President and CEO. It is anticipated that Ms. Hanemann role as PSE&G President & COO will not change, and she will continue to report directly to Mr. LaRossa.[6] This represents an enhancement to the visibility of the utility within the corporate organizational structure. Furthermore, Ms. Hanemann and John Latka, PSE&G's SVP of Electric Transmission & Distribution, are members of PSEG's Executive Officer group.

Performance Measurements

Balanced scorecards are maintained on a monthly basis for PSE&G, PSEG Power and PSEG Enterprise. The scorecards include performance targets that form the basis of incentive compensation criteria for senior executive management. PSE&G is well represented in the Enterprise scorecard metrics, which makes the utility's performance critical to the overall achievement of corporate-level targets. A summary of the Enterprise scorecard is shown below.

Table 11-2 – PSEG Enterprise Scorecard Summary

Public Service Enterprise Group
Balanced Scorecard
April 2021

Category	Scorecard Metrics		PSE&G Relevant
	PSE&G	Total	
People	2	3	67%
Safe, Reliable	8	16	50%
Economic	2	6	33%
Green	5	6	83%
Total	**17**	**31**	**55%**

Response to OC-304 Supplemental.

In addition to those metrics directly measured for PSE&G, the utility's performance in other KPI's that are measured at the consolidated level, such as cash generation, shareholder return, and SOX deficiency rates, heavily influence the results.

In summary, the performance of the utility appears to be properly aligned with the overall assessment of the performance at the consolidated holding company level.

[6] Interview of Kim Hanemann on July 26, 2022.

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12. EXECUTIVE MANAGEMENT AND CORPORATE GOVERNANCE

Introduction and Overview

This chapter addresses the leadership structure employed during the audit period by PSEG in overseeing the management of its corporate and PSE&G operations, including the board of directors and senior executives. In addition, board and executive compensation is discussed as well as Sarbanes-Oxley compliance.

Summary of Findings

1. PSEG's board of directors consists of ten members, an increase of one member from when the last BPU management audit was conducted. Nine members are independent. The average tenure of the board in April 2021 was 7.8 years. Both the size of PSEG's board and its tenure are consistent with peer companies. However, the average tenure will decrease significantly over the next few years with the departure of the chairman, lead director, and one other long-serving member.
2. PSEG announced that Ralph Izzo, Chairman, CEO and President of PSEG will be retiring at the end of 2022.
3. The PSEG board of directors has a diverse set of skills as documented in its proxy statement. Corporate governance trends also indicate that PSEG maintains a percentage of female directors that falls within a range that many companies have recently adopted.
4. Rather than impose term limits, the PSEG board has a mandatory retirement age of 75. Based on our analysis, there is no accepted practice as it relates to term limits or mandatory retirement ages. However, PSEG's current approach gives it the flexibility to retain experience while occasionally mixing in a new member with a fresh perspective.
5. Currently, PSEG has consolidated the roles and responsibilities of Chairman of the Board, CEO, and President with one person. An independent Lead Director complements this leadership structure. There is no consensus among large companies or utilities as it relates to the consolidation or separation of the duties and responsibilities of chairman of the board and CEO positions.
6. The PSEG board of directors has five standing committees: the Audit Committee, the Corporate Governance Committee, the Organization and Compensation Committee, the Finance Committee, and the Industrial Operations Committee. The board also has an Executive Committee that may exercise all authority of the board when the board is not in session. The first three committees are required by New York Stock Exchange rules. The total number of standing committees is consistent with those of other companies we reviewed, and independence requirements established by the NYSE for committee membership have been met by PSEG.

7. PSEG has no formal board committee rotation policy, but chairs of committees have an expected term to serve of four years with the possibility of one additional year. We noted several instances of board members serving on one committee for ten or more years.
8. PSEG board members receive an annual cash retainer, restricted stock units, and extra compensation for being members of committees and holding leadership positions on the board as well as its committees. Board members are required to accumulate six times their annual retainer amount in PSEG common stock (inclusive of their restricted stock units), which is more than most companies require. While a three-year old study by the board's independent compensation expert found that the PSEG board was compensated slightly in excess of a peer group's 75th percentile, a recognized proxy advisor (Glass Lewis) found that the non-employee director compensation for PSEG was not significantly higher than a peer group in 2021.
9. PSEG board members serving on the Executive Committee, which did not meet from 2014 to mid-2021, are paid the same additional amount of compensation as those serving on the frequently called upon Audit and Organization and Compensation Committees.
10. Board members are provided electronic, preparatory information for meetings approximately a week before they are held. Members also reported having ready access to management on a scheduled and as-needed basis. Based solely on the information we were provided, including descriptions of redacted documents, it appears that the board is given the necessary data to provide informed oversight with respect to corporate matters.
11. The PSE&G utility board of directors is a subset of the PSEG board and currently consists of three independent directors and one non-independent director. This board complies with New Jersey requirements concerning residency / location of work as well as separation of responsibilities with affected affiliates. The PSE&G board meets concurrently with the PSEG board, which is a long-standing custom.
12. The 13-member Executive Officer Group is the senior leadership team that governs PSEG and its subsidiaries, meeting on a monthly basis.
13. PSEG executive compensation is designed to pay the median of peer total direct compensation (base salary + short-term incentive compensation + long-term incentive compensation) adjusted for performance and experience. The most senior executives have the most pay at risk.
14. Executive short-term cash and long-term equity incentive compensation is largely contingent on corporate performance associated with financial metrics. Recently, long-term incentive compensation has been modified to include performance associated with environmental, social, and governance matters.
15. PSEG is in compliance with Sarbanes Oxley and New York Stock Exchange rules and requirements. However, the transparency of some board documentation related to annual self-evaluation could be improved, and further evaluation would be beneficial.
16. PSEG did not adopt some of the prior audit recommendations concerning executive management and corporate governance, but to the extent the matters to be remediated are still relevant, Overland incorporated them into our following recommendations.

17. The General Counsel has effective processes in place to identify litigation risk and communicate such risks to executive management and the Board of Directors. Recent years of experience demonstrate that the office of the General Counsel has performed well in monitoring and mitigating PSEG's litigation exposure. Aside from the discussion of the LIPA and Passaic River matters addressed in the litigation section of this chapter, damages payments net of insurance reimbursements over the last few years have been immaterial.

Recommendations

12.1 We recommend that the PSEG board's Executive Committee members should be compensated by the number of meetings attended rather than by annual retainer at levels equal to that of the board's standing committees. A payment of $5,000 per meeting attended would more closely align with the actual workload of this as-needed committee than the status quo. If the board is concerned that this would unduly penalize Executive Committee members from a compensation standpoint, given the historical composition of the committee, it could make minor adjustments to Lead Director and committee chair annual retainer amounts.

12.2 We recommend that actual and targeted performance associated with compensable metrics used in the SMICP, MICP, and LTIP be proactively communicated to all participants throughout the performance year so that informed decisions concerning remedial action can be taken by all in a timely manner. If release of this information cannot be disseminated to the Company employees who have been identified as most crucial to the success of the organization, then different metrics that can be shared should be selected.

12.3 We recommend that the Organization and Compensation Committee require a certain level of accomplishment be achieved with respect to PSE&G safety, reliability, and customer satisfaction in order for pay-outs to be paid to executives under the short-term incentive compensation plans as currently designed. If these threshold levels of safety, reliability, and customer satisfaction are not achieved in a given year, then short-term incentive compensation earned by executives should be capped at 50 percent of target performance achievement irrespective of how the Company performs against other metrics such as financial, ESG, etc.

12.4 The destruction of PSEG materials, including those related to the board and the board committee self-evaluations, should conform with the Company's currently existing record retention policy and verifiable market standard practices.

12.5 The PSEG board of directors should retain a qualified expert on public company board and corporate governance matters to conduct a periodic independent assessment of the board's and its committees' effectiveness. At a minimum, the purpose of this assessment would be to identify areas of improvement, instances in which corporate governance best practices are not being followed by the board or its committees, and non-conformance with regulatory requirements. The third party should be retained by the PSEG board or one of its standing committees. The assessment should be conducted at least once every five years.

PSEG Board of Directors[1]

According to PSEG's by-laws, the number of members serving on its board of directors shall be no less than three and no more than sixteen. While the number of members has fluctuated from nine to twelve members since the last management audit was conducted in 2010 and 2011, the PSEG board at the time of our examination has ten members, nine of whom are considered independent pursuant to PSEG's Corporate Governance Principles.[2] In late February 2022, the PSEG board consisted of the following individuals:

Table 12-1 – PSEG Composition of Board Directors

PSEG Composition of Board of Directors			
Name	**Independent?**	**Year Joined the Board**	**Committee Assignments**
Ralph Izzo	No	2006	Exec
Shirley Ann Jackson	Yes	2001*	Corp Gov, Exec, Industrial Ops, Org & Comp
Willie A. Deese	Yes	2016	Audit, Corp Gov, Org & Comp
David Lilley	Yes	2009	Audit, Exec, Finance, Org & Comp
Barry H. Ostrowsky	Yes	2018	Audit, Finance, Org & Comp
Scott G. Stephenson	Yes	2020	Finance, Industrial Ops
Laura A. Sugg	Yes	2019	Audit, Industrial Ops
John P. Surma	Yes	2019	Corp Gov, Industrial Ops, Org & Comp
Susan Tomasky	Yes	2012	Audit, Corp Gov, Exec, Org & Comp
Alfred W. Zollar	Yes	2012	Audit, Finance, Industrial Ops
Source: PSEG 2021 Proxy Statement, pp. 7, 10-14. * Dr. Jackson also served on the PSEG board from 1987 to 1995.			

On April 19, 2022, PSEG announced that Ralph Izzo will retire from the company on December 31, 2022. Mr. Ralph LaRossa, current Chief Operating Officer, will succeed Mr. Izzo as CEO and President on September 1, 2022 with Mr. Izzo remaining as executive chair of the board at that time. Beginning on January 1, 2023, Mr. LaRossa will take on the additional responsibilities of chairman of the board.[3]

[1] As part of our audit of corporate governance, Overland interviewed six members of PSEG's board of directors, including the Chairman, the Lead Director, and the chairpersons of four of five standing committees. Consistent with the Company's Response to OC-0286, the Executive Committee is not considered a standing committee for purposes of this footnote although we interviewed the chairperson of this committee as well. The board members interviewed also accounted for all current members of the PSE&G board of directors.

[2] Response to OC-0288 and PSEG 2021 Proxy Statement, pages 10-14. On an annual basis, the PSEG Executive Vice President and General Counsel opines on the independence of PSEG board members based on criteria established by the board and contemporaneous answers to questionnaires submitted by each board member. Independence requirements are consistent with those established by the Securities and Exchange Commission and the New York Stock Exchange. This forms the basis for a recommendation made by the Corporate Governance Committee on each member's independence to the entire PSEG board (see February Corporate Governance Committee meeting materials provided in the Supplemental Response to OC-0271 (Restricted)). Ralph Izzo, President and CEO, is the only PSEG board member determined not to be independent.

[3] PSEG news release dated April 19, 2022.

Additional biographical information of the PSEG board members at the beginning of 2022 can be found in Attachment 12-1.

As of April 2021, the average tenure on the PSEG board was 7.8 years, and with the expected departures of Dr. Jackson in 2022 and Mr. Lilley in 2023 pursuant to the board's mandatory retirement age of 75 and the recently announced retirement of Mr. Izzo at the end of 2022, the average tenure on the PSEG board will decline significantly in upcoming years.[4]

For the purpose of benchmarking PSEG's board attributes and executive compensation, Overland selected a peer group of utilities providing both electric and gas services with similar numbers of customers and employees and comparable net plant balances and revenues.[5] Based on 2021 proxy statement disclosures, this utility company peer group had boards which ranged from ten to fourteen members with an average of 12 members.[6] In addition, the average tenure of these boards ranged from 5.9 years to 9.1 years. In data summarized by the EY Center for Board Matters as of December 31, 2021, the average tenure of board members serving S&P 500 companies was 9 years.[7] Given these results, in our opinion, the size and tenure of the PSEG board of directors in early 2021 was consistent with other similar utilities and publicly-traded companies.

Board Member Selection and Composition

The PSEG board of directors has a long-standing process of identifying candidates it intends to nominate to the Company's shareholders for annual approval. The Corporate Governance Committee is given primary responsibility for vetting candidates and relies on one of two approaches to identifying these individuals – suggestions from current board members and/or recommendations from search firms.[8] Criteria considered in identifying candidates include the candidate's background, experience, past leadership positions, professional interests, diversity, and time available to devote to PSEG board duties among other things.[9] The Corporate Governance Committee also considers the skills that the board may want to strengthen among current members.[10] As of April 20, 2021, the members of the PSEG board of

[4] PSEG 2021 Proxy Statement, page 8, and Response to OC-1136.

[5] The peer group consists of Consolidated Edison, Inc.; Eversource Energy; Xcel Energy Inc.; Ameren Corporation; CMS Energy Corporation; DTE Energy Company; and WEC Energy Group, Inc. These same companies were identified by the Company as peers (along with others) in PSEG's most recent rate case for purposes of determining ROE and in assessing the reasonableness of executive compensation.

[6] In PSEG board member interviews, it was suggested that research indicates that the ideal size of a board of directors ranges from ten to thirteen members.

[7] "Corporate Governance by the Numbers" by EY Center for Board Matters (data is current through December 31, 2021).

[8] Informal telephone call with Company personnel on March 2, 2022. Third parties used by the PSEG board to identify potential candidates in recent years include Egon Zehnder and Steptoe & Johnson LLP (Response to OC-1038).

[9] There is an expectation that any new PSEG board member will serve for at least five years (see Response to OC-0286).

[10] Response to OC-0284 and Interviews of PSEG board members on February 14 and 15, 2022.

directors were identified by the Company and/or its board as having the following skills and qualifications:[11]

Table 12-2 – PSEG Skill Set and Qualifications of the Board of Directors

PSEG Skill Set and Qualifications of the Board of Directors										
Skills and Qualifications	**Izzo**	**Jackson**	**Deese**	**Lilley**	**Ostrowsky**	**Stephenson**	**Sugg**	**Surma**	**Tomasky**	**Zollar**
Accounting / Finance	x	x	x	x	x	x	x	x	x	x
Construction / Engineering / Manufacturing	x		x	x			x	x		
Corporate Governance	x	x	x	x	x	x	x	x	x	x
Customer Satisfaction & Sales				x	x	x		x		x
Environment / Science	x	x		x			x	x	x	
Government / Policy / Regulatory	x	x	x		x		x	x	x	
Human Capital Management	x	x	x	x	x	x	x	x	x	x
Industrial Operations	x	x	x	x			x	x	x	
Risk Management	x	x	x	x	x	x	x	x	x	x
Technology / Cyber Security	x	x	x			x	x		x	x
Source: PSEG 2021 Proxy Statement, p. 6.										

The last three members added to the PSEG board of directors as of February 2022 are Scott G. Stephenson, Laura A. Sugg, and John P. Surma.[12] Among the skills that PSEG has identified these three individuals as having are technology / cyber security (2 of the 3) and government / policy / and regulatory (2 of the 3). The former was identified by various board members as an area that requires particular attention in today's environment.[13] The latter takes on added importance as PSEG divests its non-nuclear generating fleet and focuses more attention on the regulated operations of PSE&G on a prospective basis.

Except for the CEO, there are no explicit limits on the number of public, private, or non-profit company boards on which a director may serve.[14] However, the CEO and each PSEG director must notify the Corporate Secretary of any invitations to serve on boards elsewhere, and the Corporate Governance Committee must approve in advance any other public company board participation. Likewise, PSEG board members must notify the PSEG Corporate Secretary if they resign or retire from an existing board membership.[15] In April 2021, the number of external public company boards on which PSEG board members served ranged from 0 to 3.[16] PSEG board members with the most outside commitments to

[11] This is inherently a subjective determination and one that we observed the Company/board and the board's own consultants did not always agree upon (see Response to OC-1733).

[12] Response to OC-0268.

[13] Interviews of PSEG board members on February 14 and 15, 2022.

[14] The CEO is limited to three public companies, including PSEG.

[15] PSEG Corporate Governance Principles (Amended and Restated as of September 21, 2021), page 4.

[16] PSEG 2021 Proxy Statement, pages 10-14.

other external public company boards are retired and theoretically have more time to devote to numerous entities.

As disclosed in the Company's 2021 proxy statement, the PSEG board of directors had three female members and three racially or ethnically diverse members. At that time, leadership of the board included a female Lead Director, two female committee chairpersons, and two racially or ethnically diverse chairpersons.[17] While there is no formalized minimum number of women or racially/ethnically diverse members that must serve on PSEG's board of directors at any given time, corporate governance trends cited by management in the Corporate Governance Committee's April 2020 meeting indicate that the percentage of women serving on the PSEG board is within a range that many companies have adopted in the past five years.[18] In addition, two major proxy advisory firms, ISS and Glass Lewis, both recommended that the slate of board members nominated by the PSEG board in early 2021 be elected by the Company's shareholders, a tacit approval of the level of diversity that was being proposed by the board.[19]

PSEG does not impose term limits on its board members. However, the PSEG Corporate Governance Principles state that directors who have never been an employee of PSEG or its subsidiaries may not serve as directors beyond the annual stockholders' meeting occurring in the calendar year following their 75th birthday.[20] As noted previously, one director serving on the board in early 2022 will be impacted by this mandatory retirement age requirement in April 2022, and another will be affected in April 2023.

There was no consensus in the Overland-selected peer group concerning board term limits or mandatory retirement age. One of the seven peers had a term limit of fifteen years with no mandatory retirement age. A second peer company had a term limit of fifteen years coupled with a mandatory retirement age of 72. Of the remaining five peer companies, two had mandatory retirement age requirements of 72, and three had mandatory age requirements of 75.[21]

Overland believes that the PSEG board should have the latitude to balance the experience and institutional knowledge that is gained from having members serve on the board for an extended period of time with the fresh perspectives that new board members can bring to the group. This is best accomplished by not setting strict term limits on board membership. However, to encourage occasional

[17] PSEG 2021 Proxy Statement, page 2.

[18] Interviews of PSEG board members on February 14 and 15, 2022 and the Corporate Governance Committee April 20, 2020 meeting materials, page 14 of 97, provided in the Supplemental Response to OC-0271 (Restricted).

[19] Corporate Governance Committee April 19, 2021 meeting materials, pages 33 and 66 of 99, provided in the Supplemental Response to OC-0271 (Restricted).

[20] Former CEOs of PSEG may not serve on the board after active employment unless otherwise determined by the board. Former non-CEO employees of PSEG may not serve on the board after active employment (see Response to OC-0286).

[21] In some cases, exceptions were made to grandfather current board members under previous rules or by imposing a different mandatory retirement age for former CEOs.

refreshment of the overall skill set of the board and to avoid complacency, a mandatory retirement age as currently employed is a reasonable balance.

PSEG Board Leadership

PSEG is currently headed by long-time Chairman of the Board, President and CEO Ralph Izzo. Mr. Izzo has held these positions since April 2007. Prior to that time, Mr. Izzo was President and COO of PSEG from October 2006 to April 2007 and President and COO of PSE&G from October 2003 to October 2006. He also is currently the Chairman of the PSEG board's Executive Committee and is on the boards of PSE&G, PSEG Power, Energy Holdings, and PSEG Services Corporation in addition to Bank of New York Mellon.[22]

To complement Mr. Izzo's overall leadership of PSEG, the Company has created the position of Lead Director that is filled by an independent director on an annual basis as designated by the non-management directors. Although annually designated, the expectation is that the Lead Director will serve in this capacity for a term of four years with the option of serving an additional year if he or she receives the majority vote of non-management directors. In February 2022, Dr. Shirley Ann Jackson was finishing her third year as Lead Director, although she will be retiring from the PSEG board in April 2022.[23]

Among the duties and responsibilities of the PSEG Lead Director are:[24]

- Presides at all meeting of the board at which the Chairman is not present, including all executive sessions of the independent directors,
- Serves as principal liaison on all board-level matters between the Chairman and the independent directors,
- Calls meetings of the independent directors when necessary or desirable,
- Consults with the Chairman on board agendas,
- Reviews information sent to the board and consults with the Chairman on the quality and timeliness of this information,
- Serves on the Executive Committee, and
- Receives from the Corporate Secretary to, or for consideration by, the independent directors.

[22] PSEG 2021 Proxy Statement, page 10.

[23] PSEG Corporate Governance Principles (Amended and Restated as of September 21, 2021), page 2; PSEG 2021 Proxy Statement, page 10; and Response to OC-0268. Aside from serving approximately 30 years on the PSEG board of directors, Dr. Jackson is also a former Chairperson of the U.S. Nuclear Regulatory Commission and current President of Rensselaer Polytechnic Institute.

[24] PSEG Corporate Governance Principles (Amended and Restated as of September 21, 2021), page 2.

The Corporate Governance Committee reviews the leadership structure regularly and has decided that the benefits of the current structure should be maintained.[25]

To determine the reasonableness of this leadership structure, Overland considered benchmarking data developed by the EY Center for Board Matters as well as the peer group identified by Overland which was previously mentioned. The EY Center for Board Matters considered a sub-set of the companies making up the S&P 500 and determined that slightly more than half have a separate Chairman and CEO and an identical percentage have an independent Lead Director.[26] The peer group of companies identified by Overland also had a mix of different leadership structures with 3 having one person holding both positions of Chairman of the Board and CEO and 4 having separate individuals holding these positions. However, in the case of the Overland peer group, a distinguishing characteristic between the two groups was that those choosing to separate the two positions had CEOs that were relatively new to the job. This was also cited in our interviews of PSEG board members as a reason why some companies choose to separate the Chairman and CEO titles among two different individuals.[27]

Given the lack of consensus regarding the leadership structure that should be employed, given Mr. Izzo's long and overall successful tenure executing the duties and responsibilities of the dual roles of Chairman and CEO, and given the make-up of the board (90 percent non-management) and its experienced independent leadership, we believe that combining the roles of PSEG Chairman and CEO is appropriate at the current time.

PSEG Board Committees

As of early 2022, the PSEG board of directors had five standing committees – the Audit Committee, the Corporate Governance Committee, the Finance Committee, the Industrial Operations Committee, and the Organization and Compensation Committee. The board also has an Executive Committee that may exercise all authority of the board when the board is not in session.[28] Details of each current PSEG board committee is summarized in the following table:

[25] Response to OC-0291.

[26] "Corporate Governance by the Numbers" by EY Center for Board Matters (data is current through December 31, 2021).

[27] Interviews of PSEG board members on February 14 and 15, 2022.

[28] Response to OC-0286. The only time this committee has met in recent years was on August 26, 2014 (attachment provided in Response to OC-0267).

Table 12-3 – PSEG Board of Directors' Committees

PSEG Board of Directors' Committees					
Committees	Minimum Size	Composition Requirement (if any)	Size in Feb 2022	Minimum No. of Meetings per Year	No. of Meetings in 2021
Audit	3	All Independent	6	4	8
Corporate Governance	3	All Independent	5	2	4
Finance	3	Majority Independent	4	3	4
Industrial Operations	3	Not Officers/Employees	5	3	4
Organization and Compensation	3	All Independent	6	2	6
Executive	3	Chair + Lead + One	4	N.A.	0
Sources: Various committee charters; PSEG Corporate Governance Principles; April 19, 2021 Corporate Governance Committee meeting materials (p. 27 of 99) provided in Supplemental Response to OC-0271 (Restricted); and Response to OC-1673.					

New York Stock Exchange rules require that listed companies have Audit, Compensation, and Nominating and Governance Committees comprised of independent directors (Sections 303A.04, 303A.05, and 303A.07). The creation of the other committees is left to the discretion of the board. According to several PSEG board members, the existence of a Finance Committee is common on other boards on which they have or currently serve.[29] The seven-company peer group chosen by Overland had the following number of standing committees: 1) four 12-10 companies had five standing committees, 2) two companies had six standing committees, and 3) one company had four standing committees. The Industrial Operations Committee is a relatively new committee which replaced the Fossil Generation Operations Oversight Committee and the Nuclear Generation Operations Oversight Committee in 2020 and further expanded these prior committees' responsibilities to include oversight of electric and natural gas transmission and distribution to coincide with PSEG's prospective focus on regulated utility operations, renewables generation, and energy trading. In addition, this new committee assumed primary oversight of cybersecurity matters.[30]

From January 1, 2011 to November 14, 2021, neither the PSEG board of directors nor its committees had any ad hoc committees. On November 15, 2021, an ad hoc committee consisting of four board members convened to discuss succession planning. Over the next five to six months, this committee met an additional six times.[31]

Committee assignments are reviewed and recommended by the Corporate Governance Committee to the entire PSEG board for approval. As noted previously, the membership of the Audit, Corporate

[29] Interviews of PSEG board members on February 14 and 15, 2022.

[30] February 18, 2020 Corporate Governance Committee meeting materials (page 112 of 141), April 20, 2020 Corporate Governance Committee meeting materials (page 25 of 97) provided in the Supplemental Response to OC-0271 (Restricted), and Response to OC-0538.

[31] Responses to OC-0267, 1761, and 1811 (Restricted).

Governance, and Organization and Compensation Committees is limited to only those members who are determined to be independent. Other committees have different restrictions as summarized in Table 12-3 above. There are no minimum number or maximum number of committees that a particular PSEG board member can be assigned at one time.[32] However, no PSEG board members can be assigned to the PSEG Audit Committee if that member is already a member of three or more other public company audit committees unless the PSEG board makes an explicit exception.[33] As of February 2022, no non-management PSEG board member was assigned to more than four committees or fewer than two (see Table 12-1 above). While no formal rotation of PSEG committees has been adopted, each committee chair is expected to serve four years and may be appointed for an additional year if approved by the majority of independent directors.[34]

PSEG has several instances in which a board member has served on the same committee for at least ten consecutive years.[35] While we believe that more frequent turnover in committees should be required to promote the refreshment of perspectives and skills, mandating such committee member rotation does not seem to have been adopted by its peers and is not required by the SEC or the NYSE. However, to address this concern and others that will be discussed later in this chapter, we believe the PSEG and PSE&G boards would benefit from a more focused, independent external assessment of board operations and performance that occurs on a more frequent basis than is possible under the current New Jersey BPU management audit cycle.

PSEG Board Compensation[36]

PSEG board member compensation consists of a cash retainer, restricted stock units, and expense reimbursement for attending board and committee meetings and related functions.[37] As of April 2021, the cash retainer was based on the following schedule for non-management directors:

[32] Interviews of PSEG board members on February 14 and 15, 2022.

[33] PSEG Corporate Governance Principles (Amended and Restated as of September 21, 2021), page 4.

[34] PSEG Corporate Governance Principles (Amended and Restated as of September 21, 2021), page 10. In practical terms, each committee assignment and committee chair appointment is done so on an annual basis.

[35] Response to OC-0269.

[36] The following discussion is limited to non-management directors only. Ralph Izzo, Chairman of the Board, is compensated as CEO and does not receive any additional pay for board membership.

[37] Response to OC-0293.

Table 12-4 – PSEG Non-Management Board Member Retainers

PSEG Non-Management Board Member Retainers	
Description	**Amount**
Board Member	$95,000
Lead Director	40,000
Committee Chair: Audit, Organization and Compensation	30,000
Committee Chair: Corporate Governance, Finance, Industrial Operations	25,000
Committee Member (A)	20,000
Source: PSEG 2021 Proxy Statement, p. 36.	
(A) Includes all standing committees and the Executive Committee.	

Assuming timely election is made, any portion of cash compensation can be deferred by non-management board members.

In addition to the cash portion of board compensation, which is determined from the preceding table, an annual equity grant of $135,000 is made to board members in restricted stock units. PSEG Corporate Governance Principles require that non-management board members hold six times their annual board member retainer ($95,000 x 6 = $570,000) in PSEG common stock, including restricted units, before they may sell any PSEG common stock.[38]

In 2020, total PSEG board member compensation ranged from $244,000 to $350,000 per member for those who served the entire year.[39]

To assess the competitiveness of PSEG's compensation of board members, the Corporate Governance Committee is advised by an independent compensation consultant, Compensation Advisory Partners (CAP), on a biennial basis. In the most recent analysis made available to Overland, CAP concluded that PSEG's total average director compensation slightly exceeded its peer group's 75th percentile although it attributed this to a perceived greater workload by PSEG directors compared to other companies. In addition, CAP also identified the setting of limits on director compensation as an emerging trend that should be considered along with a peer migration away from committee member compensation.[40]

A review of the peer group selected by Overland using more recent data indicates that all have adopted a board compensation structure that includes an annual retainer, equity compensation, and extra compensation for lead directors and chairs of board committees. Most, but not all, also provide

[38] Prior to 2019, the requirement was only five times (PSEG 2021 Proxy Statement, pages 36-37).

[39] Response to OC-0293.

[40] "Non-Employee Director Competitive Review" by CAP dated September 17, 2019, pages 3-7, provided in Response to OC-0294 (Confidential). CAP equates workload with average number of committees on which each member serves. For PSEG, this included two operational committees that CAP conceded operate as one combined committee and another committee that did not meet from 2014 to mid-2021 (Executive Committee). Coupled with the fact that no PSEG board member interviewed by Overland indicated that the board was short-staffed, we question whether the reasons cited by CAP adequately justify the above-average compensation of PSEG board members in past years.

additional compensation based on committee assignments, similar to PSEG. The least compensated board member of the peer group earned between $250,000 and $282,000 while the most highly compensated board member earned between $288,000 and $436,000. The most common stock ownership requirement for board members of these peer companies was 5 times the corresponding annual retainer.

In its review of PSEG 2021 proposals to shareholders, Glass Lewis found that the terms by which PSEG compensates its non-employee directors were reasonable and implicitly determined that total director compensation was not significantly higher than S&P 500 peers.[41]

While PSEG board member compensation several years ago may have exceeded the average peer company; the PSEG board's decision to not change the amounts paid for board membership, committee assignment, and chair appointments for PSEG directors from 2016 to 2021[42] has narrowed this differential. We also believe that the inclusion of a significant equity portion of compensation aligns the interests of directors with that of shareholders and, to a lesser extent, ratepayers over the long term.[43]

However, we do think CAP's observation that companies are placing less emphasis on committee compensation is particularly relevant as it relates to PSEG's rarely-employed Executive Committee.[44] Since the last management audit was conducted in 2010 and 2011, we are only aware of one meeting that the Executive Committee held in the interim until it met three times in the latter half of 2021 to discuss the impending retirement of the CEO and his successor.[45] Members of the Executive Committee have no special duties or responsibilities if the committee does not meet.[46]

We see no reasonable justification for compensating an Executive Committee member that gets called to act once every decade the same amount as an Audit Committee or an Organization and Compensation Committee member that attends from six to eight meetings in a given year. For a committee such as the Executive Committee that meets on an as-needed basis, we believe a more equitable manner to compensate its members is to pay them $5,000 for each meeting attended. While still admittedly based on committee activity, it is more closely aligned with actual workload than the status quo. If the board is concerned that this would unduly penalize Executive Committee members from a compensation standpoint, given the historical composition of the committee, it could make minor adjustments to Lead Director and committee chair annual retainer amounts.

[41] Glass Lewis Proxy Paper on PSEG dated March 19, 2021 provided in the Corporate Governance Committee materials for the April 19, 2021 meeting (Supplemental Response to OC-0271 (Restricted)).

[42] PSEG 2021 Proxy Statement, page 36.

[43] Actual earnings must be adequate for PSEG to raise capital at reasonable rates and in reasonable quantities.

[44] A similar argument could be made for differentiating the compensation of more time-intensive committees (Audit, Corporate Governance) from those that are less so (Finance). However, for purposes of this discussion, we have limited our comments to the most extreme case.

[45] Responses to OC-0267 and 1811 (Restricted).

[46] Interviews of PSEG board members on February 14 and 15, 2022.

PSEG Board Awareness and Access to Relevant Information

Approximately a week before the PSEG board of directors and its various committees meet, each member is notified via e-mail that information relevant to the upcoming meetings is available on the company's Diligent board management system. Members access the information with iPads or personal computers that the company provides to new members and periodically updates every four to five years. Information for all committees is made available to all board members whether they are a member of a particular committee or not. Besides financial information, content typically includes prior board or committee meeting minutes, upcoming management and/or third-party presentations, and resolutions to be considered. Members have the capability of looking at materials using Diligent for the upcoming meetings as well as those that have already occurred. Diligent has both "search" and "filtering" capabilities for terms and dates. Diligent has been in use by PSEG board members since 2012.[47]

In months that the board does not meet, management produces a Board Report that addresses many of the same subjects that are discussed in the typical board meeting. In addition, on an as-needed basis, Board Updates are produced between regularly scheduled board and board committee meetings which address emergent issues.[48]

In addition to interacting with management at board and board committee meetings, board members have access to management on an as-needed basis. The Lead Director and chairpersons of each committee typically communicate with applicable company personnel to discuss upcoming meeting topics and agendas. Prior to the COVID-19 pandemic, directors would visit company facilities such as generating plants and monitoring stations on a periodic basis and receive informational tours of the premises from company employees. On an occasional basis, board members meet informally with up-and-coming employees as a way of connecting with future leaders of the company.[49]

The PSEG board also makes a point to meet with outside experts to gain an understanding of issues that face the company. These presentations occur throughout the year and may be held during "lunch and learn" sessions on the days that board and board committee meetings are conducted as well as at the board's summer strategy session and formal board meetings. In the recent past, topics covered include cyber risk, investment stewardship, the PJM Independent Market Monitor, and renewable energy.[50]

[47] Response to OC-1040 and Interview of Michael Hyun, Deputy General Counsel and Corporate Secretary, and Rosie Pichardo, Assistant Corporate Secretary, on November 17, 2021. In some cases, information may not be made available until the Friday before board and committee meetings occur on the subsequent Monday and Tuesday.

[48] Response to OC-1473 (Restricted).

[49] Interview of Michael Hyun, Deputy General Counsel and Corporate Secretary, and Rosie Pichardo, Assistant Corporate Secretary, on November 17, 2021; Interviews of PSEG board members on February 14 and 15, 2022; and board meeting and committee meeting materials provided in Supplemental Responses to OC-0270 and 0271 (Restricted).

[50] Supplemental Response to OC-0281.

Based on the documents to which we were provided access along with a description of redacted materials covering a wide array of topics, PSEG board members appear to receive a comprehensive summary of relevant information on which they can rely to provide appropriate oversight of corporate matters.

Board Training

PSEG provides training to board members on a regular basis, as part of regularly scheduled board and committee meetings and in other scheduled events. New directors and new committee members receive in-house orientation sessions conducted by key members of management and the independent auditor. Topics include strategic planning, operations, ESG and climate change, and accounting and risk management issues, among others.[51]

The Board is provided internal presentations at its regularly scheduled meetings and related dinner events comprised of in-depth reviews on specific topics presented by management.[52] These include outside speakers, who have covered the following topics at recent meetings.

Table 12-5 – Board Training Subject Areas, 2018-2020[53]

Speaker(s)	Topic	Date
Lisa Sotto – Hunton Andrews Kurth LLP	Cybersecurity Governance	7/16/2018
Catherine Winner, VP and Head of Stewardship – Fundamental Equity at Goldman Sachs Asset Management Peter Reali, Senior Director – Responsible Investing at Nuveen, a TIAA Company	Proxy Governance	9/17/2018
Robert F. Willard, President and CEO – Institute of Nuclear Power Operations (INPO) Jeffrey J. Place, Executive VP – INPO	Annual INPO discussion	11/20/2018
Scott Aaronson, VP, Security and Preparedness – EEI	Cybersecurity with a focus on developments in our industry	7/15/2019
Michelle Edkins, Managing Director – BlackRock Danielle Sugarman, VP – BlackRock	Governance – Energy and Healthcare	9/16/2019
Linda Walsh, Deloitte Cyber Advisory Managing Director – Deloitte & Touche LLP	Trends and Developments Relating to Insider Threats	2/17/2020
Jeffrey J. Place, Executive VP, Industry Strategy – Institute of Nuclear Power Operations (INPO)	Annual INPO discussion	2/17/2020

[51] Response to OC-0314.
[52] Response to OC-0714.
[53] Response to OC-0715.

The Industrial Operations Committee of the board is provided additional overviews of operational areas of the business at its scheduled meetings. Recent topics have included gas T&D, the appliance service business, safety, nuclear generation, electric T&D, and customer operations.[54]

New directors are given tours of PSEG facilities as part of their orientation. In addition, the board periodically visits other sites within PSEG including the nuclear plant and other facilities as part of a scheduled meeting agenda. November board meetings have typically been held at the nuclear plant, where members visit the nuclear training simulator. Also, in June 2019, the board meeting was held at PSE&G's Utility Control Center. These visits have been curtailed in the last two years, as board meetings have been conducted virtually due to the pandemic.[55]

PSEG also conducts a strategic board retreat in early summer that addresses key business issues and possible strategic options and opportunities, with subject matter experts in various areas of the industry used as discussion leaders. The planning sessions provide the foundation for the Company's business plan development.[56]

As mentioned above, training offered to board members outside of scheduled meetings include "Lunch and Learn" sessions. Management uses surveys of the board members' areas of interest to identify topics of interest for these 45 – 60 minute presentations. The sessions have been generally well-attended (from 7-11 members)[57] and covered the following subject areas.

Table 12-6 – Board "Lunch and Learn" Sessions, 2019-2020[58]

Topic	Date of Presentation
Lower Passaic River Matter Briefing	April 2019
Renewables in NJ	July 2019
Energy Markets	September 2019
Transmission Planning	December 2019
Understanding Customer Bill	February 2020
Winter Readiness at Gas Operations	November 2020
Power Progress / Utility of the Future	December 2020

Lunch and Learns were paused for most of 2021 due to COVID-19, but were scheduled resume in late 2021 and 2022, with sessions on climate change, offshore wind and clean energy technology.[59]

[54] Response to OC-0714.
[55] Response to OC-0716.
[56] Response to OC-0453.
[57] Response to OC-1116.
[58] Response to OC-0453.
[59] Response to OC-1115.

Board members have also attended conferences and symposiums sponsored by external organizations, most recently the Deloitte Board Symposium and sessions sponsored by the G100 Network.[60]

PSE&G Board of Directors

The PSE&G board of directors is a sub-set of the PSEG board of directors. As of December 31, 2021 it consisted of four members who are identified in the following table. Mr. Ralph Izzo is Chairman and CEO of PSE&G:

Table 12-7 – PSE&G Composition of Board of Directors

PSE&G Composition of Board of Directors	
Name	**Year Joined the Board**
Ralph Izzo	2006
Shirley Ann Jackson	2013
David Lilley	2020
Susan Tomasky	2020
Sources: Response to OC-0268 and PSEG 2021 Proxy Statement, p. 10.	

While the selection of PSE&G board members from the universe of PSEG board members is not based on any criteria unique to the utility,[61] it is primarily driven by tenure on the PSEG board and by BPU regulations concerning utility holding company standards. New Jersey Administrative Code (N.J.A.C.) 14:4-4.6(a)(1) specifies that at least 40 percent of the electric or gas public utility's board of directors must satisfy separately the board of directors' independence qualification and board of directors' New Jersey qualification. The following table summarizes the status of each board member and how each, if applicable, satisfies the New Jersey qualification requirement:

[60] Response to OC-0714. According to their website, the G100 Network is an "executive peer-to-peer convening, learning, and development company." See https://g100network.com/ .

[61] Response to OC-1734.

Table 12-8 – PSE&G Restrictions on Board Participation

PSE&G Restrictions on Board Participation		
Name	**Indpendent?**	**New Jersey Residency, Employment, Other Significant Ties?**
Ralph Izzo	No	Residency, Employment
Shirley Ann Jackson	Yes	Residency
David Lilley	Yes	Residency
Susan Tomasky	Yes	No
Determination	3 of 4 = 75%	3 of 4 = 75%
Source: New Jersey Administrative Code (N.J.A.C.) 14:4.4 and response to OC-1732.		

N.J.A.C. 14:4-3 5(q)(1) separately imposes a restriction that holding company board members may serve on either the board of directors of the electric and/or gas public utility or the related competitive business segment of the public utility holding company (a.k.a. Affected Affiliates), but not both. PSE&G and its Affected Affiliates do not have common directors.[62]

According to the company, EDECA imposes no restrictions on the composition of the PSE&G board of directors.[63]

Independent PSE&G board members receive no additional compensation for serving on the utility board.[64]

PSE&G's board meetings typically occur concurrently with the PSEG board meetings as they have since the last management audit was conducted, but meeting minutes are kept separately for the two boards. Board members indicated that at any time during a given meeting, it is obvious which entity's business is being discussed.[65] In the future, we expect that utility matters will take on added importance in board meetings due to the recent sale of PSEG Power's non-nuclear assets that has shifted the balance of consolidated earnings increasingly to PSE&G.

[62] Response to OC-1732.
[63] Response to OC-1732.
[64] Response to OC-1762.
[65] Interviews of PSEG board members on February 14 and 15, 2022 and Supplemental Response to OC-0270 (Restricted).

The board of directors of PSE&G has no standing committees, and the one ad hoc committee identified by the company that was formed since the last management audit was one composed of management employees rather than board members.[66]

The PSE&G board must approve any capital spending that exceeds $100 million. This threshold has not changed in the past ten years.[67]

Executive Management

Composition and Frequency of Meetings

The senior leadership team at PSEG at the time of our review is comprised of a number of individuals known as the Executive Officers Group (EOG). Some, but not all, of these officers have various levels of input in approving the company's corporate policies (establish guiding philosophy, purpose, and strategy), practices (uniform standards for corporate processes and frameworks for implementing policies), and instructions (detailed directions to accomplish the requirements described in a practice).[68]

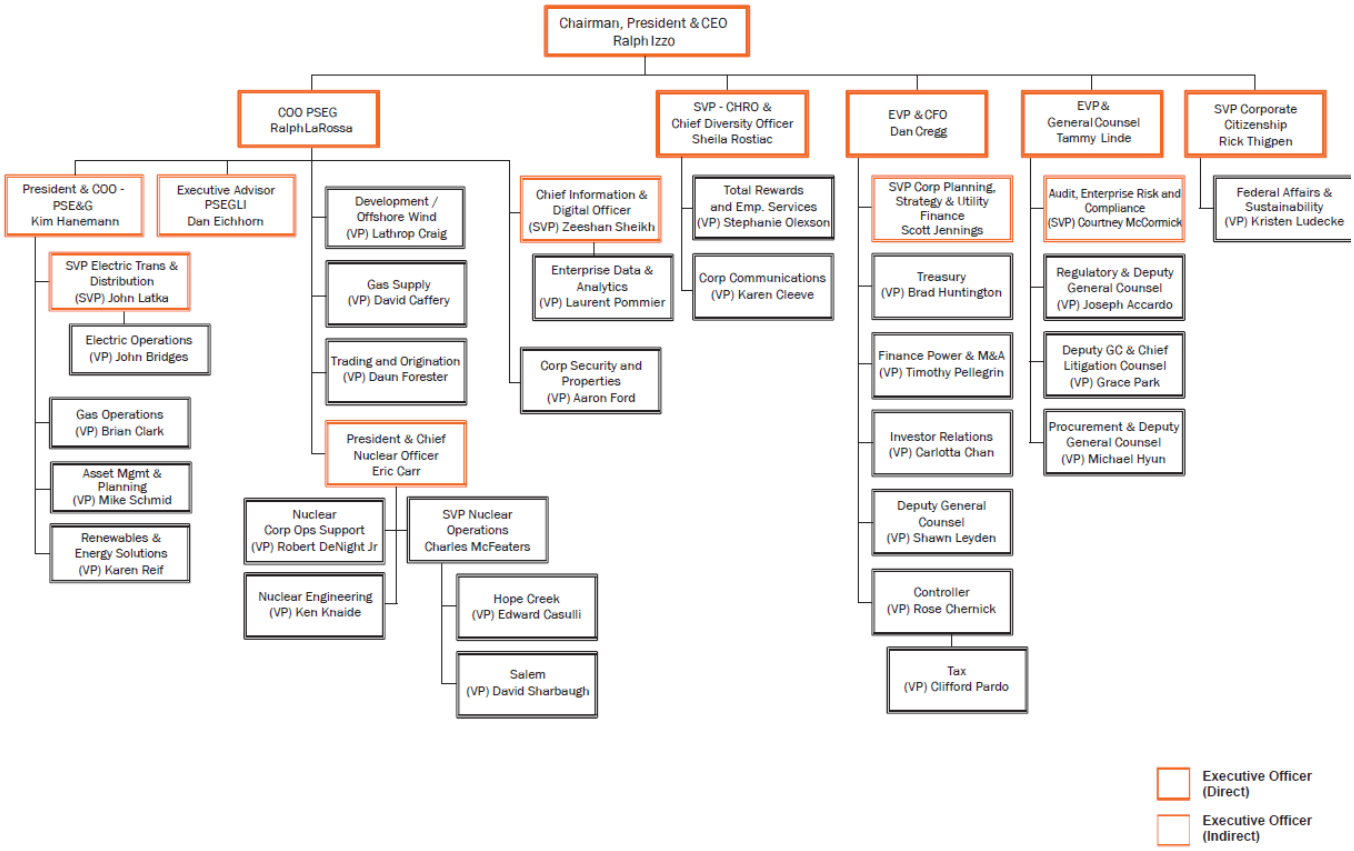
The officer organizational structure is depicted below. It includes both the EOG and other key personnel:

[66] Response to OC-0267 and informal discussions with company personnel on March 25, 2022. **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.

[67] Response to OC-0305, including supplements.

[68] Response to OC-0298, including attachments.

Table 12-9 – PSEG Officer Structure



The EOG consists of the following thirteen individuals (as of March 2022):[69]

- Ralph Izzo – Chairman of the Board, President and Chief Executive Officer
- Eric Carr – President and Chief Nuclear Officer
- Daniel J. Cregg – Executive Vice President and Chief Financial Officer, PSEG
- Daniel Eichhorn – President and Chief Operating Officer (COO), PSEG Long Island
- Kim C. Hanemann – President and COO, PSE&G
- Scott S. Jennings – Senior Vice President – Corporate Planning, Strategy and Utility Finance
- Ralph A. LaRossa – COO, PSEG and President and COO, PSEG Power
- John R. Latka – Senior Vice President – Electric Transmission & Distribution, PSE&G
- Tamara L. Linde – Executive Vice President and General Counsel, PSEG
- M. Courtney McCormick – Senior Vice President, Audit, Enterprise Risk and Compliance
- Sheila J. Rostiac – Senior Vice President Human Resources, Chief Human Resources Officer and Chief Diversity Officer

[69] Response to OC-1672.

- Zeeshan Sheikh – Senior Vice President – Chief Information and Digital Officer
- Richard T. Thigpen – Senior Vice President – Corporate Citizenship

Recent changes to the EOG include the additions of Ms. McCormick and Mr. Latka in the past year after assuming new roles with the company, a title change for Ms. Hannemann from Senior Vice President and COO, PSE&G to her current position, and the removals of David M. Daly (Executive Advisor), Shahid Malik (President, PSEG Energy Resources & Trade), and Brian J. Clark (Senior Vice President – Fossil Operations).[70]

The EOG meets monthly to address key issues (e.g., offshore wind transmission, political landscape, long-term business and financial plans, severe storms, etc.) and quarterly to address current and year-to-date earnings as well as any outstanding key issues.[71] As noted previously, with the recent sale of PSEG's non-nuclear generating assets, we would expect that PSE&G matters would take on added significance on a prospective basis given the utility's increasing proportion of consolidated earnings.

Executive Compensation[72]

The PSEG board's Organization and Compensation Committee is tasked with several duties and responsibilities, which include, but are not limited to:

- Reviewing, approving, and modifying the company's executive compensation policies, practices, and plans;
- Reviewing executive compensation levels and targets for consistency and alignment with the executive compensation policies, practices, and plans as well as the strategic and operating objectives of the company; and
- Making recommendations to the board with respect to executive compensation.

In almost all cases, Overland was not permitted to review any PSEG Organization and Compensation Committee materials. These included committee meeting minutes, committee preparatory and presentation materials, and associated committee resolutions. According to the company, this restriction was taken because "[c]ertain Organization and Compensation Committee materials including CEO succession materials and officer compensation and performance management are highly sensitive and are not provided outside of specific individuals within HR."[73]

[70] Response to OC-1672 and PSEG's corporate website.

[71] Response to OC-0313, including attachments (Restricted).

[72] There were two employees eligible for incentive compensation under an ER&T plan. Compensation under the ER&T plan is not addressed in our discussion given the limited number of executives affected (see Response to OC-1296 (Restricted)).

[73] Response to OC-0271. The one significant exception was that the company did provide information developed by its independent compensation consultant, CAP, on certain matters.

As summarized in its proxy statement, PSEG's executive compensation policy is designed to align executive pay with the successful execution of the company's strategic plans, the accomplishment of financial and operational goals, and the recognition of strong returns to PSEG's shareholders while balancing the interests of other stakeholders. Total direct compensation (base salary + short-term incentive compensation + long-term incentive compensation) of PSEG executives is targeted at the median of peer group compensation adjusted for experience and performance.[74]

The importance of total direct compensation can be seen in the following table which shows the composition of total compensation for PSEG's named executive officers:

[74] PSEG 2021 proxy statement, pages 41, 43-44, and Interview of executive incentive compensation panel on October 8, 2021.

Table 12-10 – PSEG Composition of Total Compensation of Named Executive Officers – 2020

PSEG Composition of Total Compensation of Named Executive Officers 2020	
Description	**Weighting**
Base Salary	14.2%
Short-Term Incentive Compensation (A)	16.4%
Long-Term Incentive Compensation (B)	54.4%
Total Direct Compensation	**85.0%**
Change in Pension Value and Non-Qualified Deferred Compensation Earnings	14.2%
Other Compensation (C)	0.8%
Total Compensation	**100.0%**

Source: Derived from data obtained from the PSEG 2021 Proxy Statement, p. 56.

Note 1: In 2020, the PSEG named executive officers included Ralph Izzo (Chairman of the Board, President & CEO), Daniel J. Cregg (EVP & CFO), Ralph A. LaRossa (COO), Tamara L. Linde (EVP & General Counsel), and David M. Daly (President, PSE&G).

Note 2: Although two of the named executive officers had changes in responsibility effective December 14, 2020, no adjustment was made to the underlying compensation amounts for purposes of this computation.

(A) Represents the amounts earned in 2020 under the Senior Management Incentive Compensation Plan that were paid in the following year.

(B) Represents the grant date fair value of awards under the Long-Term Incentive Plan.

(C) Includes employer matching contributions to the 401(k) plan and other perquisites that are dependent on the individual executive such as automobile-related expenses, physical examinations, home security expenses, limited personal entertainment, etc.

It is probable that less senior executives have different weightings of compensation than those included in the table above because the most senior executives have the most pay at risk. However, the other components of compensation, such as changes in pension value and other compensation, are either heavily dependent on macroeconomic input assumptions (e.g., discount rates, return on assets, etc.) or may not even be offered to some executives, so the focus of our analysis will be on the first three components of compensation listed in the preceding table.

Executive Compensation Design

As noted previously, the most senior executives of PSEG have the most pay at risk. This means that their total direct compensation is skewed more heavily towards short-term and long-term incentive pay[75] and away from base salary. This is demonstrated in the following tables. The first one shows the amount of short-term incentive compensation that different levels of executive management could earn in 2021 if targeted performance was achieved:

Table 12-11 – PSEG Short-Term Incentive Payout as a % of Base Salary if Targeted Performance is Achieved – 2021

[BEGIN CONFIDENTIAL]

PSEG Short-Term Incentive Payout as a % of Base Salary if Targeted Performance is Achieved 2021	
Selected Executives	**% of Base Salary**
Chairman, President & CEO of PSEG	140%
COO of PSEG	90%
EVPs	75%
President of PSE&G	75%
President & CNO of PSEG Power	
President of PSEG Services Corp	
President of ER&T	
SVPs	
President & COO of PSEG Long Islar	
VPs	
Response to OC-1296 (Restricted).	

[END CONFIDENTIAL]

Likewise, the Long-Term Incentive Plan (LTIP) has key attributes that increase the pay at risk for the most senior levels of PSEG management. The first is the amount of the targeted award which is a function of leadership potential, position scope, impact to the organization as well as talent retention needs.[76] In particular, the following table demonstrates the increased emphasis that LTIP targeted compensation has on the CEO compared to that of the other named executive officers:

[75] Along with outcomes over which they have less control.

[76] 2020 PSEG Long-Term Incentive Plan brochure provided as an attachment to the Response to OC-0299 (Restricted) page 3 of 14, and PSEG 2021 Proxy Statement, page 49.

Table 12-12 – PSEG Targeted LTIP Awards as a % of Base Salary – 2020

PSEG Targeted LTIP Awards as a % of Base Salary 2020			
Description	**Targeted LTIP Award**	**Base Salary**	**Targeted LTIP as a % of Base Salary**
Chairman, President & CEO of PSEG	$9,100,075	$1,421,400	640.2%
COO	2,400,064	787,000	305.0%
EVP & CFO	1,620,057	680,000	238.2%
President of PSE&G	1,360,018	600,000	226.7%
EVP & General Counsel	1,300,025	638,600	203.6%
Source: Derived from PSEG 2021 Proxy Statement, p. 41.			

The second is the relative weight assigned to performance shares units (subject to more variation) and restricted stock units (subject to less variation) for different levels of management.[77] See the following table:

Table 12-13 – PSEG LTIP Weightings Between Performance Shares Units and Restricted Stock Units

PSEG LTIP Weightings Between Peformance Shares Units and Restricted Stock Units 2020			
Description	**PSUs**	**RSUs**	**Total**
CEO and named executive officers	70%	30%	100%
Senior Vice Presidents and BU presidents	70%	30%	100%
Grades 31 and above including officers	60%	40%	100%
Select managers	0%	100%	100%
Source: 2020 PSEG Long-Term Incentive Plan brochure provided as an attachment to the response to OC-0299, p. 4 of 14 (Restricted). PSUs = Performance share units RSUs = Restricted stock units BU = Businsess unit			

In our experience, this approach to compensation design in which the most senior executives have the most pay at risk is common among investor-owned utilities. The Organization and Compensation

[77] Performance shares units are determined primarily by PSEG's relative performance against peers in total shareholder return and return on invested capital over a three-year period. On the other hand, restricted stock units vest with the passage of time.

Committee's independent compensation consultant also found the mix of PSEG's compensation consistent with its peer group as shown in the Table 12-14:

Table 12-14 – PSEG NEO Compensation Mix Comparison to Peers

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

In April 2021, two major proxy advisory firms (ISS and Glass Lewis) recommended that PSEG's "say on pay" proposal with respect to executive compensation be approved.[78]

Base Salary

Using benchmarking data obtained with the assistance of an independent compensation consultant, Pay Governance, for each executive position; PSEG generally targets the market median for each element of executive pay, including base salary. Coupled with a review of the annual merit increase in relation to the approved budget, the management-proposed compensation levels for executives are reviewed and approved by the Organization and Compensation Committee of the PSEG board of directors.[79]

[78] April 19, 2021 PSEG Corporate Governance Committee materials provided in the Supplemental Response to OC-0271, pages 34 and 78 of 99 (Restricted).

[79] Response to OC-1799 (Restricted). The review and approval of the CEO compensation is slightly different, but generally is designed to take into consideration market-based levels.

As noted previously, the company's focus on setting equitable executive pay is on total direct compensation rather than base salary. Table 12-14 above demonstrates that PSEG's base salary in relation to short-term and long-term incentive compensation is consistent with its peers for its named executive officers. In our comparison of PSEG's executive compensation with a peer group and other New Jersey utilities below (Table 12-16), we observed that PSEG's executives, to the extent information was available, were paid amounts that approximated those of its peers.

Short-Term Incentive Compensation

PSEG offers its officers, executives, and employees holding other important positions an opportunity to earn additional cash compensation based on the attainment of certain targeted annual performance. This compensation is provided under the terms of the Senior Management Incentive Compensation Plan (SMICP) and the Management Incentive Compensation Plan (MICP). During the years 2018 to 2021, the number of participants in the SMICP ranged from 14 to 17 employees while participation in the MICP ranged from 25 to 30 employees.[80] Participants in both plans are determined by the PSEG Board's Organization and Compensation Committee.[81] In practical terms, PSEG officers who are senior vice presidents or above are eligible for the SMICP. PSEG officers who are vice presidents and above and otherwise not eligible for the SMICP are eligible to participate in the MICP.[82]

The primary drivers in determining the amount of annual short-term incentive compensation earned by each executive are as follows:

1. The percentage of base salary that can be earned for targeted performance attainment by each executive,[83]
2. The slate of compensable metrics that are assigned to each executive, and
3. The relative performance for each compensable metric.

As already noted in the discussion of executive compensation design, the magnitude of short-term incentive compensation relative to base salary is dependent on the perceived contribution that each executive has to the attainment of specified metrics, especially those that are corporate in nature. For instance; the Chairman, CEO and President can earn 140% of his base salary if targeted performance is achieved in 2021. On the other hand, officers who are vice presidents in 2021 are only eligible to earn 45% or 50% of their base salary if targeted performance is achieved. Officers whose responsibilities fall

[80] Response to OC-1296 (Restricted).

[81] PSEG MICP dated January 1, 2016, page 6, and PSEG SMICP dated January 1, 2009, page 5, provided in Response to OC-0299 (Restricted).

[82] Response to OC-1290.

[83] The scorecard portion of the calculation also includes a component related to improved performance over prior year results.

within these two extremes are eligible to earn a percentage of their base salary that falls between 140% and 45% (see Table 12-11 above).[84]

Each executive is assigned a slate of compensable metrics which are primarily based on his or her scope of responsibilities. For the last four years, the compensable metrics assigned to different groups of executives was as follows:

Table 12-15 – PSEG SMICP and MICP Weightings for Selected Executives

[BEGIN CONFIDENTIAL]

PSEG
SMICP and MICP Weightings for Selected Executives
2018 - 2021

Description	Corporate Factor	Business Unit Financial	Business Unit or PSEG Scorecard	Strategic Goals	Total
Chairman, CEO and President	75%	0%	0%	25%	100%
COO - PSEG, EVP & CFO, EVP & General Couns	75%	0%	15%	10%	100%
President - PSE&G	60%	15%	15%	10%	100%
SVP & COO - PSE&G, SVPs, VPs - Business Uni	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Presidenti - PSEG Services	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
SVP of HR, SVP of Corporate Citizenship	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
SVPs and VPs - PSEG Services	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Grade 31 to 33: Power, PSE&G, PSEG LI Mgmt	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Grade 31 to 33: PSEG Services	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Grade 20 to 30: PSEG Services	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Grade 20 to 30: PSE&G	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Source: 2021 Annual Incentive Weightings Chart provided in Response to OC-0299 (Restricted) and Response to OC-1290.

[END CONFIDENTIAL]

The Corporate Factor referenced in the previous table is based on a targeted operating earnings per share amount for PSEG. Business Unit Financial metrics consist of operating earnings, EBITDA,[85] or other earnings-driven targeted achievement levels unique to each specific subsidiary that an employee is assigned. Scorecards have multiple factors, including an Economic classification which consists of additional financial performance metrics.[86] In short, financial performance metrics are the predominant measures that PSEG relies upon to reward most executives above Grade 30 on an annual basis through its SMICP and MICP. In addition, PSEG eliminates any incentive compensation payments under the SMICP if certain defined levels of net income are not achieved in a given year. However, the failure to

[84] In 2018 and 2019, the achievement of targeted performance would have earned the Chairman, CEO and President 125% of base salary. Likewise, some vice presidents would have only earned 40% of base salary in 2018 and 2019 if targeted performance was achieved (see Response to OC-1296 (Restricted)).

[85] Earnings before interest, taxes, depreciation, and amortization.

[86] Responses to OC-0299 (Restricted) and 0304.

achieve goals involving such matters as reliability, safety, or customer satisfaction do not trigger a similar restriction on executive short-term incentive compensation.[87]

The final primary input into the 12-29btaint of incentive compensation paid to executives under the SMICP and MICP is relative performance against pre-established targets for each metric.[88] Targets are designed to promote stretch performance. In most cases, the achievement of targeted performance results in a payout equal to those disclosed in Table 12-11 above.[89] If actual performance exceeds targeted levels, payouts can increase up to 200% of these amounts while less-than-targeted performance can result in payouts from 50% to 99% of these amounts as long as specified threshold levels are met. Anything below the threshold level earns an executive no incentive compensation for a particular metric.[90]

Other observations we have pursuant to our review of executive short-term incentive compensation include:[91]

- Executives have the same threshold, targeted, and maximum performance levels for each compensable metric as other non-bargaining employees.
- Since the beginning of 2018, management's independent compensation consultant, Pay Governance, and the board's independent consultant, CAP, have not disagreed on any particular aspect of PSEG executive compensation.
- The Organization and Compensation Committee has discretion to make individual officer and organization modifications. Although permitted, no discretionary adjustments have been proposed or approved since the beginning of 2018 that would result in a payout exceeding 2.0 of target for any MICP participant.
- Participants in the MICP are not voluntarily provided actual and targeted performance levels for certain compensable financial metrics. If requested, some (but not all) of the withheld financial information may be provided.[92]

[87] Response to OC-1291. While the same restriction is not imposed on MICP participants, the Company indicated that incentive compensation paid under the MICP could be discretionarily adjusted by the PSEG Board's Organization and Compensation Committee.

[88] As mentioned previously, the scorecard portion includes a comparison of current year performance vs. prior year performance. This aspect of the SMICP and MICP will not be a primary focus of our analysis.

[89] The one principal exception to this rule is that if all balanced scorecard metrics are achieved, this would result in a payout of 200% for one particular element of the scorecard portion of short-term incentive compensation (see the 2021 Performance Incentive Plan (PIP) Overview brochure, page 6 provided in Response to OC-1298 (Confidential)). The framework for the SMICP, MICP, and PIP is identical in most respects (see Response to OC-1290).

[90] BPU Audit Illustration, page 8, provided in Response to OC-1289 (Restricted).

[91] Responses to OC-1290 and 1291. In addition, the CAP Pay for Performance Review dated November 16, 2020, page 14, provided in Response to OC-0302 (Restricted).

[92] Officers are aware of the business plan, and once quarterly earnings are released and made public, MICP participants are invited to a financial briefing held by the CFFO at which time financial, business unit, and corporate goals are discussed.

- No triggering mechanism has been considered for executive incentive compensation payouts based on the achievement of non-financial performance since 2011.[93]
- PSEG CEO actual short-term incentive payouts as a percentage of target ranged from 97% to 139% from 2015 to 2019. That compares to a CAP-selected-peer-group benchmark of 127% to 149% over the same time period.

Long-Term Incentive Compensation

PSEG offers equity awards to employees who the PSEG Board's Organization and Compensation Committee deems worthy based on their roles, responsibilities, and present and potential contributions to PSEG or its subsidiaries as well as to retain talent.[94] This compensation is made pursuant to the terms of PSEG's Long-Term Incentive Plan (LTIP). For the years 2018 to 2021, the number of participants in the plan ranged from 231 to 265.[95] Ignoring ER&T employees, this includes all participants in the SMICP and MICP as well as directors and certain managers.[96]

As noted in Table 12-13 above, the LTIP consists of performance share units (PSUs) and restricted stock units (RSUs). Awards are determined by the PSEG Board's Organization and Compensation Committee. PSUs and RSUs both cliff vest after three years. PSUs are contingent upon the financial performance of PSEG over this three-year period while RSUs are solely contingent on the passage of time. In 2020, the two performance metrics that serve as the basis for PSU awards are total shareholder return and return on invested capital relative to a selected peer group of utilities. Each of these metrics is weighted 50%.[97]

The LTIP is designed to reward the most senior executives with a greater proportion of long-term incentive compensation in PSUs versus RSUs. The opposite is true for the most junior executives eligible for compensation under the LTIP. For instance, the most senior executives received award grants in 2020 that consisted of 70% PSUs and 30% RSUs. On the other hand, certain managers were awarded grants under the LTIP that consisted entirely of RSUs with no PSUs.

Beginning in 2022, the performance metrics for the LTIP are changing to reflect the company's transition to a predominately regulated business, its issuance of multi-year earnings guidance, and a growing emphasis on environmental, social and governance (ESG) leadership and commitment. In 2022, the performance metrics will include a relative ranking of total shareholder return with a peer group (40%), a relative ranking of return on invested capital with a peer group (20%), earnings per share growth (20%), and a multi-factor ESG index computation (20%).[98]

[93] Interview of executive incentive compensation panel on October 8, 2021.

[94] PSEG 2021 Proxy Statement, page 49, and the PSEG 2021 Long-Term Incentive Plan, pages 5 and 9, provided in the Supplemental Response to OC-0299 (Restricted).

[95] Response to OC-1303.

[96] Response to OC-1291.

[97] The PSEG LTIP brochure for the 2020 compensation plan year, page 3, provided in Response to OC-0299 (Restricted).

[98] Response to OC-1671.

The board's independent compensation consultant, CAP, found that all companies in its peer group use relative total shareholder return in their determination of long-term incentive compensation.[99] Overland has also observed in recent years that long-term incentive compensation is largely driven by financial performance at utility companies.

PSEG's Executive Compensation in Relation to Other Relevant Utilities

As previously noted, PSEG's executive compensation is designed so that its executives' total direct compensation (base salary + short-term incentive compensation + long-term incentive compensation) is consistent with the median of a peer group adjusted for experience and performance. Overland has developed its own peer group to determine the reasonableness of PSEG's executive compensation (see Footnote 14) and has also separately considered the compensation paid by other public utilities that operate in the state of New Jersey. This data is summarized in the following table:

Table 12-16 – PSEG Comparison of Total Executive Compensation – 2020

PSEG
Comparison of Total Executive Compensation
2020

Description	PSEG	Peer Group Mean	Peer Group Median	New Jersey Utilities Mean	New Jersey Utilities Median
Principal Executive Officer	$14,308,254	$13,405,156	$14,575,276	$7,560,833	$4,170,677
Principal Financial Officer	3,588,466	4,109,939	3,839,377	2,864,689	2,864,689
Chief Operating Officer / EVP of Operations	4,980,264	4,010,212	3,259,383	NM	NM
EVP / SVP & General Counsel	3,220,241	2,921,530	2,542,112	NM	NM
President of the Utility:	2,922,362	NM	NM	2,541,444	2,638,271

Sources: Derived from data in 2021 proxy statements.

NM = not meaningful

Peer Group consists of Ameren Corporation, CMS Energy Corporation, Consolidated Edison, DTE Energy Company, Eversource Energy, WEC Energy Group, and Xcel Energy

New Jersey Utilities consists of Exelon (ACE), FirstEnergy (JCP&L), NJ Resources (NJNG), and SJI (Elizabethtown & SJG). Consolidated Edison (REC) was excluded as it was included in the separate Peer Group.

Note 1: In almost all cases, data used to calculate means and medians was not available for all companies because of changes in executive responsiblities during the year for some companies or due to a particular position not rising to the level of being considered a named executive officer for other companies. If data for 2 or fewer Peer Group companies or 1 or fewer NJ Utilities was available, it was considered not meaningful.

[99] CAP Market Update Pay Trends dated July 20, 2020 provided in Response to OC-0302 (Restricted).

While every effort was made to compare the compensation of executives with similar responsibilities, differences in relative experience and seniority, relative performance and its effect on pay-for-performance, changes in executive responsibilities which limits the number of comparisons that can be made, and differences in the scope of the organization overseen all can impact compensation and skew the associated results. Especially as it relates to other New Jersey utilities, other than Consolidated Edison (which was only included in the Peer Group data and not the New Jersey Utilities data), none of the companies are comparable to PSEG either because they are significantly smaller (NJ Resources and SJI), significantly larger (Exelon), or solely focused on electric or gas (FirstEnergy, NJ Resources, and SJI). For all of these reasons, we believe that any conclusions drawn from the preceding table should be limited.

Conclusions Regarding PSEG's Executive Compensation

PSEG's executive compensation design is consistent with its utility peers in its offerings of base salary and short-term and long-term incentive compensation that assigns more pay at risk to its most senior executives. PSEG's philosophy of targeting executive pay at the median of its peers adjusted for experience and performance is also reasonable.

However, two aspects of its current incentive compensation approach raise certain concerns, the first being that a portion of participants in the MICP are not proactively provided targeted and actual data for some compensable financial metrics. This undermines the entire concept that they are being offered "incentive" compensation. Given the prominent weightings assigned to financial metrics, a case could be made that these employees are instead participating in a variable-pay, profit-sharing plan that will only pay out in meaningful amounts if the few informed (senior executives and the board) decide that corporate profits are sufficient to share with them.

The second concern was raised in the last management audit. PSEG's executive compensation continues to be designed in such a manner that management's interests are most closely aligned with those of shareholders due to the emphasis placed on financial goals over those such as safety, reliability, and customer satisfaction. While PSEG has taken recent steps to promote non-financial performance in its LTIP by including new metrics associated with environmental, social, and governance matters, it does not change the fact that both short-term and long-term incentive compensation is only slightly impacted by performance associated with ratepayer-focused metrics.

To address these concerns, Overland recommends that actual and targeted performance associated with compensable metrics used in the SMICP, MICP, and LTIP be proactively communicated to all participants throughout the performance year so that informed decisions concerning remedial action

can be taken by all in a timely manner.[100] If release of this information cannot be disseminated to the company employees who have been identified as most crucial to the success of organization, then different metrics that can be shared should be selected.

The prior audit recommendation which advocated increasing the emphasis on weightings assigned to rate-payer focused goals associated with short-term and long-term executive compensation of employees with utility responsibilities did not result in a meaningful change to the company's executive incentive compensation plans. While we continue to believe that this recommendation has merit, given that the board of directors and management have been reluctant to adopt this recommendation in the past and also have wide discretion in how they structure their compensation to employees, we propose a different solution to our concerns.

In its recently amended Operations Services Agreement with the Long Island Power Authority (LIPA), an affiliate of PSE&G (PSEG LI) agreed to caps on its variable compensation pool if certain "Gating Metrics" were not achieved. Two of those "Gating Metrics" involved minimum expectations related to reliability (SAIDI) and customer satisfaction. Failure to meet the SAIDI metric reduced the variable compensation pool by 50 percent, and failure to achieve the customer satisfaction metric reduced the variable compensation pool by 15 percent.

Consistent with the arm's length consideration of variable compensation under the LIPA Operations and Services Agreement, we recommend that the Organization and Compensation Committee require a certain level of accomplishment be achieved with respect to PSE&G safety, reliability, and customer satisfaction in order for pay-outs to be paid to executives under the short-term incentive compensation plans as currently designed. If these threshold levels of safety, reliability, and customer satisfaction are not achieved in a given year, then short-term incentive compensation earned by executives should be capped at 50 percent of target performance achievement irrespective of how the Company performs against other metrics such as financial, ESG, etc.

This would mean that if safety, reliability, and customer satisfaction metrics were not achieved in 2021; the Chairman, President, and CEO could not earn more than 70 percent of base salary under the SMICP, and eligible Vice Presidents could not earn more than 22.5 to 25 percent of base salary under the MICP.[101]

[100] If these particular plans are replaced in the future, it would apply to the new plans employed by PSEG and/or its subsidiaries.

[101] As noted previously, failure to meet certain financial metrics would eliminate all of the incentive compensation for some or all executives.

Sarbanes-Oxley (SOX) and NYSE Rule Compliance

As a result of several high-profile cases in the late 1990s and early 2000s involving corporate wrongdoing in which investors lost billions of dollars, the Sarbanes-Oxley Act (SOX) was enacted in 2002 to provide oversight over public company boards of directors, corporate management, and public accounting firms.

Since many of the SOX requirements do not directly affect PSE&G or its publicly-traded parent (PSEG), they will not be addressed in this report. Instead, our review will be focused on the key SOX requirements with which public company management and boards of directors must comply. In addition, other relevant New York Stock Exchange (NYSE) rules or SEC requirements are also addressed.

Certification of 10-Q and 10-K Reports by the "Principal Executive Officer" and "Principal Financial Officer" (SOX Section 302)

SOX requires that each quarterly (Form 10-Q) and annual (Form 10-K) financial report be certified by the principal executive and financial officers. The substance of these certifications addresses the following matters:

- the signing officer has reviewed the report;
- the officer is not aware of any false statement of a material fact or omission of a pertinent fact that cause such statements to be misleading;
- to the best of the officer's knowledge, the financial information in the report presents fairly, in all material respects, the financial condition and results of operations of the company;
- the signing officers are responsible for establishing and maintaining internal controls;
- the design of internal controls is such that material information regarding the company and its subsidiaries is made known to such officers by others;
- the signing officers have evaluated the effectiveness of the company's internal controls within 90 days of the report;
- the signing officers have presented their conclusions in the report about the effectiveness of the internal controls;
- the signing officers have disclosed to the company's auditors and the audit committee of the board of directors all significant deficiencies and material weaknesses in internal controls;
- the signing officers have disclosed to the company's auditors and the audit committee of the board of directors any fraud associated with management or employees who have significant roles in the company's internal controls; and
- the signing officers have indicated whether there were any significant changes in internal controls or factors that could significantly affect internal controls subsequent to the date of their evaluation.

The Controller's organization is responsible for conducting the Disclosure Committee meetings which summarize the information needed for the officers to knowledgeably and prudently provide their certifications.[102] A review of all PSEG and PSE&G 2021 Forms 10-Q and Form 10-K indicates that these certifications were included with each applicable filing, and no discrepancies were noted.

Management Assessment of Internal Controls (SOX Section 404)

SOX prescribes that each annual financial report (Form 10-K) contain an internal control report which states the responsibility of management to establish and maintain an adequate structure and procedures over internal controls related to financial reporting along with an assessment by management concerning the effectiveness of the associated internal control environment. In addition, the registered public accounting firm that issues the audit report for the company shall attest to the assessment made by management.

A review of PSEG's 2019, 2020, and 2021 Forms 10-K indicates that management assessed its internal controls over financial reporting to be effective and to provide reasonable assurance regarding the reliability of PSEG's financial reporting. Likewise, the company's external auditors (Deloitte & Touche LLP) opined that PSEG maintained, in all material respects, effective internal control over financial reporting.

External Auditor Independence

SOX imposes several restrictions on the interactions between company management and external auditors to enhance the actual or perceived independence of the auditors. These include:

Reporting of the External Auditor to the Audit Committee of the Board of Directors (Section 204)

SOX requires that the external auditor report on a timely basis certain matters directly to the Audit Committee of the company's board of directors. These matters include critical accounting policies and practices to be used, alternative treatment of financial information and disclosures permitted by generally accepted accounting principles (GAAP) and the treatment preferred by the external auditor, and important written communications between the auditor and management such as management letters and schedules of unadjusted differences.

Our review of meeting minutes of the PSEG board of directors' Audit Committee indicated that Deloitte & Touche LLP met regularly with the committee, frequently in executive session. Deloitte & Touche LLP had written reports and/or presentations that addressed all required disclosures and these communications appeared to follow a pre-determined schedule that occurred year after year.[103]

[102] Interview of Rose Chernick, Vice President and Controller, on August 27, 2021.

[103] Audit Committee meeting materials provided in Supplemental Response to OC-0271 (Restricted), particularly those scheduled in February each year.

Prohibition of Certain Services Performed by the External Auditor (Section 201)

To avoid situations which may create a conflict of interest, SOX deems it unlawful for an external auditor of a company to perform certain services contemporaneously for that same company which include, but are not limited to, bookkeeping services, financial information systems design and implementation, internal audit outsourcing services, etc.

In June 2021, PSEG identified a number of non-audit services performed by Deloitte & Touche LLP since January 1, 2018, most of which involved services related to income taxes. The fees paid for these tax services totaled approximately $0.5 million.[104] Tax services are not prohibited by SOX.

Other services provided by Deloitte & Touche LLP included advisory services concerning the lease standard implementation, interest netting, and benchmarking activities. For those activities that had been billed, the total was approximately $0.2 million.[105] None of these services are specifically prohibited by SOX.

Pre-Approval of Services Provided by the External Auditor by the Audit Committee (Section 202)

SOX requires that auditing and non-audit services be pre-approved by the Audit Committee with the exception that de minimus[106] non-audit services are permitted to be pre-approved by one or more delegated independent members of the Audit Committee if the action is presented to the full Audit Committee at the next scheduled meeting.

The PSEG Audit Committee Charter states that the committee or the Chair of the Committee must pre-approve the fees to be paid for all services provided by the independent auditor. While there is no stated limit to the amount that the Chair of the Committee can pre-approve, our discussions with board members indicated that the situation occurs infrequently (once or twice per year) and typically involves immaterial amounts of services.[107] Further discussion of this matter will occur later in this chapter where prior audit recommendations are addressed.

Mandatory Audit Partner Rotation (Section 203)

SOX mandates that the lead audit partner of the external auditor change every five years.

[104] Response to OC-0307 (Restricted). Some summing required.

[105] Response to OC-0307 (Restricted).

[106] *De minimus* is defined as an amount that is 5 percent or less of the total amount of revenues paid by the company to the external auditor during the fiscal year the nonaudit services were provided.

[107] Interviews of PSEG board members on February 14 and 15, 2022.

Presentations made by Deloitte & Touche LLP to the Audit Committee indicate that it is tracking the number of years that its Lead Client Service Partner has been assigned this role and plans to replace her in 2022 after she has served on the PSEG audit engagement for five years.[108]

Other Independence Standards (Section 103)

SOX also authorizes the Public Company Accounting Oversight Board (PCAOB) to establish independence standards and rules as it deems appropriate. Pursuant to this authority, the PCAOB developed Rule 3526 which addresses communications with the Audit Committee concerning auditor independence. This rule specifies that the external auditor must on an annual basis:

- Describe in writing to the Audit Committee all relationships between the auditor and the audit client that may reasonably thought to bear on independence; and
- Affirm to the Audit Committee that as of the date of the communication, the external auditor was independent.

A review of Deloitte & Touche LLP presentations made to the Audit Committee on an annual basis since the beginning of 2019 indicates that it discloses in writing any potential conflicts of interests and affirms its independence. The only matters raised by Deloitte and Touche LLP in any of these years was its hiring of a relative of a PSEG officer as an intern and its involvement in the calculation of a gain or loss on investment tax credit property. In the first case, the individual involved did not provide any services to PSEG. In the second case, the service is permissible under SOX and was pre-approved by the Audit Committee.[109]

Audit Committee Financial Expert (Section 407)

SOX requires that the Audit Committee disclose which of its members is a financial expert, and if it has none, the reasons for not having one. As summarized by the company, a person with the following attributes, is considered an audit committee financial expert:

- An understanding of GAAP and financial statements;
- The ability to assess the general application of GAAP in connection with accounting for estimates, accruals, and reserves;
- Experience preparing, auditing, analyzing, or evaluating financial statements similar to those of the company; or experience supervising one or more persons engaged in such activities;
- An understanding of internal control over financial reporting; and

[108] July 20, 2020 Audit Committee meeting materials provided in the Supplemental Response to OC-0271 (Restricted), page 97 of 206.

[109] February 18, 2019 Audit Committee meeting materials (page 292 of 491), February 17, 2020 Audit Committee meeting materials (page 271 of 508), and February 15, 2021 Audit Committee meeting materials (page 269 of 516) provided in Supplemental Response to OC-0271 (Restricted).

- An understanding of audit committee functions.

These attributes can be acquired in a number of ways, including:

- Education and experience as a principal financial officer, principal accounting officer, controller, public accountant, or auditor. Someone with experience in performing similar functions also qualifies;
- Experience actively supervising a principal financial officer, principal accounting officer, controller, public accountant, auditor, or person performing similar functions;
- Experience overseeing or assessing the performance of companies or public accountants with respect to preparation, auditing, or evaluation of financial statements; or
- Other relevant experience.

Pursuant to an opinion provided by the company's Executive Vice President and General Counsel, the PSEG Board concluded that David Lilley, Barry H. Ostrowsky, and Susan Tomasky met the requirements of an audit committee financial expert as of April 2021 and disclosed such in its 2021 proxy statement.[110]

Compliance with Other Relevant NYSE Rules

Board Member Independence

According to NYSE rules, a majority of directors and all audit committee, corporate governance / nominating committee, and compensation committee members must be independent (Sections 303A.01, 303A.04, 303A.05, and 303A.07). NYSE rules provide examples of various conflicts of interest that would indicate a particular director is not independent. These include, but are not limited to, recent employee-employer relationships between the director or his family and the company, director ties to the external auditor, and directors being employees of entities with significant business dealings with the company.

Similar to the opinion concerning audit committee financial experts that was mentioned previously, the company's Executive Vice President and General Counsel also opines on the independence of PSEG board members. In February 2021, this officer opined that all directors except Ralph Izzo met the requirements for independence.[111] Given that Mr. Izzo is not a member of PSEG's Audit, Corporate

[110] PSEG 2021 Proxy Statement, page 18, and February 16, 2021 Corporate Governance Committee meeting materials provided in Supplemental Response to OC-0271, pages 17-18, 22 (Restricted). Among other things, the opinion is based on answers to questionnaires that board members complete.

[111] February 16, 2021 Corporate Governance Committee meeting materials provided in Supplemental Response to OC-0271, page 15 (Restricted). The only related party disclosure made by the company in its April 2021 proxy statement concerning a PSEG board member involved Barry H. Ostrowsky, who is the President and CEO of RWJBarnabas Health (RWJBarnabas). In 2020, the company and its foundation donated $44,000 and $135,000, respectively, to the non-profit RWJBarnabas. PSEG Service Corporation paid an RWJBarnabas affiliate $376,000 for medical care, medical testing, and related services as part of a contractual relationship that has existed since 2013. PSE&G has also committed to invest $64.7 million in RWJBarnabas facilities as part of its ongoing Hospital Energy Efficiency Program (see PSEG 2021 Proxy Statement, page 32).

Governance, or Organization and Compensation Committees, PSEG complies with the NYSE rules concerning board member independence based on that determination.

Internal Audit Function

NSYE rules also call for listed companies to have an internal audit function (Section 303A.07).

PSEG maintains an Internal Audit Services group that conduct internal audits, Sarbanes-Oxley support activities, special control reviews, and continuous monitoring routines. It is made up of approximately 30 individuals who currently report to the Senior Vice President – Audit, Enterprise Risk and Compliance in the General Counsel organization. Prior to December 2021, the Internal Audit Services group was part of the CFO organization.[112] Further discussion of the Internal Audit Services group is included in the chapter concerning accounting matters.

Annual Performance Evaluation of Board and Committees

NYSE rules require the board of directors to perform a self-evaluation at least annually to determine whether it and its committees are functioning effectively (Section 303A.09).

PSEG's board complies with this requirement through the use of Nasdaq's EnGauge, a cloud-based platform, administered by the Office of the Corporate Secretary. In December each year, self-evaluation forms are distributed to members of the board via EnGauge. After responses are received back in the following month, Nasdaq compiles a self-evaluation report for the board and each of its committees. These reports include a comprehensive compilation of the scoring (most matters evaluated are ranked from 1 to 5) along with highlights of any notable scores. The reports are reviewed and discussed verbally by the board and its committees in executive session at the February regularly-scheduled meetings. Shortly thereafter, the directors' responses and related reports are destroyed. Besides a short acknowledgement that the topic was addressed in the February meeting minutes, the only written evidence that the process took place is aggregated scoring information that is retained by Nasdaq for one year.[113]

Whether designed this way or not, the entire process surrounding the board and board committee self-evaluation process lacks transparency from the perspective of a third party:

- Year-over-year changes in the scoring of individual matters are unknown;
- Historical scores identified as noteworthy are unknown;
- The range of scores for a particular matter is unknown;
- The basis for heat map classifications in the most recent year is unknown; and
- A summary of responses to the most recent year's open-ended questions is unknown.

[112] Responses to OC-0356, 0798, and 1138 as well as PSEG's corporate website.
[113] Supplemental Response to OC-0672 (Restricted) and Responses to OC-0275 (Restricted) and 0276 (Restricted).

Based on responses to our questions regarding this self-evaluation process during the audit, it was clear that company personnel did not always completely understand what information was and was not retained.[114]

It was represented to Overland during the audit that the board complies with the company's document retention policy.[115] PSEG Document Disposal Guidelines (PSEG Instruction 105-1-2) state "[d]o not destroy any records pertaining to an ongoing or reasonably anticipated investigation, legal action or proceeding, audit or program review, even if the retention period or disposition date specified for the records has already expired."[116] The only specific mention of board- and board committee-related materials in the company's Records Retention Schedule states that such documents should be retained for the "[l]ife of [the] [c]orporation."[117]

On a prospective basis, the destruction of PSEG materials, including those related to the board and the board committee self-evaluations, should conform with the company's currently existing record retention policy. Any changes to PSEG's document retention policy as they relate to documentation that would reasonably be anticipated to be reviewed in management audits conducted by the BPU should be communicated to the BPU prior to the documents' destruction so that a consensus between the two parties can be reached before retrieval of the information is no longer possible.

In addition, Overland believes that PSEG would benefit from a periodic independent assessment of the board's and its committees' effectiveness by a qualified expert on public company board and corporate governance matters. At a minimum, the purpose of this assessment would be to identify areas of improvement, instances in which corporate governance best practices are not being followed by the board and its committees, and non-conformance with regulatory requirements. A similar exercise is conducted on a periodic basis with respect to the company's internal audit function. The third party should be retained by the PSEG board or one of its standing committees. The assessment should be conducted at least once every five years.

Prior Audit Recommendations

In the last management audit, the auditor proposed six recommendations concerning executive management and corporate governance. Each of these recommendations is identified below with a short explanation concerning how the company addressed each:

1. *Overland recommends that PSEG Corporate Governance Committee and the entire Board consider board member nominees who possess accounting and/or regulated utility executive*

[114] Supplemental Response to OC-0672 (Restricted).
[115] Interviews of PSEG board members on February 14 and 15, 2022.
[116] "PSEG Document Disposal Guidelines (PSEG Instruction 105-1-2) provided in Response to OC-0860 (Confidential).
[117] "Records Retention Schedule" provided in Response to OC-0860 (Confidential).

experience when next adding to or replacing current members. We believe that the size of the board should be increased by one or two members to improve the diversity of expertise on the board to provide additional resources associated with Board responsibility.

At the time the last management audit was conducted, none of the PSEG board members was found to be a recent, practicing accountant or someone with a detailed understanding of utility regulation or the ratemaking process. Since that time, the PSEG board has added a member who has an educational background in accounting along with time spent as CFO (although not since 2003) along with a retired president of an electric utility holding company.[118] In addition, the PSEG board has expanded from nine members at the end of 2010 to ten members in early 2021.

While we would prefer that the company add more up-to-date accounting expertise to the board, especially since the only person with direct accounting experience does not even serve on the company's Audit Committee, we find that the company has taken steps to address the prior audit recommendation.

2. *The level of stock ownership required of Board members should be reviewed and brought more in line with peer group stock ownership policies.*

In 2019, the Board raised its stock ownership requirements from five times to six times board members' annual retainer, which is currently equivalent to $570,000 of PSEG stock. In the most recent biennial review of board compensation made available to us, the board's independent compensation consultant found that PSEG's peer median board stock ownership requirement was five times a board's annual retainer.[119] In Overland's peer group, five of seven companies had a stock ownership requirement of five times a board member's annual retainer, one had a requirement of seven times the annual retainer, and the other company based its requirement on the cumulative annual retainer and additional stock compensation.

Based on this data, we find that PSEG has adopted this prior audit recommendation.

3. *Overland recommends that logs be kept by the Corporate Secretary of all Board and committee meeting minutes and all associated materials so that it can be periodically determined that the company's records are complete.*

The board and the Corporate Secretary rely on an electronic board management system, Diligent, to track the documentation associated with board and board committee meetings. That did not necessarily prevent the company from omitting details from the auditor of

[118] Bios of John P. Surma and Susan Tomasky provided in Response to OC-0266.

[119] CAP Non-Employee Director Competitive Review dated September 17, 2019, page 3, provided in Response to OC-0294 (Confidential).

meetings held during the time requested,[120] but we accept management's representations that these omissions were due to misunderstandings concerning the auditor's requests.

In theory, the Diligent system should be capable of providing complete and accurate board documentation that was the intended goal of the prior audit recommendation. Based on that, we conclude that PSEG has taken steps to adopt the prior audit recommendation.

4. *The President of PSE&G should be added to the PSE&G Board of Directors, consistent with general industry practice.*

   Management rejected this prior audit recommendation because it did not believe diversified holding companies typically include a utility president on the utility's board of directors, and it was concerned about complying with requirements imposed by New Jersey concerning the proportion of independent directors that must serve on a utility board. It also was convinced that the PSE&G board had adequate access to the president without the additional step of including him or her on the board.

   While none of the reasons given by management is particularly compelling, with the emergence of PSE&G as the predominant business that PSEG will operate on a prospective basis, we believe the continued inclusion of the PSEG CEO and President is an adequate compromise to the previous recommendation.

5. *Especially for executives whose responsibilities extend to that of the utility, we recommend that the O&C Committee reassess the weightings it assigns to goals associated with short-term and long-term executive compensation so that executives are motivated and have more incentive to attain goals associated with customer satisfaction, safety, and reliability and to those goals which they have some semblance of control. In addition, the committee should consider requiring a certain level of accomplishment with respect to customer satisfaction, safety, and reliability before short-term and long-term incentive compensation is triggered.*

   A review of executive short-term and long-term incentive compensation plans showed no meaningful change in weightings assigned to rate-payer focused metrics such as safety, reliability, or customer satisfaction. While we continue to believe this recommendation has merit, we also realize that management and the board have wide latitude in structuring the organization's compensation.

   However, we do continue to advocate a threshold level of performance with respect to PSE&G's safety, reliability, and customer satisfaction that must be met in order for short-term incentive

[120] Updated Responses to OC-0270 and 0271 (logs were included in these responses setting forth bases for redactions).

compensation to be paid to executives with utility responsibilities. These threshold levels should be set in such a way that continuous improvement is encouraged and any New Jersey BPU requirements, if applicable, are met.

6. *Overland recommends the company consider setting a dollar cap on the delegation authority provided to the Chair of the Audit Committee for eligible products and services offered by the external auditor between regularly scheduled Audit Committee meetings.*

   Management rejected this prior audit recommendation because it felt that its current controls of notifying the Audit Committee after-the-fact was an adequate check and balance. The company's procedures conform to SOX requirements, and board members have confirmed that past instances of the use of this authority have been limited to products and services involving immaterial amounts. Given the increased use of virtual meetings with the onset of the COVID-19 pandemic, we believe that a special meeting of the Audit Committee could be called by the Chairman on an expedited basis if he or she was uncomfortable with unilaterally approving a qualifying product or service. For this reason, we are not renewing our recommendation on this matter.

Litigation and Other Contingent Liabilities

This section provides a brief discussion of significant litigation and other matters that could have a material impact on PSE&G and its parent PSEG Corporation.

LIPA Litigation and Revised OSA[121]

On December 9, 2020, the Long Island Power Authority ("LIPA") filed suit against PSEG LI in New York State court alleging breach of the parties' contract regarding PSEG LI's preparedness for and response to Tropical Storm Isaias. Specifically, LIPA alleged that PSEG LI breached the contract regarding its Outage Management System, telephony system, and business continuity planning. After a six-month negotiation, PSEG and LIPA reached a tentative settlement that addressed LIPA's concerns, leading to a Second Amended and Restated Operations Services Agreement ("OSA"). This OSA was formally executed on April 1, 2022, and the parties subsequently filed a stipulation of dismissal with prejudice to end the litigation.

The amended OSA made no material revisions to the services provided, however substantial changes were made to other contract terms. PSEG's option to extend the OSA for an eight-year period after its December 31, 2025 expiration date was eliminated. In addition, PSEG LI executive positions were added, and the organization was restructured to provide more direct authority of the PSEG LI management

[121] Excerpted from *Second Amended and Restated Operating Services Agreement*, December 15, 2021, and Response to OC-1851.

team. Furthermore, the compensation structure was revised to lower the fixed portion of the management fee and add new earnings components, as summarized below.

Table 12-17 – Summary of PSEG LI Compensation [122]

Revenue/Expense	Original Agreement	Modified Agreement	
		2021 Contract Year	2022-25 Contract Year (amount per year)
Fixed Compensation	$ 68,000,000	$ 68,000,000	$ 38,000,000
Incentive/Variable Comp.	10,000,000	10,000,000	20,000,000
Comp. Subject to DPS Reduction			20,000,000
Contract Year Credit Amount			(4,250,000)
Total (1)	$ 78,000,000	$ 78,000,000	$ 73,750,000
Charitable Contribution			(975,000)

(1) Amounts adjusted annually based the on CPI index (except the contract credit).

Source: Response to OC-1851.

The variable compensation component in the amended OSA is based on two sets of metrics: "Gating Metrics" and "Scope Function-Specific Metrics." The Gating Metrics set minimum performance levels which, if not achieved, reduce the total annual variable compensation pool. The four Gating Metrics are:

- Cost Management – spending levels above 102% of either the capital budget or operating budget will reduce the variable compensation pool by 50%. If both budgets are exceeded by the threshold, or the same category is exceeded in two consecutive years, the variable compensation pool is reduced 100%.
- Emergency Preparation and Response ("EP&R") – failure, in any contract year, to achieve the minimum benchmarks in the agreed upon metrics between PSEG LI and the New York DPS will reduce the variable compensation pool by 50%.
- Customer Satisfaction – If PSEG LI fails to achieve a third quartile performance result in either the Residential or Business component for two consecutive years (e.g., failure in either category in each of the two years), the compensation pool is reduced in the second year by 15%.
- SAIDI – failure to achieve, in any year, a result at the 37.5 percentile or better, as calculated by using electric reliability benchmarking data from the US Energy Information Administration for

[122] Excerpted from *Second Amended and Restated Operating Services Agreement*, December 15, 2021, and Response to OC-1851.

companies with >500,000 customers, and utilizing the IEEE standard for SAIDI without major event days will result in a 50% reduction.

Once the pool amount has been established through Gating Metrics performance, the variable compensation payout is based on achievement of Scope Function-Achievement Metrics. The OSA sets forth five scope functions: Information Technology, Transmission and Distribution, Customer Service, Power Supply and Clean Energy Programs, and Business Operations. There are 110 individual metrics identified within these scope functions; each one is assigned a target score and percentage of the variable compensation pool to be earned. The percentages vary by metric and scope area – for example, the Transmission and Distribution area can earn up to 40% of the compensation pool, while the Information Technology area maximum is 15%.

New to the compensation structure in the revised OSA is a $20 million pool subject to the New York DPS evaluation of PSEG LI's service performance under the agency's statutory authority under Article 1, §25A. The OSA defines a "Service Provider Failure" as the "violation of one or more of the provisions of the applicable Emergency Response Plan, or the Service Provider's failure to provide safe, adequate, and reliable service to Long Island and Rockaway customers."[123] If a DPS incident investigation results in a finding of Service Provider Failure, a reduction in compensation can be assessed. Expedited appeal and dispute resolution mechanisms are available to PSEG LI under the terms of the contract.

The OSA also identifies three "Default Performance Metrics" that, beginning in 2022, give LIPA the right (but not the obligation) to terminate the contract. These are comprised of the Gating Metrics for EP&R and Customer Satisfaction described above, and compliance with cybersecurity provisions in the agreement. Those provisions require, among other things, that PSEG LI maintain certain standards with respect to security infrastructure and provide timely notice to LIPA of any data security breach.

During the course of negotiations between the parties, PSEG agreed to make some financial concessions in recognition of the service issues that resulted from Isaias. The DPS Compensation Pool Subject to Reduction has been reduced by $4.25 million per year over the final four years of the contract (lowering the annual pool from $20 million to $15.75 million). PSEG also agreed to forego $9.1 million of incentive compensation from the 2020 contract year. Finally, PSEG will make $975,000 in charitable contributions each remaining year to benefit Long Island rate payers and their communities.

While no damages were paid directly in the resolution of this matter, material concessions were made in the amount and risk of future revenue under the amended OSA. These specific modifications, and the risks that led to the agreement between the parties were not specifically contemplated in the business case that led to the LIPA opportunity. However, while there is now an increased risk to the revenue

[123] Second Amended and Restated Operating Services Agreement, December 15, 2021, page 59-60.

stream under the revised agreement, such exposure is unlikely to have a material impact of future consolidated earnings.

Passaic River[124]

The U.S. Environmental Protection Agency ("EPA") has determined that a 17-mile stretch of the Passaic River (Lower Passaic River Study Area ("LPRSA") in New Jersey is a "Superfund" site under the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). PSE&G and certain of its predecessors conducted operations at properties in this area, including at one site that was transferred to PSEG Power.

Certain Potentially Responsible Parties ("PRPs"), including PSE&G and PSEG Power, formed a Cooperating Parties Group ("CPG") and agreed to conduct a remedial investigation and feasibility study of the LPRSA. The CPG allocated, on an interim basis, the associated costs among its members. In June 2019, the EPA conditionally approved the CPG's remedial investigation. However, the EPA subsequently split the evaluation of feasibility studies and remediation actions into two geographic segments.

In September 2021, the EPA approved the CPG's Feasibility Study (FS), which evaluated various adaptive management scenarios for the remediation of only the upper 9 miles of the LPRSA. In October 2021, the EPA announced a Record of Decision ("ROD") outlining its selection of an adaptive management scenario for the upper 9 miles from the options presented in the FS (the "Upper 9 ROD Remedy"). Specifically, the Upper 9 ROD Remedy calls for dredging and capping contaminated sediments from certain areas of the upper 9 miles at an estimated cost of $550 million, and then assessing the results. Based on the results, the EPA may determine that additional remediation work will be required in the future.

Separately, the EPA has released a ROD for the LPRSA's lower 8.3 miles that requires the removal of sediments at an estimated cost of $2.3 billion (the "Lower 8.3 ROD Remedy"). An EPA-commenced process to allocate the associated costs is underway. Occidental Chemical Corporation, one of the PRPs, has commenced the design of the Lower 8.3 ROD Remedy, but declined to participate in the allocation process. Instead, it filed suit against PSE&G and others seeking cost recovery and contribution under CERCLA but has not quantified alleged damages. This suit is currently in the discovery phase.

In addition, two PRPs, Tierra Solutions, Inc. ("Tierra") and Maxus Energy Corporation ("Maxus"), have filed for Chapter 11 bankruptcy. The trust representing the creditors in this proceeding has filed a complaint asserting claims against Tierra's and Maxus' current and former parent entities, among others. Any damages awarded may be used to fund the remediation of the LPRSA.
As of December 31, 2021, PSEG had approximately $66 million accrued for this matter. PSE&G had an Environmental Costs Liability of $53 million and a corresponding Regulatory Asset based on its

[124] Excerpted from Response to OC-1814 and PSEG Corporation Form 10-K, FYE 12/31/21, page 127-131.

continued ability to recover such costs in its rates. PSEG Power had an Other Noncurrent Liability of $13 million.

MGP Remediation Program[125]

PSE&G is working with the New Jersey Department of Environmental Protection ("NJDEP") to assess, investigate and remediate environmental conditions at its former manufactured gas plant ("MGP") sites. To date, 38 sites requiring some level of remedial action have been identified. Based on its current studies, PSE&G has determined that the estimated cost to remediate all MGP sites to completion could range between $220 million and $249 million on an undiscounted basis, including its $53 million share for the Passaic River as discussed above. Since no amount within the range is considered to be most likely, PSE&G has recorded a liability of $220 million as of December 31, 2021. Of this amount, $33 million was recorded in Other Current Liabilities and $187 million was reflected as Environmental Costs in Noncurrent Liabilities. PSE&G also has recorded a $220 million Regulatory Asset with respect to these costs, reflecting its expectation of rate recovery. PSE&G periodically updates its studies taking into account any new regulations or new information which could impact future remediation costs and adjusts its recorded liability accordingly. PSE&G completed sampling in the Passaic River in 2020 to delineate coal tar from certain MGP sites that abut the Passaic River Superfund site.

Durr Mechanical Construction, Inc. Litigation[126]

Durr was a mechanical contractor regarding the construction of a power plant in Woodbridge, New Jersey known as the Sewaren 7 Power Plant. As a result of issues with Durr's performance, PSEG Power descoped Durr from the project. On June 15, 2018, Durr filed a Complaint against PSEG Power in the United States District Court for the District of New Jersey. Durr alleged that PSEG Power withheld money owed to Durr pursuant to the contract; that Durr's scope of work during its performance under the contract was changed; and that PSEG Power intentionally interfered with Durr's ability to 12-47btainn prospective contracts with other entities. PSEG Power has counterclaimed against Durr for breach of contract.

In January 2021, the court partially granted PSEG Power's motion to dismiss certain claims, reducing the amount claimed from $93 million to $68 million. In December 2018, Durr filed for Chapter 11 bankruptcy in the federal court in the Southern District of New York (SDNY). The SDNY bankruptcy court has allowed the New Jersey litigation to proceed. PSEG Power has accrued a liability for Durr's outstanding invoices but not for any litigation outcome based on the current facts and circumstances of the matter.

[125] Excerpted from Response to OC-1814 and PSEG Corporation Form 10-K, FYE 12/31/21, page 127-131.
[126] Excerpted from Response to OC-1814 and PSEG Corporation Form 10-K, FYE 12/31/21, page 127-131.

Jersey City, New Jersey Subsurface Feeder Cable Matter[127]

In October 2016, a discharge of dielectric fluid from subsurface feeder cables located in the Hudson River near Jersey City, New Jersey, was identified and reported to the NJDEP. The feeder cables are located within a subsurface easement granted to PSE&G by the property owners, Newport Associates Development Company ("NADC") and Newport Associates Phase I Developer Limited Partnership. The feeder cables are subject to agreements between PSE&G and Consolidated Edison Company of New York, Inc. ("Con Edison") and are jointly owned by PSE&G and Con Edison. The impacted cable was repaired in September 2017. A federal response was initially led by the U.S. Coast Guard. The U.S. Coast Guard transitioned control of the federal response to the EPA, and the EPA ended the federal response to the matter in 2018. The investigation of small amounts of residual dielectric fluid believed to be contained with the marina sediment is ongoing as part of the NJDEP site remediation program. In August 2020, PSE&G finalized a settlement with the federal government regarding the reimbursement of costs associated with the federal response to this matter and payment of civil penalties of an immaterial amount.

A lawsuit in federal court is pending to determine ultimate responsibility for the costs to address the leak among PSE&G, Con Edison and NADC. In addition, Con Edison filed counter claims against PSE&G and NADC, including seeking injunctive relief and damages. No liability has been accrued to date.

Aside from the discussion of the LIPA and Passaic River matters addressed above, damages payments net of insurance reimbursements over the last few years have been immaterial.[128]

Executive and Board Oversight of Litigation Matters

The General Counsel and relevant direct reports monitor litigation and contingent litigation risk on a continuous basis. This oversight includes a continuous assessment of material exposure, which includes quantitative assessments where appropriate.

The Board is presented with a written summary of significant litigation and investigations, while the Audit Committee is given a somewhat greater level of detail. This information is included in the Director information packets in advance of board and committee meetings. The General Counsel makes presentations to the entire Board regarding any significant updates of major litigation matters such as the Passaic River litigation. Updates of any significant events between meetings is provided by the General Counsel to the Audit Committee.[129]

[127] Excerpted from Response to OC-1814 and PSEG Corporation Form 10-K, FYE 12/31/21, page 127-131.
[128] Response to OC-0719.
[129] Interview of Tammy Linde, Executive Vice President & General Counsel, on May 20, 2022.

Ralph Izzo

Chairman of the Board, President and Chief Executive Officer, PSEG
Director since 2006

Experience:

Chairman of the Board, President and Chief Executive Officer of PSEG since April 1, 2007; President and Chief Operating Officer of PSEG from October 2006 to April 2007; President and Chief Operating Officer of PSE&G from October 2003 to October 2006

Chair of the Executive Committee

Director of PSE&G; PSEG Power; PSEG Energy Holdings L.L.C.; PSEG Services Corporation

Director of Bank of New York Mellon

Former Director of The Williams Companies, Inc.

Education:

Mr. Izzo received his Bachelor of Science and Master of Science degrees in mechanical engineering and his Doctor of Philosophy degree in applied physics from Columbia University. He also received a Master of Business Administration degree, with a concentration in finance, from the Rutgers Graduate School of Management. He is listed in numerous editions of Who's Who and has been the recipient of several national fellowships and awards. Mr. Izzo has received honorary degrees from Montclair State University (Doctor of Science), the New Jersey Institute of Technology (Doctor of Science), Thomas Edison State University (Doctor of Humane Letters), Bloomfield College (Doctor of Humane Letters), Rutgers University (Doctor of Humane Letters) and Raritan Valley Community College (Associate of Science).

Willie A. Deese

Retired Executive Vice President, Merck & Co. Inc. and President, Merck Manufacturing Division
Director since 2016

Experience:

Executive Vice President of Merck & Co. Inc., Kenilworth, New Jersey, which develops, manufactures and distributes pharmaceuticals, from January 2008 until June 2016; President of Merck Manufacturing Division from 2005 until 2008; Senior Vice President of Global Procurement at Merck from 2004 until 2005

Senior Vice President, Global Procurement and Logistics at GlaxoSmithKline, a pharmaceutical company

Named one of the “Most Powerful Executives in Corporate America” by Black Enterprise Magazine.

Director of CDK Global, Inc.; Dentsply Sirona USA; G1 Therapeutics, Inc.

Former Chairman of North Carolina A&T State University Board of Trustees

Education:

Mr. Deese earned his B.A. in Business Administration at North Carolina A&T State University and his M.B.A. at Western New England College.

Shirley Ann Jackson

President, Rensselaer Polytechnic Institute
Director since 2001

Experience:

Lead Director since April 16, 2019

Director of PSE&G

President of Rensselaer Polytechnic Institute, Troy, New York, a major technological research university, since July 1999

Director of FedEx Corporation

Former Director of PSEG from 1987 to 1995

Former Chair, U.S. Nuclear Regulatory Commission (NRC) from July 1995 to July 1999

Former Director of IBM Corporation; NYSE Euronext; Marathon Oil Corporation; Medtronic, Inc.

Education:

In 1973, Jackson graduated from MIT with her Ph.D. degree in theoretical elementary particle physics, the first woman to receive a Ph.D. in physics in MIT's history. Jackson worked on her thesis, entitled The Study of a Multiperipheral Model with Continued Cross-Channel Unitarity, under the direction of James Young, the first African American tenured full professor in the physics department at MIT. In 1975, the thesis was published in Annals of Physics.

David Lilley

Retired Chairman of the Board, President and Chief Executive Officer, Cytec Industries, Inc.
Director since 2009

Experience:

Director of PSE&G

Chairman of the Board, President and Chief Executive Officer of Cytec Industries, Inc., Woodland Park, New Jersey, a global specialty chemicals and materials company, from January 1999 until December 2008; President and Chief Executive Officer from May 1998 to January 1999; President and Chief Operating Officer from January 1997 to May 1998

Former Director of Andeavor Corporation; Arch Chemicals, Inc.; Rockwell Collins, Inc.

Education:

Mr. Lilley is a graduate of Fitzwilliam College, Cambridge University and later earned a Master of Arts degree in chemical engineering from Cambridge.

Barry H. Ostrowsky

President and Chief Executive Officer, RWJ Barnabas Health
Director since 2018

Experience:

President and Chief Executive Officer of RWJ Barnabas Health, West Orange, New Jersey, a comprehensive integrated healthcare delivery system of hospitals, programs and services, since April 2016; President and Chief Executive Officer of Barnabas Health from January 2012 until April 2016; President and Chief Operating Officer from July 2011 until January 2012; Executive Vice President and General Counsel from December 1996 until July 2011

Formerly a senior partner at the law firm of Brach, Eichler in Roseland, New Jersey

Education:

Mr. Ostrowsky received a BA from Rutgers University and a JD from the University of Tennessee School of Law.

Scott G. Stephenson

Chairman of the Board, President and Chief Executive Officer, Verisk Analytics, Inc.
Director since 2020

Experience:

Chairman of the Board and Chief Executive Officer of Verisk Analytics, Inc., Jersey City, New Jersey, a data analytics and risk assessment company, since April 2013 and President since March 2011; held various leadership positions between 2001 and 2011, including Chief Operating Officer, head of the Decision Analytics segment, Executive Vice President and President of its Intego Solutions segment

Advisor at Silver Lake Partners, a technology-oriented private equity firm, from 2000 to 2001

Partner with the Boston Consulting Group from 1989 to 1999

Director Verisk Analytics, Inc.

Education:

Mr. Stephenson holds an MBA from Harvard Business School and a BS in mechanical engineering from the University of Virginia.

Laura A. Sugg

Retired President, Australasia Division of ConocoPhillips Corporation
Director since 2019

Experience:

President of Australasia Division of ConocoPhillips Corporation, Houston, Texas, a leading worldwide oil and gas exploration and development company, from July 2005 to February 2007; General Manager, Human Resources, from October 2003 to June 2005; joined Phillips Petroleum Co. in 1986, prior to its merger with Conoco in 2002.

Director of Murphy Oil Corporation

Former Director of Denbury Resources, Inc.; Williams Companies, Inc.

Education:

Ms. Sugg earned a Bachelor of Science from Oklahoma State University in 1983

John P. Surma

Retired Chairman and Chief Executive Officer, Unites States Steel Corporation
Director since 2019

Experience:

Chairman and Chief Executive Officer of United States Steel Corporation, a leading global integrated steel producer, from October 2004 through September 2013 and Executive Chairman until December 2013; President and Chief Operating Officer from February 2003 to October 2004; Chief Financial Officer from January 2002 to February 2003

Director of Marathon Petroleum Corporation and its consolidated subsidiary, MPLX GP LLC; Trane Technologies plc

Former Director of Calgon Carbon Corporation; Concho Resources, Inc.; Bank of New York Mellon Corporation, and its predecessor, Mellon Bank Corporation

Education:

Mr. Surma earned a bachelor's degree in accounting from Pennsylvania State University.

Susan Tomasky

Retired President, AEP Transmission of American Power Corporation
Director since 2012

Experience:

Director of PSE&G

President of AEP Transmission of American Electric Power Corporation, Columbus, Ohio, an electric utility holding company with generation, transmission and distribution businesses, from May 2008 to July 2011; Executive Vice President, Shared Services, from September 2006 to May 2008; Executive Vice President and Chief Financial Officer from September 2001 to September 2006; Executive Vice President and General Counsel and Corporate Secretary from July 1998 to September 2001

General Counsel of the U.S. Federal Energy Regulatory Commission (FERC), from March 1993 to June 1997

Director of Marathon Petroleum Corporation; Fidelity Equity and High Income Mutual Funds

Former Director of Andeavor Corporation; Summit Midstream Partners, LP; Member of the Advisory Board of certain Fidelity funds

Education:

Ms. Tomasky received a bachelor's degree in liberal arts from the University of Kentucky and a Juris Doctor in law from The George Washington University Law School.

Alfred W. Zollar

Executive Advisor, Siris Capital Group, LLC and Retired General Manager, Tivoli Software division of IBM
Director since 2012

Experience:

Executive Advisor of Siris Capital Group, LLC, New York, New York, a private equity firm, since March 2021; Executive Partner from February 2014 to March 2021

General Manager of Tivoli Software division of IBM, Armonk, New York, a worldwide information technology and consulting company, from July 2004 to January 2011; General Manager of eServer iSeries from January 2003 to July 2004; President and Chief Executive Officer of Lotus Software division from January 2000 to 2003; Division General Manager of Network Computer Software division from 1996 to 2000

Director of Bank of New York Mellon; Nasdaq, Inc.

Former Director of Chubb Corporation; Red Hat, Inc.

Education:

Mr. Zollar earned his master's degree in applied mathematics from the University of California, San Diego.

13. STRATEGIC PLANNING

Introduction and Overview

This chapter addresses PSEG's strategic planning methodology, including the formulation and application of corporate objectives and long-term goals set by senior management, as well as the Company's strategic business plans and financial forecasts shared with the Board of Directors.

Summary of Findings

1. PSEG has a robust strategic planning process that includes detailed plans for each major operating subsidiary that include industry and company outlooks, strategic objectives, and five- and ten-year financial forecasts.
2. The PSEG board reviews the Company's strategic plans during annual off-site meetings each summer specifically dedicated to industry trends and strategic outlooks. Plan updates are also reviewed by the board each December and the following February.
3. While strategic plans are developed for each major PSEG subsidiary, the most recent consolidated strategic plan focuses primarily on PSE&G investments and operations, consistent with PSEG's renewed focus on its regulated investment.
4. The Company has embraced climate change initiatives among its core strategic planning initiatives, focusing on energy efficiency, nuclear power advocacy, and alternative energy sources such as offshore wind.
5. PSEG has recently reorganized its enterprise risk management ("ERM") function to reside within the Legal Department, which is atypical of industry practice, as part of a consolidation of three enterprise assurance functions (ERM, Internal Audit, and Compliance). Governance is provided through a Risk Management Committee, comprised of senior executive management, and two board committees.
6. Enterprise risk analysis is updated frequently. In addition to annual board presentations in the December timeframe, key risks are reviewed during committee meetings. Key risks are assigned to the relevant board committee for oversight.
7. The ERM Policy and practice documents are silent regarding the setting of the Company's risk appetite, which is considers the types and amount of risk an organization is willing to accept. A risk appetite statement is an important element of the ERM process that aligns with the determination of risk tolerances and provides critical guidance in the strategic planning process.
8. PSEG migrated from mandatory KPI measurements and scorecards at the department level to a company-wide balanced scorecard format in 2018. Scorecards are now maintained for PSE&G, PSEG Power, and PSEG Corporation.

Recommendation

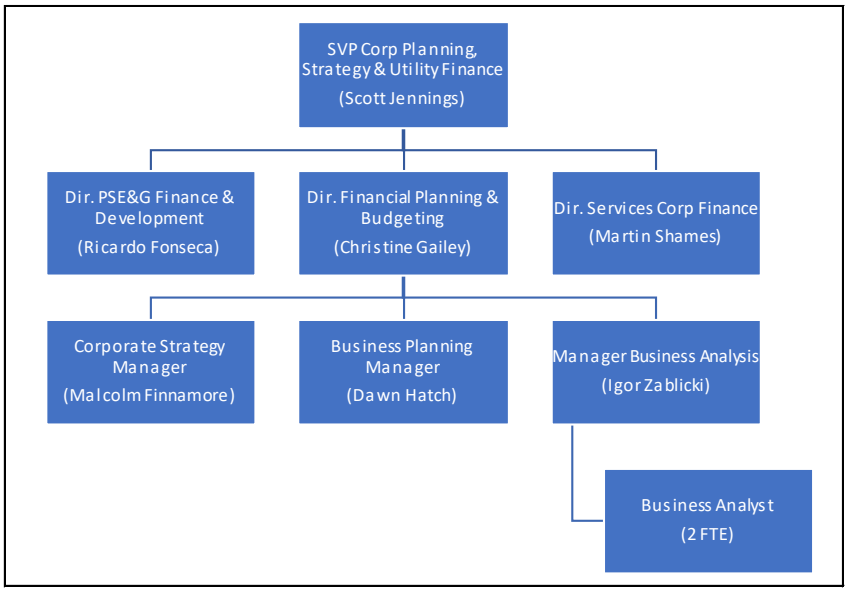
13.1 The Company should enhance its ERM policy and procedures to address the development of a risk appetite statement that is owned by the Risk Management Committee and subject to approval by the board (or relevant committee).

Organization

The strategic planning function resides within PSEG Services Company, under the direction of Scott Jennings, SVP of Corporate Planning, Strategy and Utility Finance. This executive position was created in 2019 by combining the corporate planning and strategy organization, previously managed by Rose Chernick, and the utility finance organization.[1]

Responsibility for corporate strategy is assigned to one management-level employee (the Corporate Strategy Manager), and his immediate supervisor (the Director of Financial Planning and Budgeting) who reports directly to Mr. Jennings. The financial planning function is considerably larger, with three director-level positions, two managers and two analysts. The strategy and financial planning functions are illustrated below.

Table 13-1 – PSEG Strategy & Financial Planning Organization Chart[2]



[1] Response to OC-0462.
[2] Response to OC-0462.

The corporate strategy function advises senior management on strategic issues and supports the lines of business with respect to strategy execution, market policy and regulatory policy. This business unit also creates the strategic content included in the 5-10 year business plan.

The financial planning function performs financial forecasts and analysis for many purposes. This team prepares forward-looking financial statements for the 5-10 year business plan, analysis reports for rating agencies, financial information in connection with state and federal regulatory filings, and sensitivity analysis in support of strategic investment opportunities.[3]

Strategic Plan Development

Strategic planning evaluations and initiative development occur at each of the operating subsidiaries (i.e., PSE&G, PSEG Power, and PSEG-LI), which are coordinated with corporate-level strategic plans. The corporate-level planning process consists of several key offsite meetings of the Executive Officer Group (EOG) during which key strategic issues are reviewed. Broadly, the offsite meetings are structured as follows:

- Spring: Review of major industry trends, legislative policy, key business assumptions and other broad topics, which could influence the company's performance in the coming years.
- Early Fall: Review of business strategies, objectives and initiatives, financial projections and balanced scorecards.
- Late Fall: Finalization of the business plans.

The Executive Officer Group consists of approximately 10-15 senior leaders at PSEG and its operating subsidiaries. The off-site sessions are supplemented with updates and reviews at periodic (typically monthly) EOG meetings that address the status of strategic initiatives. Materials for these meetings are developed by Corporate Planning, the Finance / Planning staffs in the Operating Companies, and other groups within the company.[4]

Strategic and financial reviews are conducted with the full PSEG Board of Directors in three scheduled sessions during the year:

- Strategic Business Review: Key business issues and possible strategic options and opportunities are discussed. This meeting includes leaders and subject matter experts in industry, academia, regulators, political leaders, investors, and other stakeholders to discuss relevant key issues and topics. The meeting is held in the summer.

[3] Response to OC-0462.
[4] Response to OC-0452.

- Preliminary Business Plan Review: Business strategies and the preliminary financial forecast are presented to the Board in a December meeting.
- Final Business Plan Review: The updated business plan, incorporating updates to financial forecasts and assumptions, is provided to the Board in a February meeting.[5]

The PSE&G annual strategic plan consists of a detailed five-year financial forecast with a discussion of key assumptions. In its 2021-2025 Outlook assumptions included ROE and equity ratio projections for the upcoming distribution and transmission rate cases, sales forecasts based on customer growth and usage rates, O&M growth, and capital spending. The Company summarized the results of its 2021-2025 outlook, as compared to the prior year strategic forecast, as follows:

> Plan over plan results decline in the early years due to the Transmission ROE reset and higher pension costs then improve in the latter years of the plan due to lower interest rates, execution of planned capital investment, and continued strong O&M management. PSE&G continues to focus on its investment programs, with capital expenditures driving rate base CAGR over the next five year of 6% - 8%.[6]

The business plan also defines PSE&G's strategic focus, which the Company describes as "operational excellence, maintaining reasonable returns and developing and executing investment opportunities that align with public policy."[7] PSE&G's action items for each of these focus areas are shown below.

[5] Response to OC-0452.
[6] Response to OC-0459, Public Service Electric & Gas 2021-2025 Outlook.
[7] Response to OC-0459, Public Service Electric & Gas 2021-2025 Outlook.

Table 13-2 – PSE&G Strategic Priorities

PSE&G Key Priorities	
Operational Excellence	• Achieve tip decile safety and top quartile operational results. • Drive continuous improvement by executing Best Practices initiatives and continuing to build-out and leverage Energy Cloud technology to enhance customer experience and internal operations effectiveness. • Drive organizational behavior changes to embrace Diversity, Equity and Inclusion priorities.
Financial Strength	• Continue to execute Best Practices initiatives to control costs and support achievement of financial targets while minimizing impacts to customer bills. • Execute capital investment programs to optimize financial returns and provide benefits to customers.
Disciplined Investment	• Gain approval and implement Clean Energy Future (Energy Cloud and Electric Vehicles/Energy Storage) programs with appropriate recovery. • Identify additional investment opportunities including advanced infrastructure replacement as stimulus to assist economic recovery in NJ. • Explore other investment opportunities including NJ Transit, aged substation replacement and the next generation infrastructure investment programs.
Source: Response to OC-0459, *Public Service Electric & Gas 2021-2025 Outlook.*	

In addition, the strategic outlook identifies several challenges and opportunities in the following areas:

- Workforce and Culture – cross-department training, safety culture enhancements, address skills gaps.
- Cost Control – achieve financial targets, leverage advanced technology.
- Approval of Capital Programs – obtain approval of CEF filings, investigate clean energy growth opportunities.
- Execution of Capital Programs – Energy Cloud build-out, complete projects on-time and on-budget.
- Stakeholder Relationships – enhance stakeholder communications, advocate for clean energy solutions.

Strategic outlooks at the subsidiary level are incorporated into the strategic planning materials that are provided to board members in the annual off-site meeting. In the PSEG Strategic Overview dated July 21, 2020 PSEG summarized its strategic direction as follows: “continued emphasis on sustainable utility growth while optimizing Power fleet and positioning as an environmental leader.”[8]

Board presentations also consist of individual strategic reviews for the PSE&G utility and PSEG Power, as well as a financial update with high-level projections over a ten year period. The 2020 board

[8] Response to OC-0451, PSEG Strategic Overview, July 21, 2020.

presentations also featured detailed discussions of strategic initiatives that the Company would implement in the following years – the sale of its of fossil assets and the investment in off-shore wind.

PSE&G Strategic Planning Initiatives

A review of the Company's strategic planning documents indicates that the major initiatives undertaken by PSEG in the last several years were documented and discussed at the board level in planning sessions prior to their execution. A brief discussion of these initiatives is provided in this section.

PSEG – Long Island

The opportunity to oversee the transmission and distribution business on behalf of the Long Island Power Authority (LIPA) was first presented to the board in November 2010.[9] The financial evaluation of the opportunity, based on an estimated $40 million annual compensation (including 15% incentive), indicated a positive NPV and incremental $0.03 EPS increase.[10]

In an update to the board in November 2013, PSEG highlighted the outstanding readiness issues such as the integration into PSEG's SAP system, subcontract with Lockheed Martin, and communications plan.

In 2021 the compensation structure was materially changed in connection with the execution of the second amendment to the operating services agreement, after the service disruptions that resulted from Tropical Storm Isaias. As a result, the variable component of the management fee increased, contingent on meeting a larger set of performance targets. This matter is discussed more fully in Chapter 12.

Fossil Asset Divestiture

The sale of fossil assets appear in board strategic planning documents as early as 2019. PSEG's provided, among other information, a scenario analysis which evaluated options to retain the fossil portfolio, sell a portion of the assets, and sell all assets.

In 2020, PSEG announced it would explore strategic alternatives for PSEG Power's non-nuclear power generation fleet – 6,750 MW of fossil generation located in the northeastern U.S., and the 467 MW of solar assets comprising its Solar Source subsidiary. Ralph Izzo, PSEG's Chairman, President & CEO, provided the following rationale for the asset sales: "A separation of the non-nuclear assets would reduce overall business risk and earnings volatility, improve our credit profile, and enhance an already compelling ESG position driven by pending clean energy investments, methane reduction, and zero-

[9] Supplemental Response to OC-0463, *PSEG development update – Texas, LIPA and Krypton,* November 10, 2010.
[10] Response to OC-0463.

carbon generation. We recognize the shift in investor preference toward owning regulated utility businesses without commodity exposure to merchant generation and related earnings volatility."[11] In June 2021, PSEG Power sold its subsidiary, Solar Source to an affiliate of LS Power. Solar Source owned 467 MW of solar generation assets at 25 locations across the United States. As a result of the sale, PSEG Power recorded a pre-tax gain on sale of approximately $63 million and income tax expense of approximately $62 million, primarily due to the repayment of tax credits that the company no longer could claim.[12]

Energy Efficiency and Renewables

PSEG's strategic planning documents include discussion of renewable energy standards since at least 2016. At that time, the company outlined its approach to New Jersey's proposed Renewable Portfolio Standard. The 2018 PSE&G strategic review included a comparison of the state's clean energy goals with the Company's initiatives. These initiatives, described below, have become more prominent in PSEG's strategic plans in subsequent years.

PSEG introduced its "Powering Progress" vision that seeks to help customers use less energy, ensure that the energy they use is cleaner and deliver energy in a more reliable manner. The actions undertaken by the company to achieve this vision include increased investments in infrastructure that delivers improved energy efficiency, greater reliance on cleaner energy sources (including nuclear), and customer communication mechanisms to provide greater insight into their energy consumption. The company has established and implemented the following programs in the past few years. [13]

- Clean Energy Future Program: PSE&G has invested over $500 million in energy efficiency projects through the end of 2020, under a BPU-approved $1 billion energy efficiency program. In addition, the BPU approved PSE&G's $707 million smart meter program in January 2021, as well as a $166 million investment in electric vehicle charging infrastructure. The utility installed 86,668 smart meters in 2021 and are on pace to meet its 300,000 installation target for 2022.[14]
- "Energy Strong" programs. Phase 1, completed in 2018, raised, relocated or protected 26 switching and substations that were damaged by water during storms, improved 223 circuits and resiliency by adding smart equipment, including 465 reclosers, and modernized 240 miles of low-pressure cast iron gas mains in or near flood areas. Phase 2 is an ongoing $842 million four-year infrastructure investment, designed to proactively protect and strengthen the utility's electric and gas systems against severe weather conditions. When completed, 4 electric stations and 16 substations will be replaced or hardened. Other investments include installing stronger poles and wires to reduce wind and tree damage, deploying advanced technology to reduce

[11] News release: "PSEG To Explore Strategic Alternatives For PSEG Power's Non-Nuclear Fleet," July 30, 2020. See https://nj.pseg.com/newsroom/newsrelease176.

[12] PSEG Form 10-K, page 95.

[13] Response to OC-0465.

[14] Response to OC-1822.

outages and quicken restoration, creating a new communications network, and modernizing six natural gas metering stations.

- Gas System Modernization Program ("GSMP") programs: The modernization of aging gas pipes in order to improve safety and reliability of the distribution network features the replacement of aging cast iron and bare steel pipes. PSE&G is in the second phase of the GSMP and expects to achieve methane reductions amounting to 22% by 2023 from 2018 levels.

PSE&G does not have any specific programs in place to support the development of distributed energy resources ("DER"). The utility proposed a 35 MW, $109M capex energy storage project in October 2018 as part of its Clean Energy Future – Electric Vehicle Energy Storage Program (BPU Docket No. EO18101111). The BPU order approved the program but delayed the energy storage investment to consult with stakeholder groups.[15]

The Company believes that the Clean Energy Future Program initiatives summarized above will facilitate future DER programs. Furthermore, the Asset Management team is studying grid reliability and load impacts, substation design enhancements, and organizational changes needed to support system-wide DER adoption in the future. [16]

Nuclear Energy Advocacy

Consistent with its strategic priorities involving decarbonization, as discussed above, PSEG has advocated for the continuation of nuclear energy power production in New Jersey over the past few years to meet climate targets set by the State of New Jersey. A 2018 study commissioned by the utility concluded, "…the loss of any or all the Hope Creek and/or Salem units would result in substantial increases in GHG emissions, directly within New Jersey, as well as from increased power imports to New Jersey from the regional electric grid, as the electricity generation mix shifts from nuclear to fossil fuel fired units. These GHG emission increases would significantly impact and jeopardize the state's ability to achieve the 2020 [Global Warming Response Act] ("GWRA") limit, and may hinder efforts to achieve the 2050 GWRA limit."[17]

More recently, PSEG has focused its advocacy efforts on production tax credits for nuclear generation, recognition of the cost of carbon in the formation of energy prices for the PJM region, and rate allowances for capital expenditures to address resiliency. The utility is also working to stop FERC's minimum offer price rule proposal that could adversely impact its PJM participation.[18]

[15] Response to OC-1821.
[16] Response to OC-0938.
[17] Response to OC-0590 Attachment Impacts of PSEG Nuclear Unit Shutdowns on New Jersey's Global Warming Response Act Limits, page 2.
[18] Response to OC-0590.

The consideration of nuclear power as a green energy source, due to its carbon-free emission profile, is critical because new nuclear energy production is not currently competitive with other sources of generation, as shown on the following table.

Table 13-3 – Levelized Cost of New Electricity (LCOE) as of June 2021

Technology	LCOE ($/MWh)		
	Low	Mid	High
Nuclear	$ 189	$ 222	$ 332
Offshore Wind (1) (2)	$ 104	$ 118	$ 157
Onshore Wind (1)	$ 41	$ 53	$ 102
Fixed Axis Solar (1)	$ 47	$ 70	$ 92
Coal	$ 64	$ 112	$ 160
Natural Gas (CCGT)	$ 32	$ 52	$ 72

(1) Including storage costs

(2) Storage costs estimated to be comparable to onshore wind.

Response to OC-0735 Attachment, *1H 2021 LCOE* Update, Bloomberg NEF, June 23, 2021, p.6.

Nuclear plant operating costs are now partially subsidized under the zero emission certificate ("ZEC") program. The State of New Jersey passed ZEC legislation in May 2018 to facilitate achievement of the emission reduction goals under GWPA. The intent of the legislation is to establish a program whereby nuclear plants operating in New Jersey are able to fully recover their projected operating costs, including the risk-adjusted cost of capital. The BPU approved the Hope Creek and Salem units to receive ZECs in April 2019. PSEG has argued that without the subsidy its nuclear plants were at risk of closure.

The program authorizes the power plants to include a ZEC charge of $10 per MWh directly to electric utilities. Utilities recover these costs through a $0.004 per Kwh tariff on retail customer rates. In April 2021 the BPU approved an extension for the ZECs at all nuclear sites through May 31, 2025.

In 2010 PSEG submitted an Early Site Permit application to potentially add another nuclear facility, which was approved by the Nuclear Regulatory Commission in 2016. The permit allows the company to explore the addition of a new unit over the next 20 years. However, due to unfavorable market conditions, PSEG has not pursued nuclear plant expansion in recent years.[19]

Offshore Wind Investment

The strategic evaluation of PSEG's acquisition of a 25% equity interest in Ørsted's Ocean Wind I project appears in board materials from the July 21, 2020 off-site strategy meeting. The analysis noted that the investment was compatible with the state's clean energy goals and could provide unlevered returns in

[19] Response to OC-0595.

the 7% - 8% range. However, analysis also acknowledged that the opportunity would use significant investment capacity and could adversely impact customer bills, especially in early years with lower economies of scale.[20]

The acquisition was publicly announced in December 2020. Ocean Wind is New Jersey's first approved offshore wind farm as part of the state's intention to add 7,500 MW of offshore wind generating capacity by 2035. The Ocean Wind I project is expected to achieve full commercial operations in 2025. The acquisition was completed in the first half of 2021, following approval by the BPU. Additionally, PSEG and Ørsted each own 50% of Garden State Offshore Energy ("GSOE"), which holds rights to an offshore wind lease area. PSEG and Ørsted are exploring other offshore wind opportunities through GSOE.

Other Strategic Investments

The utility has established a wholly owned subsidiary, PSE&G Area Development LLC, to hold a $11 million land investment. The land was purchased in 2013 and 2014 for the expansion of the McCarter Switchyard located in Newark. In order for PSE&G to receive the required approvals and permits from the City of Newark for the project, PSE&G agreed to establish a qualified New Jersey Urban Renewal Entity ("URE") which could then participate in a payment-in-lieu-of-taxes program under New Jersey law. PSE&G Area Development LLC, which has no employees or operations, is designated as the URE.[21]

Enterprise Risk Management

The objective of PSEG's risk management program is to promote effective management of risk in order to support the achievement of growth and business objectives within acceptable risk levels. The company broadly defines its program as follows:

> Enterprise Risk Management (ERM) function is responsible for coordinating the ERM program throughout the Company in support of this objective, working with PSEG's operating businesses (including PSE&G), functional service areas, and other risk and assurance functions.[22]

ERM Organization

PSEG's enterprise risk management program is directed by Courtney McCormick, Senior Vice President, Audit, Enterprise Risk & Compliance ("ARC"), who reports to the Executive Vice President & General Counsel. This organizational structure was created in November 2021 and combined the ERM, internal audit and compliance reporting functions under one organization, and differs from industry standard practice where the audit and risk functions typically report to the CFO or CEO. The stated objective is to

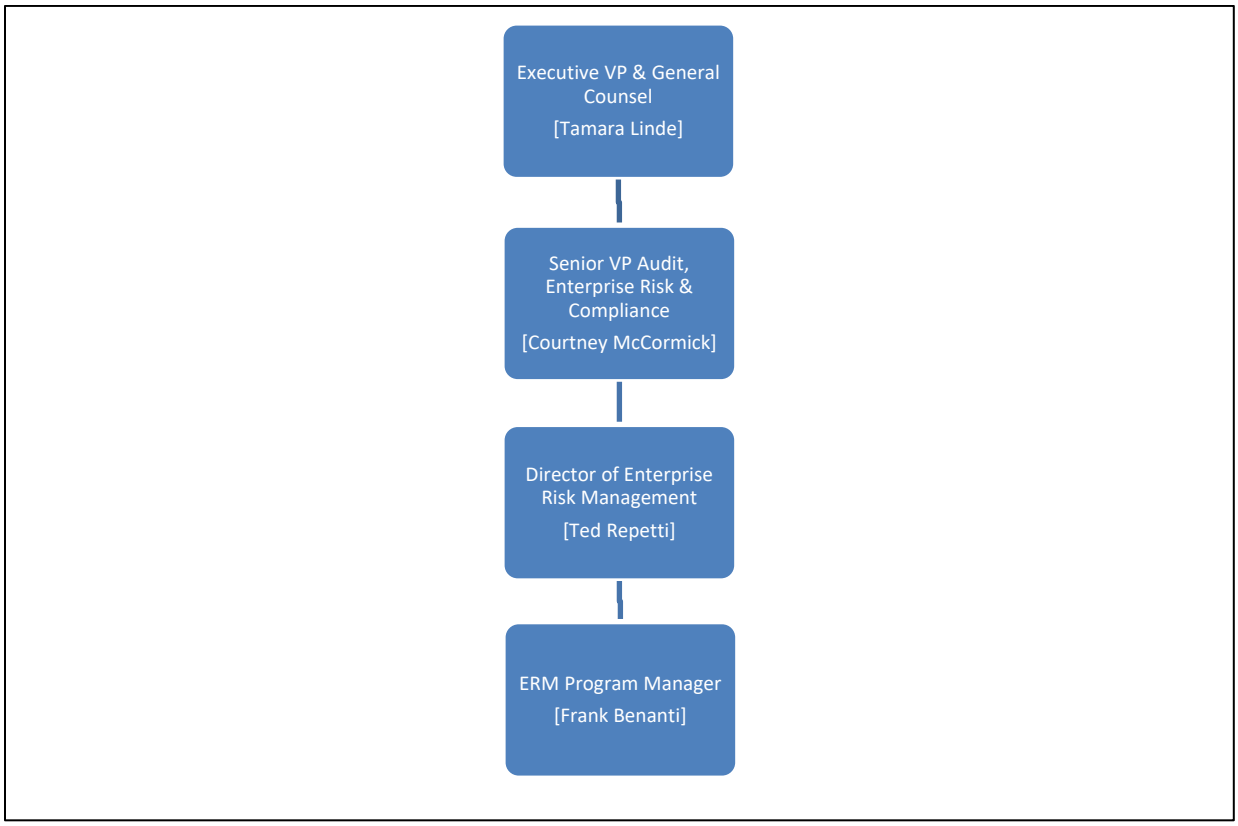
[20] Response to OC-0451, *Offshore Wind Review*, July 21, 2020.
[21] Response to OC-0939.
[22] Response to OC-0320.

"support PSEG's strategy, objectives and overall resilience through aligning the ARC functions, promoting risk-informed decision making and driving a culture of risk awareness."[23]

Prior to the formation of this group, the ERM function was under the direction of Laurent Pommier, VP Risk Management and Chief Risk Officer, and reported to the EVP and CFO of PSEG. In addition to ERM, The Risk Management department managed credit risk and quantitative risk. The department was eliminated as part of a PSEG Service Company reorganization (credit risk now reports through the Treasury Department and quantitative risk through the Power Finance group).[24]

The current organizational structure of the ERM function is shown below.

Table 13-4 - PSEG Enterprise Risk Management Organization[25]



An additional ERM Program Manager, John Lemanski, oversees the enterprise risk management function at LIPA. Based in Long Island, this employee directly reports to LIPA's executive management, but has a "dotted line" reporting relationship to Ted Repetti.[26]

[23] Response to OC-1911, Benefits of Integration of Audit, Risk and Compliance Functions, April 19, 2022, page 2.
[24] Interview of Ted Repetti on May 24, 2022.
[25] Response to OC-0461 and Interview of Ted Repetti on May 24, 2022.
[26] Interview of Ted Repetti on May 24, 2022.

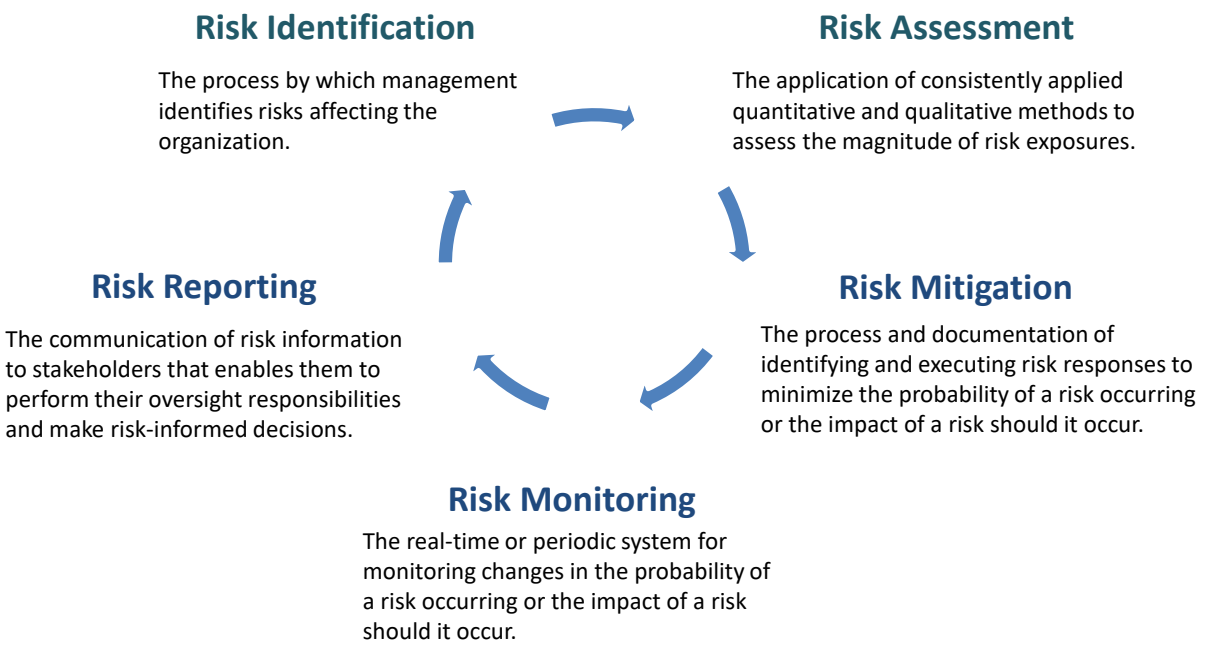
ERM Policies and Procedures

The ERM process is governed by PSEG's Risk Management Policy, which states that the company "will responsibly optimize shareholder value by identifying, understanding, and managing the risks required to execute its strategy with consideration for obligations to all stakeholders."[27] Implementation of the ERM program is explicitly delegated to the ERM group, which has provided a detailed description of the program in Practice Document 950-1.

ERM Process Description

The ERM process begins with an enterprise-wide risk identification and assessment. Mitigation plans are then developed, with risk reporting and monitoring continuing as ongoing activities. The diagram below provides a summary of the Company's ERM program.

Table 13-5 - ERM Process Diagram[28]



Risk Identification: New or evolving enterprise risks are identified through meetings with stakeholders (i.e., Risk Managers and Risk Owners).

Risk Assessment: Risks are evaluated across a broad range of categories, including strategic, financial, operational, environmental, health & safety, legal & compliance, and reputational risks. Risks are rated in their current state, including controls in place (residual risk), over a defined timeframe (generally, 5

[27] Response to OC-1913, *Risk Management Policy*, February 18, 2022, page 1.
[28] Responses to OC-1913, *ERM Practice Document 950-1*, and 0461.

year time horizon). The Enterprise Top Risk Heat Map (described in more detail below) represents the ratings of top risks and is included in the Annual ERM Report.

Risk Mitigation and Monitoring: Appropriate mitigation activities are identified by Risk Managers and Risk Owners, who are also responsible for implementing and monitoring mitigation activities in their business areas. The ERM department obtains updates to mitigation activities through periodic meetings or e-mail updates.

Risk Reporting: On an annual basis, the ERM group produces an "Annual ERM Report" summarizing annual identification and assessment of top enterprise risks, including emerging risks. This report is discussed in more detail in the following sections of this chapter.[29]

The ERM Policy and practice documents are silent regarding the setting of the company's risk appetite, which is defined as "the types and amount of risk, on a broad level, an organization is willing to accept in pursuit of value."[30] The risk appetite statement is an important element of the ERM process that aligns with the determination risk tolerances and also provides critical guidance in the strategic planning process.[31]

While the ERM team provides management, guidance and oversight of the company's ERM program, the risk management process also involves numerous employees throughout the organization, who participate in designated roles:

- Risk Owners: Senior Director level or above have overall responsibility to ensure risks are properly identified, assessed, mitigated and reported, in coordination with the ERM Program.
- Risk Managers: subject matter experts who identify and assess risks in their line(s) of business ("LOB"), develop and implement mitigation activities, and provide ongoing monitoring of residual risks.
- Risk Liaisons: individuals within a LOB that have received training in the company's ERM program and assist the ERM team with risk responses and special risk-related projects. The Liaisons also support ERM process within their departments.[32]

ERM Program Oversight

At the management level, ERM is governed through PSEG's Risk Management Committee (RMC), which reviews the periodic assessments of risks across the enterprise and specific lines of business. According to its Charter, dated December 15, 2021, the RMC is "responsible for assessing the company's exposure and response to enterprise risks, including financial, operational, reputational, legal, and strategic

[29] Responses to OC-1913, *ERM Practice Document 950-1*, and 0461.

[30] See COSO Enterprise Risk Management—Integrating with Strategy and Performance.

[31] An organization should expect that the strategy it selects will be able to be carried out within the entity's appetite; that is, strategy must align with appetite. See *Risk Appetite – Critical to Success, Using Risk Appetite to Thrive in a Changing World*, COSO, May 2020.

[32] Responses to OC-1913, *ERM Practice Document 950-1*, and 0461.

risks."[33] Oversight extends beyond enterprise risk and includes credit and counterparty risk, delegation of authority, and internal controls.

The RMC typically meets 10 times per year or more as needed. The Committee reviews all ERM materials and provides feedback on content and reporting for the Board. The RMC has the authority to challenge conclusions and risk ratings as needed. Changes are made in consultation with the relevant executive officer, line of business leader, and risk owner.[34]

The committee is comprised of the following persons:

Table 13-6 – PSEG Risk Management Committee Members

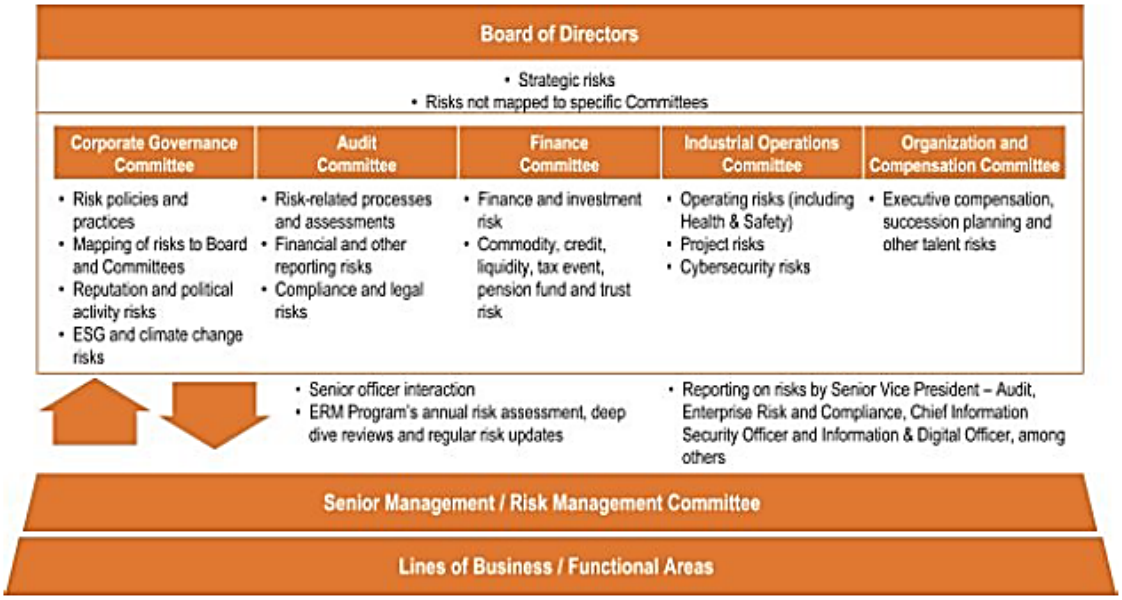
Name	Organization	Title
Bradford Huntington	Treasury Services	Vice President & Treasurer
Daniel Cregg	Finance, Strategy & Corp. Devel.	EVP and Chief Financial Officer
Kim Hanemann	Public Service Electric & Gas	President and COO, PSE&G
Courtney McCormick	Audit, Risk & Compliance	SVP, Audit, Enterprise Risk & Compliance
Lathrop Craig	Finance, Strategy & Corp. Development	SVP and Chief Commercial Officer
Eric Carr	PSEG Nuclear	President & Chief Nuclear Officer PSEG Nuclear
Richard Thigpen	State Government Affairs	SVP, Corporate Citizenship
Sheila Rostiac	Human Resources	SVP, Human Resources
Tamara Linde	Law, Compliance & Claims	EVP & General Counsel
Zeeshan Sheikh	Information Technology	SVP and Chief Information & Digital Officer
Source: Response to OC-1852.		

Since 2017, the only functional changes to RMC membership were the addition of the CIO and the removal of the President of ER&T, both in 2021, and the SVP of Audit, Risk & Compliance replacing the former Chief Risk Officer in the reorganization described above, and in September of 2022, the addition of both the Chief Commercial Officer and President of PSEG Nuclear to replace the Chief Operating Officer and maintain committee representation for ER&T and nuclear risk topics. Individuals assigned to the committee also changed during the period, but the representative organizations did not. The Committee was chaired by the EVP & CFO until December of 2021, when the role transitioned to the SVP of Audit Risk & Compliance. The committee appears to be sufficiently diversified and properly represented by senior executive management, many of whom are PSEG officers.

The Board of Directors has ultimate responsibility for the oversight of risk management at PSEG, overseeing the Company's risk management program and reviewing the most significant risks facing the company. The Board interacts with senior management regarding assessment and mitigation of the most significant risks facing the company and has formally delegated oversight of most key enterprise risks to its various committees, as illustrated below.

[33] Response to OC-1915.
[34] Response to OC-1914.

Table 13-7 – Board and Committee Oversight of Risk Management[35]



At least annually, the Corporate Governance Committee and the Audit Committee are briefed on all enterprise-level risks and emerging risks. In addition, other board committees are provided with in-depth risk reviews and updates from management in the relevant functional areas. The risk reviews include analyses of underlying risk causes, as well as reviews of current risk mitigation and response activities. The committees report out to the Board regarding their risk reviews and elevate risk issues to the Board as appropriate.[36]

PSEG Enterprise Risk Reports

PSEG does not use a risk register to catalog and evaluate all enterprise risks. Rather, the ERM team uses interviews and workshops to identify potential risks and begin the assessment process. Approximately 30 risks with the highest ratings are formally tracked through PSEG's risk reporting process.[37] The risk evaluations are compiled and presented in annual ERM reports during the November-December timeframes – first to the Risk Management Committee, then to the Corporate Governance and Audit committees of the Board.

The top risks are evaluated based on their likelihood of occurrence and the significance of the adverse impact of each risk event at an enterprise level. Likelihood is assigned a rating on a 5-point scale that ranges from "highly unlikely" (1% to 5% probability of occurring within 5 years) to "highly likely" (greater

[35] 2022 PSEG Proxy Statement, page 24.
[36] 2022 PSEG Proxy Statement, page 24.
[37] Interview of Ted Repetti on May 24, 2022.

than 75% probability of occurring within 5 years).[38] Significance is also measured on a 5-point scale, ranging from "limited" to "severe." There are lower significance ratings in the scale ("minor" and "incidental") whose impact would not be considered a top enterprise-level risk.

The company has developed a robust set of criteria for measuring the significance of risk events, summarized on the Enterprise Impact Scales that are included in the appendix to the annual Enterprise Risk Management report. These criteria include:

Table 13-8 – Enterprise Impact Scales

Category	Impact Types
Financial	Shareholder Impact
	Customer Bill Increase
Operational	Environmental
	Health & Safety
Legal	Legal & Compliance
Reputational	Negative Earnings Guidance
	Political
	Negative Media
	Customer Satisfaction
Service Reliability	Critical Customer Impact
	System Impact - Gas
	System Impact - Electric
Source: Response to OC-0461, Enterprise Risk Management Report to the Corporate Governance Committee, December 21, 2021, pages 32-33.	

Each impact type has a set of objective measurements that correspond to the severity rating (from 0 to 5) of the potential impact. For example, shareholder value losses of $2 to $5 million are considered "minor," while losses in excess of $500 million are rated as "severe." Individual risks may be evaluated on one or more of these impact areas based on their relevance. In these instances, the highest significance rating is used in the ERM report.

The likelihood and significance rating form the basis of PSEG's enterprise risk rankings. Rather than listing the top risks in a sequential numerical order, the company uses a heat map to summarize its ERM assessment. The heat map from the most recent Enterprise Risk Management Report, presented to the Corporate Governance Committee of the Board, is represented below.

[38] Response to OC-0461, Enterprise Risk Management Report to the Corporate Governance Committee, December 21, 2021, page 34.

[BEGIN CONFIDENTIAL]

Table 13-9 – PSEG ERM Heat Map as of December 2021[39]

[END CONFIDENTIAL]

The ERM reports to the Corporate Governance and Audit committees include a description of the highest rated risks on the heat map and a description of the Company's mitigation activities.[40] For the items listed in the red shaded areas in the most recent evaluation, the following information was provided.

[39] Response to OC-0461, Enterprise Risk Management Report to the Corporate Governance Committee, December 21, 2021, page 6.

[40] A summary of all key risks is included in the appendix to the ERM report.

[BEGIN CONFIDENTIAL]

Table 13-10 – Risk Descriptions for Highest Rated Risks (as of December 2021)

[END CONFIDENTIAL]

The ERM process is ongoing and iterative at PSEG. Thus, the most critical risks – those in the red area of the heat map – have changed since 2017 as PSEG's business and its market environment have evolved over the years. Some examples of risk events identified in previous ERM reports were:[41]

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

In addition to the evaluation of the top enterprise risks, the company identifies and monitors emerging risks and opportunities – trends and events that are uncertain in timing or impact and could affect existing risks and opportunities or give rise to new risks and opportunities. These risks are categorized into four areas, examples of which are shown below.

[41] Response to OC-0461, Enterprise Risk Management Report to the Corporate Governance Committee, various report dates from 2017 to 2020.

[BEGIN CONFIDENTIAL]

Table 13-11 – Emerging Risks and Opportunities (as of December 2021)

Area	Risk Description
Strategic	[redacted]
Financial	[redacted]
Operations	[redacted]
Legal / Compliance	[redacted]

Source: Response to OC-0461, *Enterprise Risk Management Report to the Corporate Governance Committee*, December 21, 2021, pages 27-30.

[END CONFIDENTIAL]

ERM Benchmarking

PSEG participates in an annual benchmarking of top enterprise risks through the Edison Electric Institute (EEI). Respondents were asked to categorize 29 risk items on a scale of 1 (high importance) to 3 (low importance) based on their ERM program evaluations. The EEI published the top 15 based on the 32 utility company responses.

PSEG's identification and assessment of top risks are generally consistent with the top risks of peers. Although a direct comparison cannot be made because PSEG does not provide a numerical ranking of its top risks, some observations can be made based on the company's ERM heat map.

- Risk items that appeared to rate higher on the EEI benchmark report were Cybersecurity (#1), Catastrophic Event Response (#2) and Safety – Employee and Public (#4). These items all appeared on PSEG's enterprise risk heat map in the orange sections.
- PSEG's rated Regulation/Legislation (#3) and Decarbonization (#7) higher than peer companies by associating nuclear operating and market challenges with the former and changing investor preferences due to ESG with the latter.

- Only one risk item appeared on the benchmark survey that was not included as a top enterprise risk. Climate Adaptation (#10) was noted as an emerging risk in the company's latest ERM report.

External Benchmarking

PSE&G and PSEG Services Corporation participate in numerous benchmarking studies, some on an ongoing annual basis and others discrete projects often tied to specific corporate initiatives. Performance in the top two quartiles of a peer group analysis is the desired performance benchmark, with lower scores driving evaluations for improvement.[42] Selected benchmarking data is provided in strategic planning documents, notably within the Industry Outlook section of the five-year plan. A sampling of the benchmarking studies are shown on the table below.

[BEGIN CONFIDENTIAL]

Table 13-12 – PSE&G and PSEG Services Benchmarking Studies, 2015-2020

Primary Company	Study	Study Type	Organizational Scope	Data Year(s)
PSE&G	[redacted]	Electric Utility Industry Study	Electric Operations	2015-2019
PSE&G		Gas Utility Industry Study	Gas Operations	2015-2019
PSE&G		Consultant Electric Study	Electric Operations	2015-2019
PSE&G		Electric Utility Association Study	Electric Operations	2015-2019
PSE&G		Gas Utility Association Study	Gas Operations	2015-2019
PSE&G		Gas Utility Association Study	Gas Operations	2015-2019
PSE&G		Customer Utility Association Study	Customer Operations	2015-2019
PSE&G		Consultant Customer Study	Customer Operations	2015-2019
PSE&G		Commercial Benchmark Study	Utility Operations	2015-2019
PSE&G		Utility Study	Gas & Electric Operations	2018
PSEG Services		Commercial Benchmark Study	Law Function	2015-2019
PSEG Services		Peer Panel	Information Technology	2015-2019
PSEG Services		Commercial Benchmark Study	Real Estate	2019
PSEG Services		Advisory Project	Real Estate	2019
PSEG Services		Advisory Project	Benefits	2017, 2019
PSEG Services		Associaton Study	Internal Audit	2019
PSEG Services		Commercial Benchmark Study	Internal Audit	2018

Response to OC-0458.

[END CONFIDENTIAL]

Benchmarking studies in relevant subject areas are discussed at length in other sections of this report. Many annual studies were paused in 2021 due to the pandemic's impact on resource availability for data collection.

[42] Response to OC-0458.

Balanced Scorecards

PSEG migrated from mandatory KPI measurements and scorecards at the department level to a company-wide balanced scorecard format in 2018.[43] Scorecards are now maintained for PSE&G, PSEG Power, and PSEG Corporation.

PSE&G's balanced scorecard is organized around for main categories: "People," "Safe, Reliable," "Economic," and "Green," which generally align with the priorities identified in the Company's strategic plans (Operational Excellence, Financial Strength, and Disciplined Investment). Performance targets are largely set to top quartile for operational metrics and top decile for safety metrics. Where benchmarks are not available, targets are rationalized to sequential improvement over prior periods. The Enterprise Planning group is responsible for development, tracking and updating scorecard data. The use of scorecards in incentive compensation awards is discussed in Chapter 20.

[43] As noted elsewhere in this report, KPI scorecards are still used by some business units, at their discretion, to measure performance.

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14. FINANCE

Introduction and Overview

This chapter largely focuses on the financing activities of PSE&G and its principal affiliates. It also addresses the potential implications of affiliate activities on utility operations. Finally, certain income tax matters and the management of utility rates are addressed.

Summary of Findings

1. Like many functions throughout PSEG, the treasury group no longer has its own balanced scorecard. The objective performance measures that are tracked by management concerning finance and cash management show mixed results over the past three years.
2. The limited benchmarking made available to us indicates that various aspects of PSEG's finance and cash management functions place outside the first quartile in costs and staffing.
3. PSE&G continues to project substantial capital spending in the near term (a cumulative $14 billion - $16 billion from 2021 to 2025). Most of this will be funded by cash flows from operations with any shortfall funded from external debt financing.
4. PSE&G strives to maintain strong investment grade credit ratings. Given the financial metrics that are tracked by credit rating agencies, this is largely accomplished by managing the utility's equity ratio at a target level of 54%. The equity ratio has recently been measured at 55.1%, which is greater than it was a decade ago (51.6%). S&P and Moody's currently rate PSE&G senior secured debt at A and A1, respectively.
5. Calculations of the implied cost of equity using the capital asset pricing model indicate that there is no substantial difference between the cost of equity of a hybrid energy company and a predominantly regulated utility company in recent years. However, with the recent dispositions of PSEG Power's non-nuclear generating fleet, PSEG's risk profile should improve as it will derive more of its income from more predictable regulated operations with less volatility.
6. While PSE&G's long-term debt balances have grown substantially over the past four years, the utility has benefitted from the decrease in market interest rates. PSE&G's embedded cost of debt has decreased by 180 basis points to 3.85% over the past decade while at the same time, PSE&G has increased the weighted average maturity of its long-term debt from 12.5 to 13.9 years.
7. Although classified separately on PSE&G's financial statements, the utility's First and Refunding Mortgage Bonds and Medium-Term Notes are treated the same by credit rating agencies. They are both secured by PSE&G assets and sold in a similar manner. Currently, the vast majority of PSE&G's long-term debt is comprised of Medium-Term Notes.
8. Moody's recently downgraded PSE&G's debt rating to a level more consistent with that of S&P. Reasons for this downgrade included continuing pressure on financial metrics resulting from the utility's capital investment plan and recognition that PSE&G would be the primary source of funding for future parent obligations.

9. Consistent with past practice, PSE&G does not participate in a money pool with its affiliates. PSE&G has access to its own syndicated credit facility ($600 million) for short-term liquidity needs. In recent years, the primary use of the credit facility was as a back-stop to the utility's commercial paper program. Since the beginning of January 2019, the maximum amount of commercial paper outstanding was $480 million.
10. To enhance PSEG's flexibility, it has entered into short-term loans totaling $2.5 billion that were outstanding as of December 31, 2021.
11. PSEG has taken several steps to insulate PSE&G from potential financial difficulties of its affiliates. While S&P views these steps as currently effective, it also acknowledges that its credit ratings of PSE&G are at least partially dependent on the future ratings of its parent, PSEG.
12. With the recent sale of PSEG Power's non-nuclear generating fleet, PSE&G is expected to generate 90 percent of consolidated earnings in 2025. This is a dramatic increase over the 27 percent of consolidated earnings the utility generated in 2010, a fact that Moody's considered in its recent downgrade of the utility.
13. Despite PSEG recognizing a significant loss on the sale of PSEG Power's fossil-generating assets, we saw no evidence that significant funds from PSE&G were diverted to its affiliates over the past decade.
14. PSEG's dividend amounts are driven in large part by market expectations as the board of directors takes into account such factors as annual dividend increases and dividend payout ratios of PSEG's peers when setting the appropriate level of dividends paid by the Company. While PSEG's dividend payout ratio has been in the bottom third of peer payout ratios in recent years, that is expected to change as the Company plans to hike its annual increase in dividends from $0.08 to $0.12 per share to reflect its expectations that earnings per share growth rates and business mix improve.
15. Although PSEG Power eliminated its long-term debt using proceeds from the sale of its non-nuclear generating assets, PSEG had long-term debt outstanding as of December 31, 2021 in excess of $4.1 billion. As this debt comes due, management plans to refinance it.
16. Moody's recently downgraded PSEG's debt and corporate ratings over concerns about its deteriorating financial metrics coupled with PSE&G's robust capital investment plans. However, PSEG still maintains corporate ratings of BBB+ and Baa2 with S&P and Moody's, respectively.
17. PSEG's income tax allocation agreement calls for PSE&G to determine its income tax liability as if it were a stand-alone entity when its share of the PSEG consolidated tax return obligation is established. This approach eliminates any possibility that PSE&G bears the burden of or benefits from the tax position of its affiliates.
18. Income tax disputes outstanding during the last management audit concerning leveraged lease investments made by one of PSE&G's affiliates have since been resolved. These types of investments are no longer made by PSEG or its subsidiaries.

Organization

Treasury responsibilities for the overall organization are housed within PSEG Services Corporation. The group is headed by Bradford Huntington, Vice President & Treasurer, who reports to the Executive Vice President and Chief Financial Officer (CFO), Daniel Cregg. Mr. Huntington's treasury organization consists of approximately 20 individuals, and they oversee such matters as cash management, trust investments, insurance risk, and financing for all PSEG companies.[1] The size of this treasury group has not changed substantially over the past three and a half years.[2]

Performance and Benchmarking

Performance

Since the last management audit conducted by the BPU, the Treasury group has abandoned its own balanced scorecard, much like many organizations throughout the Company. Discussions with senior management indicated that one reason why this was done was to eliminate situations in which departments acted in their own best interests to the detriment of the organization as a whole.[3] However, the Treasury group does monitor several metrics to evaluate the performance of the department. Those related to corporate finance and cash management are summarized in the following table:

[1] 2021 PSEG Services Corporation organizational data, pages 68, 83-85, provided in Response to OC-0418 (Confidential) and Interview of Bradford Huntington, Vice President and Treasurer, on February 24, 2022.

[2] Determined from a review of 2017 PSEG Services Corporation organizational data, pages 132-134, provided in Response to OC-0418 (Confidential).

[3] Interview of Ralph Izzo, Chairman, President, and CEO of PSEG, on February 15, 2022.

Table 14-1 - PSEG Treasury Key Performance Indicators

PSEG Treasury Key Performance Indicators			
Key Performance Indicator	**L/H/R**	**Target**	**Actual**
2018:			
Treasury Interest Expenses ($M)	L	539.4	555.8
PSEG Free Cash Flow ($M)	H	(339)	(788)
PSE&G Liquidity (Credit Facility Usage) ($M)	L	-	288
PSEG Liquidity (Credit Facility Usage) ($M)	R	500 - 1,000	759
PSE&G Short-Term Debt Rate	R	2.28%	2.29%
PSEG Short-Term Debt Rate	R	2.34%	2.37%
2019:			
Treasury Interest Expenses ($M)	L	623.8	613.2
PSEG Cash Generation ($M)	H	2,275	2,553
PSE&G Liquidity (Credit Facility Usage) ($M)	L	-	379
PSEG Liquidity (Credit Facility Usage) ($M)	R	500 - 1,000	796
PSE&G Short-Term Debt Rate	R	2.29%	2.42%
PSEG Short-Term Debt Rate	R	2.43%	2.42%
2020:			
Treasury Interest Expenses ($M)	L	636.7	633.4
PSEG Cash Generation ($M)	H	2,775	2,738
PSE&G Liquidity (Credit Facility Usage) ($M)	L	-	117
PSEG Liquidity (Credit Facility Usage) ($M)	R	500 - 1,000	665
PSE&G Short-Term Debt Rate	R	1.65%	1.56%
PSEG Short-Term Debt Rate	R	1.70%	1.70%

Source: Responses to OC-1676 (Confidential) and OC-1872 (Confidential).
Numbers presented in red are key performance metrics that were not achieved.

The "L/H/R" column indicates whether the goal is to be lower (L) or higher (H) than target or in a range (R).

PSEG Free Cash Flow = PSEG Cash Flow from Operations - PSEG Cash Flow from Investing - PSEG Intercompany Loans

PSEG Cash Generation = PSE&G Cash Flow from Operations + PSEG Power Cash Flow from Operations (excluding changes in margin deposits) - PSEG Power Cash Flow Used for Investing (excluding intercompany loans)

Short-Term Debt Rate goal is to be no higher than 5 basis points over the relevant benchmark

Management provided the following explanations for some of the more significant under-performance:

- With respect to 2018 treasury interest expense, under-performance was attributed partially to the acceleration of a PSE&G debt issuance from November to September ($3.8 million), the execution of PSE&G and Power issuances ($5.7 million), and parent term loan interest ($2.0 million.

- PSEG did not meet its free cash flow target in 2018 due to large changes in cash collateral postings as compared to plan and the absence of a tax audit settlement which was anticipated to occur in 2018.

Benchmarking

The cost of PSEG's cash management function was found to be slightly higher than the 1st quartile of a utility peer group and world-class performance based on the 2017 plan. At the time the study was conducted, this may have been partially due to the lack of automation of cash transactions through electronic linkages as well as higher average labor costs per FTE.[4] Since that time, PSEG Cash Management has worked with Accounts Payable to automate the Automated Clearing House (ACH) payment process, which eliminates Cash Management involvement in the approval process. In addition, Cash Management has reduced its headcount from 7 to 5, including a more senior position.[5]

In a 2020 strategic alternatives review performed by PriceWaterhouseCoopers, PSEG's Financing and Treasury functions were found to have achieved second quartile performance in staffing compared to electric and gas peers.[6]

Major PSE&G Capital Programs

In addition to the routine capital expenditures that all utilities encounter to replace aging infrastructure and to expand strategically as opportunities present themselves, PSE&G has several unique capital programs that require extensive funding over the next several years. These include, but are not limited to, the following programs:

- The second phase of the Company's Gas System Modernization Program began in 2019. This program is designed to replace approximately 875 miles of cast iron and unprotected steel mains as well as to improve other aspects of the gas system and is projected to cost $1.9 billion over five years.
- The Energy Strong Program II commenced in the fourth quarter of 2019. This is an $842 million program to harden, modernize, and improve the resiliency of the utility's electric and gas distribution systems. This program is expected to be completed in 2023.
- In September 2020, the centerpiece of PSE&G's Clean Energy Future proposal was approved by the BPU. The decision allows the utility to commit $1 billion toward energy efficiency investments over a 3-year period.
- A second Clean Energy Future program was approved in January 2021 for PSE&G to invest in a smart meter program, which is part of the Energy Cloud, and would create a real-time digital

[4] "PSEG Finance Benchmark Results" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, pages 25, 36, and 46, provided in the Supplemental Response to OC-0458 (Restricted).

[5] Response to OC-1873.

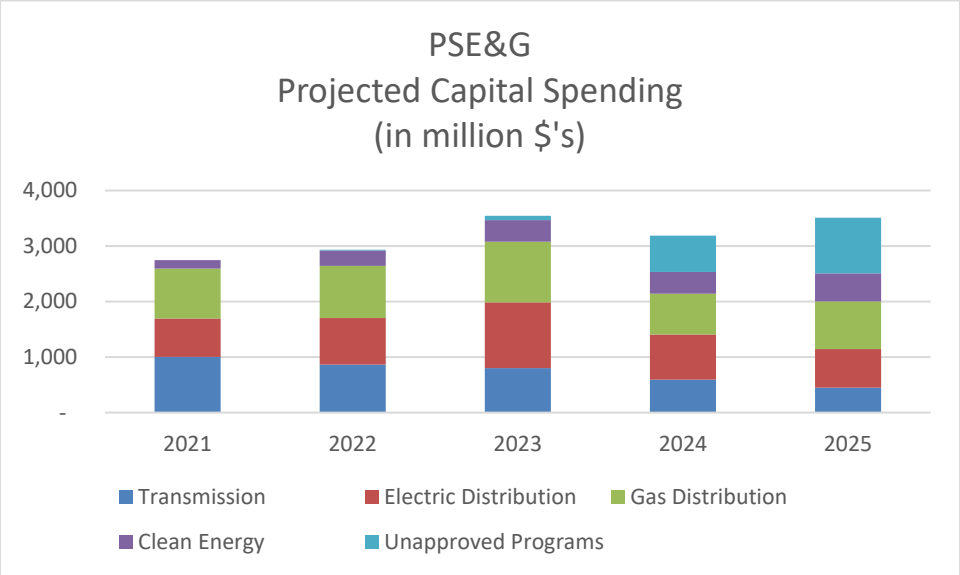
[6] "PSEG Strategic Alternatives Review" presentation, pages 8 and 16, provided in the Supplemental Response to OC-0458 (Restricted).

communication network linking PSE&G with all of its customers. PSE&G estimates this 4-year program to cost $707 million.[7]

- In the same month, a $166 million investment over 6 years was approved by the BPU for PSE&G to build out an electric vehicle charging infrastructure.[8]

PSE&G's expected capital spending in the short-term is shown in the following table:[9]

Table 14-2 – PSE&G Projected Capital Spending



At the time this September presentation was made, unapproved programs included Energy Strong III, Clean Energy Future Electric Storage, electrification initiatives, and the Infrastructure Advancement Program.

PSE&G Sources of Funding

As a capital-intensive business, PSE&G is constantly using its funds to invest in its property, plant, and equipment. As a wholly-owned subsidiary, the primary sources of that funding have historically come from internally-generated cash flows from operations, external debt financing, and occasional contributions from its parent. In recent years (2018 to 2021), the relative magnitude of each of these sources of funding for PSE&G were as follows:[10]

[7] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 37.
[8] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 37.
[9] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 29 and Response to OC-1869 (Confidential).
[10] Derived from the PSEG 2021 and 2020 Forms 10-K, pages 80 and 84, respectively. Also derived from OC-0330 (including updates), 1462 (Confidential), 1675, and 0040 (Confidential).

- Internally-generated cash flows: $7.565 billion[11]
- External financing net of retirements and redemptions: $3.175 billion[12]
- Capital contributions from parent: $0.075 billion

As a rate-regulated business, PSE&G's internally-generated cash flows are dependent on its ability to execute its long-term financial plans which stem from rates approved by the New Jersey BPU and the Federal Energy Regulatory Commission (FERC). These rates are set so that PSE&G has an opportunity to recover just and reasonable costs of the business along with a fair return on the capital it has invested. In the most recent rate case filed by PSE&G in 2018 with the New Jersey BPU, the utility requested a return or weighted average cost of capital (WACC) that was based primarily on the following capital structure and costs of debt and equity:[13]

Table 14-3 - PSE&G Requested Capital Structure and WACC

PSE&G Requested Capital Structure and WACC			
Description	**Capital Structure**	**Embedded Cost**	**WACC**
Long-Term Debt	45.49%	4.05%	1.84%
Customer Deposits	0.51%	0.87%	0.00%
Common Equity	54.00%	10.30%	5.56%
Total	**100.00%**		**7.40%**
Source: Direct Testimony of Scott Jennings filed January 12, 2018, p. 39 in BPU Docket Nos. ER18010029 and GR18010030.			

The BPU ultimately accepted a stipulated settlement between PSE&G and certain parties that set the WACC using the following capital structure and associated costs of capital:

[11] Net cash provided by operating activities.
[12] Includes unamortized debt discounts and selling expenses associated with debt issuances.
[13] An immaterial portion of the requested weighted average cost of capital was also based on customer deposits.

Table 14-4 - PSE&G Approved Capital Structure and WACC

PSE&G Approved Capital Structure and WACC			
Description	**Capital Structure**	**Embedded Cost**	**WACC**
Long-Term Debt	45.53%	3.96%	1.80%
Customer Deposits	0.47%	0.87%	0.00%
Common Equity	54.00%	9.60%	5.18%
Total	**100.00%**		**6.99%**
Source: Attachment A to the Stipulation of Settlement approved in BPU Docket Nos. ER18010029 and GR18010030, Order dated October 29, 2018. Note: Includes some rounding differences.			

The primary reason for the difference between the requested and approved WACC was the cost of equity to which the parties eventually agreed. The 70-basis-point decrease in the cost of equity from the Company's initial request accounted for nearly 93 percent of the decrease in PSE&G's requested WACC.

The components of PSE&G's capital structure are discussed in the following sections:

Equity

From an accounting perspective, equity represents the recorded value of a Company after all liabilities have been subtracted from its assets. It is a measurement of ownership. PSE&G's equity balance is a function of cumulative earnings of the Company and contributions from its parent (both of which increase the balance) and dividends and other equity distributions to the parent (both of which decrease the balance). From 2011 to 2021, the impact that each of these had on PSE&G's equity is as follows:[14]

- PSE&G cumulative net income: $10.125 billion
- PSEG cumulative contributions to PSE&G: $0.750 billion
- PSE&G cumulative dividends to PSEG: ($0.725 billion)

Over this 11-year period, while coincidental, the contributions from and dividends to PSEG nearly offset each other. PSE&G made no non-dividend equity distributions to PSEG during this time period.[15]

Being a wholly-owned subsidiary, PSE&G does not have external equity investor expectations to meet, which typically involve consideration of dividend payout ratios and how they compare to similar investment alternatives. This is demonstrated in the following table:

[14] Responses to OC-0951, 1441, 1629 (including updates), 0039 (including updates) (Confidential), and 0040 (including updates) (Confidential).

[15] Response to OC-0041 (including updates) (Confidential).

Table 14-5 - PSE&G Dividends to Parent

PSE&G Dividends to Parent			
Year	Dividends	Net Income	Payout Ratio
2018	$0	$1,067,000,000	0.0%
2019	250,000,000	1,250,000,000	20.0%
2020	175,000,000	1,327,000,000	13.2%
2021	-	1,446,000,000	0.0%
Responses to OC-0951 and OC-0039 (Confidential) (including updates).			

While PSE&G is not directly burdened with the demands of a publicly-traded Company as it relates to its management of dividends, it does have other considerations it must take into account.

First, New Jersey law prevents PSE&G from making any distribution to shareholders if it would result in the inability of the Company to pay its debts or if it would result in the Company's total assets being less than its total liabilities.[16]

Second, "PSE&G's dividend payments are principally based upon its capital structure policy which is designed to achieve strong investment grade credit ratings."[17] In its 2018 base rate case filing, PSE&G indicated that it was targeting a 54% equity ratio because it supported PSE&G's then current credit ratings of "A" from S&P and "Aa3" from Moody's. This commitment to strong investment grade credit ratings was intended to ensure consistent access to the capital markets at reasonable costs. At the time, PSE&G believed that a 54% equity ratio would permit the Company to remain in the lower half of certain credit metrics (principally Funds from Operations to Debt considered by S&P and Cash Flow from Operating Activities (Pre Working Capital) to Debt considered by Moody's) to retain its current rating.[18]

PSE&G's regulatory equity ratio, calculated as Equity ÷ (Equity + Long-Term Debt + Customer Deposits) has slowly increased since the last BPU management audit. This is demonstrated in the following table:

[16] New Jersey Statutes Annotated 14A:7-14.1.
[17] Response to OC-0311.
[18] Direct Testimony of Scott Jennings filed January 12, 2018, page 46, in Docket Nos. ER18010029 and GR18010030.

Table 14-6 - PSE&G Year-End Regulatory Equity Ratio

PSE&G Year-End Regulatory Equity Ratio	
Year	**Ratio**
2011	51.6%
2012	51.4%
2013	51.0%
2014	51.6%
2015	52.3%
2016	52.4%
2017	53.2%
2018	54.0%
2019	54.5%
2020	54.4%
2021	55.1%
Sources: Direct Testimony of Scott Jennings filed January 12, 2018, p. 50 in BPU Docket Nos. ER18010029 and GR18010030 and values derived from data provided in response to OC-1830.	

PSE&G manages its equity balance through occasional contributions from its parent and the disciplined payment of dividends.[19] A decrease in the targeted equity ratio below 54% would result in a corresponding increase in long-term debt. If this were to happen, credit metrics relied upon by S&P and Moody's would be weakened and potentially put PSE&G's credit ratings at risk.

As noted previously, the PSE&G cost of common equity approved by the New Jersey BPU in the Company's most recent rate case was 9.60%. This is slightly lower than the rate requested by PSE&G which was estimated by its expert using a peer group with similar investment grade credit ratings and a focus on regulated utility earnings.[20]

In past years, PSE&G was part of a consolidated organization which had significant non-regulated businesses.[21] Typically, the inclusion of non-regulated operations with a utility is thought to introduce additional risk to the overall consolidated business and indirectly to the utility. However, a computation of the implied cost of common equity using the Capital Asset Pricing Model (CAPM) over a recent 3-year period indicated that the data did not support any material difference between the cost of common equity of a utility which is part of a hybrid energy Company and one that is predominantly regulated. The following tables are not intended to be a formal rate of return analysis typically conducted as part of a base rate case.

[19] Direct Testimony of Scott Jennings filed January 12, 2018, page 51, in Docket Nos. ER18010029 and GR18010030.
[20] Direct Testimony of Ann E. Buckley filed January 12, 2018, page 24, in Docket Nos. ER18010029 and GR18010030.
[21] In August of 2021, PSEG announced plans to sell its fossil generating portfolio to a fund controlled by ArcLight Capital Partners, LLC. Once this sale is finalized, PSEG will become a predominantly regulated business.

Table 14-7 – PSEG Implied Cost of Equity Estimate Based on Capital Asset Pricing Model as of December 31, 2018

PSEG
Implied Cost of Equity Estimate
Based on Capital Asset Pricing Model
As of December 31, 2018

Line #	Hybrid Energy Group	Risk Free Interest 12/31/18 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
1	FirstEnergy	2.98%	0.65	6.0%	6.88%
2	DTE Energy Co.	2.98%	0.55	6.0%	6.28%
3	AEP	2.98%	0.55	6.0%	6.28%
4	Dominion Energy	2.98%	0.55	6.0%	6.28%
5	Entergy Corp.	2.98%	0.60	6.0%	6.58%
6	NextEra Energy	2.98%	0.60	6.0%	6.58%
7	Exelon	2.98%	0.70	6.0%	7.18%
8	Sempra Energy	2.98%	0.75	6.0%	7.48%
9	NiSource	2.98%	0.55	6.0%	6.28%
10	Peer Group Average		0.61		6.65%
	.				
Line #	Predominantly Regulated	Risk Free Interest 12/31/18 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
11	Xcel Energy	2.98%	0.50	6.0%	5.98%
12	Edison International	2.98%	0.60	6.0%	6.58%
13	Consolidated Edison	2.98%	0.45	6.0%	5.68%
14	Eversource Energy	2.98%	0.60	6.0%	6.58%
15	Duke Energy	2.98%	0.50	6.0%	5.98%
16	Ameren Corp.	2.98%	0.60	6.0%	6.58%
17	PPL Corp.	2.98%	0.70	6.0%	7.18%
18	Southern Company	2.98%	0.50	6.0%	5.98%
19	Evergy	N/A	N/A	N/A	N/A
20	Peer Group Average		0.56		6.32%

Reference:
Column [1] Selected Companies from the Environmental, Power and Electric Utilities (East) industries as identified by Value Line
Column [2] 20-Year Market Yield on U.S. Treasury Securities as of December 2020
https://fred.stlouisfed.org/series/GS20
Column [3] Value Line Investment Surveys (various 2021 publication dates)
Column [4] 2018 SBBI Yearbook, Duff & Phelps:
Large Company Stocks Total Return (12.2%)
LESS Risk-Free Rate of Return (Return on Long-Term Government Bonds = 6.1%)
Column [5] Product of Column [3] and Column [4] plus Column [2]

Line 10 Average of Lines 1 through 9
Line 20 Average of Lines 11 through 19

Note: PSEG's beta for the measurement period was 0.65.

Table 14-8 – PSEG Implied Cost of Equity Estimate Based on Capital Asset Pricing Model as of December 31, 2019

PSEG
Implied Cost of Equity Estimate
Based on Capital Asset Pricing Model
As of December 31, 2019

Line #	Hybrid Energy Group	Risk Free Interest 12/31/19 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
1	FirstEnergy	2.16%	0.85	6.1%	7.35%
2	DTE Energy Co.	2.16%	0.90	6.1%	7.65%
3	AEP	2.16%	0.75	6.1%	6.74%
4	Dominion Energy	2.16%	0.80	6.1%	7.04%
5	Entergy Corp.	2.16%	0.95	6.1%	7.96%
6	NextEra Energy	2.16%	0.85	6.1%	7.35%
7	Exelon	2.16%	0.95	6.1%	7.96%
8	Sempra Energy	2.16%	0.65	6.1%	6.13%
9	NiSource	2.16%	0.85	6.1%	7.35%
10	Peer Group Average		0.84		7.28%
	.				
Line #	Predominantly Regulated	Risk Free Interest 12/31/19 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
11	Xcel Energy	2.16%	0.45	6.1%	4.91%
12	Edison International	2.16%	0.55	6.1%	5.52%
13	Consolidated Edison	2.16%	0.75	6.1%	6.74%
14	Eversource Energy	2.16%	0.90	6.1%	7.65%
15	Duke Energy	2.16%	0.85	6.1%	7.35%
16	Ameren Corp.	2.16%	0.80	6.1%	7.04%
17	PPL Corp.	2.16%	1.10	6.1%	8.87%
18	Southern Company	2.16%	0.90	6.1%	7.65%
19	Evergy	2.16%	1.00	6.1%	8.26%
20	Peer Group Average		0.81		7.11%

Reference:
Column [2] 20-Year Market Yield on U.S. Treasury Securities as of December 2019
https://fred.stlouisfed.org/series/GS20
Column [3] Value Line Investment Surveys (various 2019 publication dates)
Column [4] 2020 SBBI Yearbook, Duff & Phelps:
Large Company Stocks Total Return (12.1%)
LESS Risk-Free Rate of Return (Return on Long-Term Government Bonds = 6.0%)
Column [5] Product of Column [3] and Column [4] plus Column [2]

Line 10 Average of Lines 1 through 9
Line 20 Average of Lines 11 through 19

Note: PSEG's beta for the measurement period was 0.65.

Table 14-9 - PSEG Implied Cost of Equity Estimate Based on Capital Asset Pricing Model as of December 31, 2020

PSEG
Implied Cost of Equity Estimate
Based on Capital Asset Pricing Model
As of December 31, 2020

Line #	Hybrid Energy Group	Risk Free Interest 12/31/20 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
1	FirstEnergy	1.47%	0.85	6.1%	6.66%
2	DTE Energy Co.	1.47%	0.95	6.1%	7.27%
3	AEP	1.47%	0.75	6.1%	6.05%
4	Dominion Energy	1.47%	0.85	6.1%	6.66%
5	Entergy Corp.	1.47%	0.95	6.1%	7.27%
6	NextEra Energy	1.47%	0.90	6.1%	6.96%
7	Exelon	1.47%	0.95	6.1%	7.27%
8	Sempra Energy	1.47%	0.95	6.1%	7.27%
9	NiSource	1.47%	0.85	6.1%	6.66%
10	Peer Group Average		0.89		6.90%

Line #	Predominantly Regulated	Risk Free Interest 12/31/20 [2]	Beta [3]	Equity Risk Premium [4]	Cost of Equity [5]
11	Xcel Energy	1.47%	0.80	6.1%	6.35%
12	Edison International	1.47%	0.95	6.1%	7.27%
13	Consolodated Edison	1.47%	0.75	6.1%	6.05%
14	Eversource Energy	1.47%	0.90	6.1%	6.96%
15	Duke Energy	1.47%	0.85	6.1%	6.66%
16	Ameren Corp.	1.47%	0.80	6.1%	6.35%
17	PPL Corp.	1.47%	1.10	6.1%	8.18%
18	Southern Company	1.47%	0.95	6.1%	7.27%
19	Evergy	1.47%	0.95	6.1%	7.27%
20	Peer Group Average		0.89		6.93%

Reference:
Column [1] Selected Companies from the Environmental, Power and Electric Utilities (East) industries as identified by Value Line
Column [2] 20-Year Market Yield on U.S. Treasury Securities as of December 2020
https://fred.stlouisfed.org/series/GS20
Column [3] Value Line Investment Surveys (various 2021 publication dates)
Column [4] 2021 SBBI Yearbook, Duff & Phelps:
Large Company Stocks Total Return (12.2%)
LESS Risk-Free Rate of Return (Return on Long-Term Government Bonds = 6.1%)
Column [5] Product of Column [3] and Column [4] plus Column [2]

Line 10 Average of Lines 1 through 9
Line 20 Average of Lines 11 through 19

Note: PSEG's beta for the measurement period was 0.90.

Long-Term Debt

Outside of internally-generated cash flows which stem from the utility's net income, external debt financing is the other predominant manner in which PSE&G funds its capital investment programs. In recent years, PSE&G's long-term debt has grown from approximately $8.6 billion to nearly $11.8 billion as demonstrated in Table 14-10:

Table 14-10 - PSE&G Debt Rollforward

PSE&G Debt Rollforward (in million $'s)				
Category	**First and Refunding Mortgage Bonds**	**Medium-Term Notes**	**Net Unamortized Discount and Selling Expense**	**Total**
December 31, 2017 Balance	$149	$8,509	($67)	$8,591
Issuances	-	1,350	(14)	1,336
Retirements / Redemptions	-	(750)	-	(750)
Ongoing Amortization	-		6	6
Rounding	-		1	1
December 31, 2018 Balance	149	9,109	(74)	9,184
Issuances	-	1,150	(14)	1,136
Retirements / Redemptions	-	(500)	-	(500)
Ongoing Amortization	-		7	7
December 31, 2019 Balance	149	9,759	(81)	9,827
Issuances	-	1,350	(17)	1,333
Retirements / Redemptions	-	(259)	-	(259)
Ongoing Amortization	-		8	8
December 31, 2020 Balance	149	10,850	(90)	10,909
Issuances	-	1,325	(12)	1,313
Retirements / Redemptions	(134)	(300)	-	(434)
Ongoing Amortization	-	-	6	6
Rounding	-	-	1	1
December 31, 2021 Balance	$15	$11,875	($95)	$11,795
Responses to OC-0330 Supplemental (including updates), OC-1462 (Confidential), and OC-1675 and PSEG. 2018 (p. 141), 2020 (p. 144), and 2021 Forms 10-K (p. 134).				
Note 1: The amounts above include current maturities of long-term debt.				
Note 2: The amounts above are secured by essentially all property of PSE&G.				

While they are shown separately for financial statement purposes, according to management, the First and Refunding Mortgage Bonds and the Medium-Term Notes are viewed in a similar manner by the market. They both are secured by PSE&G assets, assigned the same credit rating by external rating agencies, and sold in a similar manner.[22] For purposes of our discussion regarding PSE&G's debt, we will treat them as the same.

[22] Interview of Bradford Huntington, Vice President and Treasurer, on February 24, 2022. Both debt instruments are secured by essentially all property of PSE&G pursuant to its First and Refunding Mortgage (PSEG 2021 Form 10-K, pages 134-135).

As can be seen in Table 14.10, a substantial portion of the recent issuances of PSE&G long-term debt has been used to refinance maturing debt. In the four years ended December 31, 2021, PSE&G had over $1.9 billion of debt retirements or redemptions. The following table of PSE&G's future debt maturities shows that this pace will not slow significantly in the next seven years:

Table 14-11 – PSE&G Scheduled Debt Maturities

PSE&G Scheduled Debt Maturities (in million $'s)			
Year	First and Refunding Mortgage Bonds	Medium-Term Notes	Total
2022	-	-	-
2023	-	825	825
2024	-	750	750
2025	-	350	350
2026	-	875	875
2027	-	425	425
2028	-	700	700
2029	-	375	375
2030	-	300	300
2031	-	425	425
2032	-	-	-
2033	-	-	-
2034	-	-	-
2035	-	250	250
2036	-	250	250
2037	15	350	365
2038	-	-	-
2039	-	250	250
2040	-	300	300
2041	-	-	-
2042	-	800	800
2043	-	400	400
2044	-	250	250
2045	-	500	500
2046	-	550	550
2047	-	350	350
2048	-	325	325
2049	-	775	775
2050	-	1,050	1,050
2051	-	450	450
Total	**15**	**11,875**	**11,890**

Source: Derived from PSEG 2021 Form 10-K, p. 134.
Note: Excludes net unamortized debt discount and selling expense.

However, given PSE&G's commitment to multiple capital investment programs including, but not limited to, the Clean Energy Future, the second phase of its Gas System Modernization Program, and the Energy

Strong Program II; PSE&G is expecting its long-term debt to grow on a prospective basis by over $4.0 billion as shown in Table 14-12:

Table 14-12 – PSE&G Projection of Future Debt Financing Activity

PSE&G Projection of Future Debt Financing Activity (in million $'s)			
Year	**New Issues**	**Maturities**	**Total**
2022	$1,000	$0	$1,000
2023	1,800	(800)	1,000
2024	1,400	(800)	600
2025	1,000	(400)	600
2026	1,800	(900)	900
Total	**$7,000**	**($2,900)**	**$4,100**
Response to Supplement 2, OC-0336 (Restricted). Note: Sub-totals in the source document may be different from the table above due to rounding.			

Any differences in the maturities amounts between Tables 14-11 and 14-12 above are due to rounding.

While PS&G's outstanding debt has grown significantly in the last decade and will continue to do so in the foreseeable future, the Company and its ratepayers have benefitted greatly from the decade-long decrease in corporate bond interest rates. Between the end of 2010 and 2020, PSE&G was able to reduce its embedded cost of debt by nearly 180 basis points to 3.85%.[23] Over a slightly different overlapping time period (December 31, 2009 to November 30, 2017), this was accomplished while PSE&G increased the weighted average maturity of its debt portfolio from 12.5 to 13.9 years.[24] As indicated in Table 14-2 above, PSE&G also was able to do this while dispersing its maturities over a wide spectrum of years.

As noted in the discussion of equity, PSE&G's management strives to achieve an investment-grade credit rating for its long-term debt. For S&P, that corresponds to bonds rate BBB- or above while Moody's investment grade ratings are those Baa3 or higher. Over the past three years, PSE&G long-term debt, short-term debt, and overall business have been rated as follows by S&P and Moody's:

[23] Response to OC-0331.

[24] Direct Testimony of Scott Jennings filed January 12, 2018, page 36, in Docket Nos. ER18010029 and GR18010030.

Table 14-13 – PSE&G Ratings Summary

PSE&G Ratings Summary						
	2019		2020		2021	
Description	S&P	Moody's	S&P	Moody's	S&P	Moody's
Senior Secured	A	Aa3	A	Aa3	A	A1
Commercial Paper	A-2	P-1	A-2	P-1	A-2	P-2
Preferred Stock	Not Avail	Baa1	Not Avail	Baa1	Not Avail	Baa2
Corporate Credit Rating	A-	A2	A-	A2	A-	A3
Corporate Credit Rating Outloo	Stable	Stable	Stable	Stable	Stable	Stable

Source: Response to OC-0327 (including updates).
Note: In some instances, Overland received multiple rating agency reports for the same year. In such instances, Overland relied on the most recent issues to include in the summary above.

During this time period, S&P did not change its ratings or outlook on PSE&G. In its December 15, 2021 report on PSE&G, S&P rated the utility's business risk as excellent and had the following observations:[25]

> Our assessment largely reflects its low-risk regulated electricity T&D and gas distribution operations, large customer base, and effective management of regulatory risk that has allowed it to consistently earn at or close to its allowed returns. Its limited geographic and regulatory diversity and robust capital spending that leads to negative discretionary cash flow partially offset these strengths. Although the Company's operations are limited within New Jersey, its large customer base lies within the most economically active parts of the state. The utility's operations are solely based in a somewhat historically challenging jurisdiction and benefit form additional credit-supportive regulation via FERC for its electricity transmission assets. We also expect PSE&G will continue to effectively manage its regulatory risk and mitigate regulatory lag through rate case filings for its capital spending plans in New Jersey.

Moody's downgraded PSE&G's individual securities and its corporate credit ratings on October 5, 2021 to levels that are more in line with those assigned by S&P.[26] Shortly after taking this action, Moody's noted:[27]

> The downgrade reflected our expectation that the utility will produce credit metrics lower than historical levels and a higher capital investment plan. It also incorporated our expectation that parent Public Service Enterprise Group (PSEG, Baa2 stable) will lean more on PSE&G, rather than subsidiary PSEG Power (Baa2 stable), to service its parent level obligations going forward.

[25] S&P Global RatingsDirect report on PS&EG dated December 15, 2021, page 4, provided in Response to OC-0327 (Update).

[26] An S&P senior secured rating of "A" coincides with a Moody's senior secured rating of "A2." Moody's rating of "A1" is one notch higher than "A2." An S&P corporate credit rating of "A-"coincides with a Moody's corporate credit rating of "A3."

[27] Moody's Credit Opinion dated October 19, 2021, page 1, provided in Response to OC-0327 (Update).

S&P expects PSE&G's financial measures to remain in the middle of the range for the intermediate financial risk category it has assigned the utility, with Funds from Operations as a percentage of Debt to approximate 18%.[28] With its recent downgrade of PSE&G, PSE&G's Cash Flow from Operating Activities (Pre Working Capital) to Debt of 18% is more in line with the indicative ratings Moody's typically assigns companies with similar financial metrics.

Cash Management and Short-Term Liquidity

PSE&G maintains its cash balances either in money market funds or bank accounts. In recent years, year-end cash balances have ranged from $21 million to $294 million between December 31, 2017 and December 31, 2021. There are no restrictions on these cash balances.[29] However, PSE&G does have relatively insignificant balances in deposits related to construction projects that it classifies as Other Current or Noncurrent Assets rather than Cash ($29 million and $45 million as of December 31, 2020 and 2021, respectively).[30]

Cash forecasting is a component of the annual business planning process, which results in a rolling five-year projection of financial statements. The current year's annual cash projection serves as the basis for the more frequent monthly and daily cash forecasts. Net cash flows before financing activities are driven by expectations surrounding customer receipts, energy supply payments, payroll, payments to outside parties, and payments to taxing authorities. Cash flows from financing activities depend largely on the timing and amounts of dividend payments, debt maturities, and debt issuances. The latter is sized so that short-term debt is maintained at a reasonable level at all times.[31]

Consistent with long-standing policy noted in the previous BPU management audit, PSE&G does not participate in a money pool with its affiliates.[32] However, the parent can borrow from the money pool and infuse funds into PSE&G if capital market financing became unavailable. According to management, it has not found it necessary to utilize this two-step process to fund PSE&G historically.[33]

PSE&G maintains its own separate commercial paper program to meet its own short-term liquidity needs. This program is fully back-stopped by PSE&G's separate credit facilities. PSEG also has its own credit facilities totaling $1.5 billion as of December 31, 2021 which can be used to support PSE&G and its affiliates.[34]

[28] S&P Global RatingsDirect report on PS&EG dated December 15, 2021, page 5, provided in Response to OC-0327 (Update).
[29] Response to OC-0038 and PSEG 2021 Form 10-K, page 78. Balances provided also include cash equivalents.
[30] PSEG 2021 Form 10-K, page 83.
[31] Response to OC-0035.
[32] Response to OC-0036.
[33] Response to OC-1831.
[34] PSEG 2021 Form 10-K, pages 136-137.

In recent years, PSE&G has maintained $600 million in credit facilities. Its current facilities are set to expire in March 2024 and will undergo a $4 million reduction in March 2022.[35] According to management, PSE&G targets minimal usage of its credit facilities.[36] Recent usage of these credit facilities by PSE&G is summarized in Table 14-14:

[35] PSEG 2018 Form 10-K, page 143, and PSEG 2021 Form 10-K, page 137.
[36] Response to OC-1676 (Confidential).

Table 14-14 – PSE&G Credit Facility Utilization

PSE&G Credit Facility Utilization (in million $'s)					
	Direct Funding			Letters of	
Month	Minimum	Maximum	Month End	Credit	Month End
Jan 19	$130.0	$480.0	$245.0	$16.3	$261.3
Feb 19	180.0	380.0	293.0	16.3	309.3
Mar 19	225.0	451.3	364.0	16.3	380.3
Apr 19	125.0	391.3	290.0	16.3	306.3
May 19	-	365.0	-	16.3	16.3
Jun 19	-	240.0	190.0	16.4	206.4
Jul 19	-	249.5	163.5	16.4	179.9
Aug 19	-	158.5	-	16.4	16.4
Sep 19	-	159.0	10.0	16.4	26.4
Oct 19	-	40.0	-	17.2	17.2
Nov 19	-	100.0	85.0	17.2	102.2
Dec 19	75.0	362.3	362.3	17.2	379.5
Jan 20	-	377.3	-	17.2	17.2
Feb 20	-	-	-	17.2	17.2
Mar 20	-	-	-	17.3	17.3
Apr 20	-	150.0	75.0	17.3	92.3
May 20	-	75.0	-	17.3	17.3
Jun 20	-	-	-	17.3	17.3
Jul 20	-	-	-	17.3	17.3
Aug 20	-	-	-	17.3	17.3
Sep 20	-	-	-	17.3	17.3
Oct 20	-	-	-	17.3	17.3
Nov 20	-	-	-	17.3	17.3
Dec 20	-	100.0	100.0	17.4	117.4
Jan 21	100.0	130.0	100.0	17.4	117.4
Feb 21	75.0	170.0	170.0	17.5	187.5
Mar 21	-	170.0	-	17.5	17.5
Apr 21	-	-	-	17.6	17.6
May 21	-	-	-	17.6	17.6
Jun-21	-	-	-	17.7	17.7
Jul-21	100.0	200.0	100.0	17.8	117.8
Aug-21	-	-	-	17.8	17.8
Sep-21	-	-	-	17.8	17.8
Oct-21	-	-	-	17.8	17.8
Nov-21	-	-	-	17.8	17.8
Dec-21	-	-	-	17.8	17.8
Source: Responses to OC-0046 and OC-1679.					

A diverse bank group provides PSE&G's credit facilities, with none representing more than 6.5% of the total commitments.[37]

[37] Responses to OC-0046 and 1679.

To enhance PSEG's flexibility, in the early days of the COVID-19 pandemic (March and April of 2020), PSEG entered into three 364-day term loan agreements which provided $800 million of additional liquidity to consolidated operations. Two of these loans were prepaid in August 2020, and the third loan was repaid as of January 2021. Three new 364-day term loans were entered into by PSEG at various points in time in 2021 for a total of $2.5 billion of short-term debt. All of these new loans remained outstanding as of December 31, 2021.[38]

Mechanisms to Protect PSE&G from the Financial Issues of Affiliates (Ring-Fencing)

As mentioned earlier in this chapter, the introduction of non-regulated operations in a holding Company structure that includes utilities is frequently seen as adding risk to the overall business. From a regulatory perspective, a concern is that the financial difficulties of a more volatile, non-regulated affiliate could drain resources from the utility and, in a worst case scenario, bankrupt the parent and some or all of its subsidiaries. Credit rating agencies have recognized the possibility of this risk to varying levels of degree. For instance, in its most recently-released credit rating of PSE&G, S&P stated that it could lower PSE&G's rating in the future if ". . . [w]e lowered the rating on parent Public Service Enterprise Group Inc. (PSEG)." However, its current rating of the utility was based, in part, on "[S&P's] insulation analysis [which] reflects our view of PSE&G as sufficiently separate from its parent with ample regulatory and structural insulating measures."[39]

As identified by the Company, these regulatory and structural insulating measures include:[40]

- PSE&G assets secure only the PSE&G Mortgage Bonds,
- PSE&G asset sales must be approved by the BPU, in accordance with the BPU's regulations,
- PSE&G issues its own securities and has its own credit agreements,
- PSE&G maintains its own commercial paper program which is backstopped by its own credit agreements,
- PSE&G's securities and credit agreements do not contain cross-defaults to the other PSEG companies,
- PSE&G's securities and credit agreements do not contain ratings triggers to the other PSEG companies,
- PSE&G maintains separate cash accounts, and does not participate in any PSEG money pool,
- PSE&G does not lend to or borrow from PSEG or subsidiaries,
- Dividend payments are approved by PSE&G's Board of Directors which includes at least 40% independent directors, as required by BPU rules, and

[38] Response to OC-0048 and the PSEG 2021 Form 10-K, page 137.

[39] S&P Global RatingsDirect report on PS&EG dated December 15, 2021, pages 3 and 8 provided in Response to OC-0327 (Update).

[40] Response to OC-0311.

- PSE&G dividend payments are principally based upon its capital structure policy which is designed to achieve strong investment grade credit ratings.

While the Company has implemented numerous mechanisms to insulate PSE&G from the financial issues of its affiliates, given the importance that S&P places on the parent-subsidiary relationship which extends to not only PSE&G but also its sister companies, we believe it is useful to perform a high-level analysis of the finances of PSEG and its other principal subsidiaries for the purpose of identifying any potential detrimental impacts on the utility.

PSEG and Affiliate Capitalization and Significant Financial Activities

In recent years, PSEG has identified its two principal businesses as those of its regulated utility operations, PSE&G, and its generating and energy marketing business, PSEG Power. Since 2010, the contribution of consolidated operating earnings of these two businesses has changed dramatically due to the deployment of PSEG Power's free cash flow to PSE&G capital requirements. In 2010, PSE&G contributed only 27 percent of consolidated operating earnings. However, by 2019 this had grown to 75 percent and was expected by management to continue increasing into the foreseeable future.[41] With the sale of PSEG Power's fossil generating assets which closed in February 2022, PSE&G is expected to generate 90 percent of consolidated earnings through 2025, comprise 85 percent of consolidated assets, and require greater than 90 percent of consolidated capital spending.[42]

PSEG's other wholly-owned subsidiaries include: 1) PSEG Energy Holdings L.L.C. (PSEG Energy Holdings) which holds the corporate interests in offshore wind ventures and a small legacy portfolio of lease investments; 2) PSEG Long Island LLC which operates the Long Island Power Authority's (LIPA's) electric transmission and distribution system pursuant to contractual agreement; and 3) PSEG Services Corporation which provides certain management, administrative, and general services to operating subsidiaries and the parent at cost.[43]

Given the relative size of the business operations and the nature of the associated corporate offerings, most of the following discussion will be focused on PSEG Power and PSEG, the parent. However, when relevant, we will also provide information regarding other PSEG subsidiaries.

Recent Significant Transactions

As part of its coal exit strategy, PSEG Power recognized a $286 million after-tax loss in 2019 on the sale of its ownership interests in its Keystone and Conemaugh fossil generation assets located in western Pennsylvania.[44] The following year, in 2020, PSEG Power recognized an $86 million after-tax gain on the

[41] "PSEG Strategic Overview" presentation made by management to the PSEG board of directors on July 21, 2020 provided in Response to OC-0270 (Restricted), pages 28-29 of 185.

[42] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 22.

[43] PSEG 2021 Form 10-K, page 2.

[44] The pre-tax loss on these facilities was approximately $400 million (PSEG 2021 Form 10-K, page 96).

sale of its ownership interest in its New Jersey Yards Creek generation facility which it jointly owned with FirstEnergy.[45,46]

In April 2021, PSEG completed its acquisition of a 25 percent equity interest in Ocean Wind, an 1,100 megawatt offshore wind farm located 15 miles off the coast of southern New Jersey. Financial details of the transaction were not released.

PSEG Power completed the sale of its solar generation portfolio (467 MW) located in various states in June 2021 with Quattro Solar, LLC, an affiliate of LS Power. The Company recognized a pre-tax $63 million gain from this sale.[47]

PSEG entered into two agreements to sell PSEG Power's 6,750 MW remaining fossil generating portfolio in August 2021. This was the culmination of a decision announced in July 2020 by the Company to explore strategic alternatives for PSEG Power's non-nuclear generating fleet. The sale of the assets located in New Jersey, Maryland, New York, and Connecticut was made to new formed subsidiaries of ArcLight Energy Partners Fund VII, L.P., a fund controlled by ArcLight Capital Partners, LLC. The aggregate consideration of $1.920 billion excludes certain assets and liabilities primarily related to obligations under certain environmental regulations which are not currently estimable but may be material. As a result of this transaction, PSEG recorded a pre-tax impairment loss on sale of $2.691 billion in 2021.[48] The transaction closed in February 2022.[49]

Prior to the closing of the fossil generating portfolio sale, management expected the total after-tax proceeds from the sale of solar and fossil assets to be approximately $2.15 billion. Those proceeds were expected to be used to redeem PSEG Power 2023 and 2031 senior notes (approximately $1.6 billion) and to repurchase shares of PSEG common stock (approximately $0.5 billion).[50]

Equity

Previously, we established that PSE&G's earnings supplemented by external debt financing provided the vast majority of the utility's funding requirements over the past decade. There was little to no evidence that PSE&G was being used by the parent to provide funding for its sister companies' operations. This is even more clear in the following table which shows the major equity transactions of PSEG's operating subsidiaries side by side:

[45] The pre-tax gain on the sale of Yards Creek was approximately $122 million (PSEG 2021 Form 10-K, page 96).
[46] PSEG 2021 Form 10-K, page 48, and press release concerning the Yards Creek sale.
[47] PSEG 2021 Form 10-K, pages 5, 41, 53 and 95.
[48] A significant portion of this impairment was related to three recently completed combined-cycle gas-turbine units: Keys Energy Center, Sewaren 7, and Bridgeport Harbor Station Unit 5 (Interview of Ralph Izzo, Chairman, President, and CEO of PSEG, on February 15, 2022
[49] PSEG 2021 Form 10-K, pages 95-96.
[50] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 59.

Table 14-15 – PSEG Summary of Subsidiary Equity Activity

PSEG Summary of Subsidiary Equity Activity				
Category	**PSE&G**	**PSEG Power**	**PSEG Energy Holdings**	**PSEG Long Island**
Net Income (Loss):				
2011 - 2017	$5,035,000,000	$4,532,000,000	($27,000,000)	$79,000,000
2018	1,067,000,000	365,000,000	24,000,000	35,000,000
2019	1,250,000,000	468,000,000	2,000,000	35,000,000
2020	1,327,000,000	594,000,000	17,000,000	30,000,000
2021	1,446,000,000	(2,056,000,000)	17,000,000	36,000,000
	10,125,000,000	**3,903,000,000**	**33,000,000**	**215,000,000**
Dividends to Parent:				
2011 - 2017	(300,000,000)	(3,685,000,000)	-	(60,000,000)
2018	-	(400,000,000)	-	(35,000,000)
2019	(250,000,000)	(525,000,000)	-	(35,000,000)
2020	(175,000,000)	(350,000,000)	-	(35,000,000)
2021	-	(175,000,000)	-	(30,000,000)
	(725,000,000)	**(5,135,000,000)**	**-**	**(195,000,000)**
Other Capital Distributions to Parent:				
2011 - 2017	-	-	(700,000,000)	-
2018	-	-	-	-
2019	-	-	-	-
2020	-	-	(10,000,000)	-
2021	-	-	-	-
	-	**-**	**(710,000,000)**	**-**
Capital Contributions from Parent:				
2011 - 2017	675,000,000	-	-	-
2018	-	-	-	-
2019	-	-	-	-
2020	75,000,000	-	-	-
2021	-	-	-	-
	750,000,000	**-**	**-**	**-**
Responses to OC-1441, OC-0951, OC-0039 (Confidential), OC-0041 (Confidential), OC-0040 (Confidential), and OC-1629 (including updates). Some summing required. Note: PSEG LI had no net income in 2011 or 2012 according to the response to OC-1441.				

This table provides some additional clarity on how PSEG has employed the cash flows of its various subsidiaries in the past 11 years:

- Unlike PSE&G, PSEG Power's earnings and related operating cash flows are distributed to the parent through dividends and used for payment of parent dividends to external parties or parent debt maturities and retirements,
- The same is true of PSEG Long Island,

- With the exception of a one-time capital distribution of $500 million to PSEG in 2012 from proceeds of prior year leveraged lease sales,[51] PSEG Energy Holdings has had no significant changes to its equity accounts during this time period, and
- Because PSEG Power and PSEG Long Island were providing significant cash to PSEG, it freed PSE&G to reinvest all of its cash flow from operations into its own business.[52]

PSEG, the parent, dividend payments are approved by its board of directors on a quarterly basis. The amounts paid out are driven by market expectations and based on several factors including dividend yields relative to earnings per share (EPS) growth, annual dividend increases of its peers, and dividend payout ratios of its peers.[53] With respect to the latter, PSEG's historical dividend payout ratio has been relatively steady for an extended period of time as demonstrated in the following table:

Table 14-16 – PSEG Historical Dividend Payout %'s

PSEG Historical Dividend Payout %'s	
Year	**Payout %**
2013	56%
2014	54%
2015	54%
2016	57%
2017	59%
2018	58%
2019	57%
2020	57%
Source: PSEG 2021 Investor Conference presentation dated September 27, 2021, p. 67 (Form 8-K)	

While PSEG's payout ratio has been in the bottom third of its peers in recent years,[54] this is expected to change as PSEG recently chose to increase its dividend by $0.12 per share per year rather than the previous $0.08 per share per year due to projected EPS growth rates and an improved business mix with

[51] Response to OC-1832. The remaining $200 million of capital distributions made by PSEG Energy Holdings to PSEG occurred over a 5-year period from 2013 to 2017 with no one year exceeding $60 million.

[52] The same result could have been accomplished if PSE&G distributed dividends to PSEG, and PSEG provided additional capital contributions to PSE&G in the same amount. This most likely explains why PSEG management characterized the use of PSEG Power's free cash flow as reinvestments into PSE&G capital programs at PSEG board of directors' strategy session in July 2020 (see Footnote 41 above).

[53] Response to OC-0338.

[54] "Review and Approval of the PSEG Dividend Policy, and Resolutions Recommending the 2021 Dividend Increase to the PSEG Board" presentation dated February 16, 2021 (page 1) provided in the Supplemental Response to OC-0271 (Restricted).

the closing of PSEG Power's sale of fossil generating assets.[55] This expected improvement in the payout ratio is demonstrated in Table 14-17:

Table 14-17 – PSEG: PSEG and Peer Group Expected Dividend Payout %'s

PSEG PSEG and Peer Group Expected Dividend Payout %'s			
Company	**2021 Actual**	**2022 Analyst Expectations**	**2023 Analyst Expecations**
PSEG (1)	56%	62%	65%
CenterPoint Energy, Inc.	44%	50%	50%
Exelon Corporation	55%	60%	60%
Ameren Corporation	57%	58%	57%
Sempra Energy	53%	55%	57%
Edison International	59%	60%	59%
FirstEnergy Corp.	60%	64%	62%
DTE Energy Company	66%	60%	60%
CMS Energy Corporation	66%	64%	62%
Xcel Energy Inc.	62%	61%	61%
Eversource Energy	63%	62%	62%
American Electric Power Company, Inc.	64%	63%	63%
Dominion Energy Inc.	65%	65%	65%
Entergy Corporation	64%	65%	65%
WEC Energy Group Inc.	67%	68%	67%
PPL Corporation	140%	68%	65%
Consolidated Edison, Inc.	73%	71%	69%
Duke Energy Corporation	75%	73%	71%
Southern Company	77%	76%	73%
Average	**67%**	**63%**	**63%**
Median	**64%**	**64%**	**62%**

Source: "Review and approval of the PSEG Dividend Policy, and resoulutions recommending the 2022 dividend amount to the PSEG Board" presentation to the PSEG Finance Committee dated February 15, 2022 (peer data obtained from JP Morgan 1/18/2022 except for Exelon, which is sourced from the Analyst Day presentation (Response to OC-1674 (Restricted).

(1) PSEG forecasted data from the final business plan.

As noted previously, the proceeds from the sale of PSEG Power's solar and fossil generating assets also have been partially earmarked for a $500 million share repurchase program, which all other things being equal, will improve EPS results on a prospective basis.[56]

[55] "Review and Approval of the PSEG Dividend Policy, and Resolutions Recommending the 2022 Dividend Increase to the PSEG Board" presentation dated February 15, 2022 (page 1) provided in Response to OC-1674 (Restricted) and "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 12.

[56] "PSEG 2021 Investor Conference" presentation dated September 27, 2021, page 7.

Long-Term Debt

Unlike the last BPU management audit, PSEG (the parent) now has outstanding long-term debt of its own. According to management, this source of financing enables PSE&G to retain its equity balance and fund its own internal growth. Management also views it as an efficient financing alternative.[57]

Recent long-term debt activity at the parent and PSEG Power is summarized in Table 14-18:

[57] For example, in recent years, PSEG could obtain more advantageous rates than its subsidiary, PSEG Power (Interview of Bradford Huntington, Vice President and Treasurer, on February 24, 2022).

Table 14-18 – PSEG and PSEG Power Debt Rollforward

PSEG and PSEG Power Debt Rollforward (in million $'s)				
Category	**PSEG**	**PSEG Power**	**Net Unamortized Discount and Selling Expense**	**Total**
December 31, 2017 Balance	$2,100	$2,400	($23)	$4,477
Issuances	700	700	(5)	1,395
Retirements / Redemptions	(350)	(250)	-	(600)
Ongoing Amortization	-	-	5	5
Rounding	-	-	1	1
December 31, 2018 Balance	2,450	2,850	(22)	5,278
Issuances	750	-	(5)	745
Retirements / Redemptions	(750)	-	-	(750)
Ongoing Amortization	-	-	8	8
December 31, 2019 Balance	2,450	2,850	(19)	5,281
Issuances	1,196	-	(11)	1,185
Retirements / Redemptions	(700)	(502)	-	(1,202)
Ongoing Amortization	-	-	8	8
Rounding	-	-	(1)	(1)
December 31, 2020 Balance	2,946	2,348	(23)	5,271
Issuances	1,500	-	(9)	1,491
Retirements / Redemptions	(300)	(2,348)	-	(2,648)
Ongoing Amortization	-	-	3	3
Write-Off	-	-	7	7
December 31, 2021 Balance	$4,146	$0	($22)	$4,124

Sources: PSEG 2018 (pp. 140, 142-143), 2019 (pp. 140, 142-143), 2020 (pp. 143, 145-146), and 2021 Forms 10-K (pp. 133, 135-136). In addition, Response to OC-1462 (Confidential) and OC-1675.
Note 1: The amounts above include current maturities of long-term debt.
Note 2: Net Unamortized Discount and Selling Expense includes both PSEG and PSEG Power amounts.

In 2021, PSEG Power was able to redeem all of its long-term debt early using the proceeds from the sale of its non-nuclear generating fleet. However, management indicated that PSEG Power always has the option of re-levering its debt in the future if new financing is needed.[58]

While S&P has maintained its corporate rating and outlook of PSEG at the same levels for the past three years, Moody's recently downgraded PSEG's corporate rating as can be seen in the following table:

[58] Interview of Bradford Huntington, Vice President and Treasurer, on February 24, 2022.

Table 14-19 – PSEG Ratings Summary

PSEG Ratings Summary			
Rating Agency	**2019**	**2020**	**2021**
Standard & Poor's			
Corporate Credit Rating	BBB+	BBB+	BBB+
Credit Ratings Outlook	Stable	Stable	Stable
Moody's			
Corporate Credit Rating	Baa1	Baa1	Baa2
Credit Ratings Outlook	Stable	Stable	Stable

Source: Response to OC-0327 (including updates).
Note: In some instances, Overland received multiple rating agency reports for the same year. In such instances, Overland relied on the most recent issue to include in the summary above.

Moody's action results in a corporate credit rating that is one notch below S&P's rating of PSEG. Moody's took this action for the following reasons:[59]

- Moody's expects PSEG to produce cash flow from operations before changes in working capital (CFO pre-WC) relative to debt of 14% to 15% over the next several years compared to a historical rate of 20%,
- This deterioration in cash flow will be occurring at the same time PSE&G is pursuing a robust investment program,
- PSEG's debt load has also steadily been increasing from approximately 17% of consolidated debt during the 2016-2019 timeframe to approximately 23% at the end of 2020, and
- Other credit challenges include weak merchant power markets, lower-priced hedges, and a smaller and more concentrated generation portfolio.

As noted previously, until PSEG's offshore wind investments begin generating meaningful cash flows, PSEG will be relying on PSE&G to a greater extent than in the past to service its future debt load since PSEG Power's business has been significantly downsized by the recent sale of its fossil generating assets. Management plans to ease the burden of this new responsibility by refinancing the parent debt as it comes due.[60]

Although S&P did not change its rating or outlook on PSEG, it also raised concerns about the consolidated business after PSEG announced the sale of the fossil generating asset portfolio in 2021. While it also expects financial measures to weaken, S&P believes the improved business risk profile resulting from exiting the more volatile merchant business will offset this deterioration.[61]

[59] Moody's Credit Opinion of PSEG dated October 19, 2021, pages 1-2, provided in Response to OC-0327 (Update).
[60] Interview of Bradford Huntington, Vice President and Treasurer, on February 24, 2022.
[61] S&P RatingsDirect Bulletin on PSEG dated August 13, 2021, page 1, provided in Response to OC-0327 (Update).

Independent Financial Assessment of PSEG

In addition to the credit rating agencies that provide analysis of the credit-worthiness of PSE&G, its parent, and principal affiliate (PSEG Power), PSEG is tracked by a number of equity analysts who consider the consolidated business as a whole from an investment perspective.

In the most recent report made available to us, Morgan Stanley opined that after selling its fossil generating assets and using the proceeds to pay off PSEG Power's debt and buy back $500 million in common equity shares:[62]

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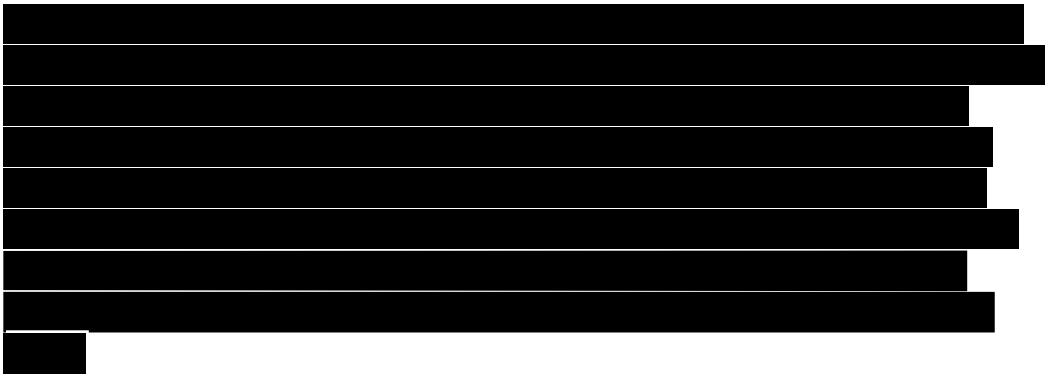

[END CONFIDENTIAL]

Income Taxes

The allocation of income tax liabilities between PSE&G and its parent is made pursuant to an agreement between the parties that was signed in 1986. This agreement establishes how the parent intends to "compensate" PSE&G for use of utility net operating losses, tax credits, refund claims, and carrybacks in the filing of a consolidated income tax return with the government. In short, PSE&G calculates its income tax liability as if it operates on a stand-alone basis, and the resulting computation will determine the amounts that need to be remitted among the parties. According to the Company, the terms of the long-standing agreement have not been questioned or challenged by regulators, and there have been no substantive changes to the agreement since the last management audit was conducted.[63]

The goal of a tax allocation agreement is to ensure an entity pays or receives its stand-alone tax benefit or tax obligation. This can be accomplished in several different ways, including on the basis of each entity's stand-alone tax liability or alternatively on the basis of each entity's taxable income as a percentage of consolidated taxable income. The former is the preferred methodology because it eliminates any possibility that an entity will benefit from or bear the burden of the tax situation of an

[62] Morgan Stanley research update on PSEG dated September 28, 2021, page 4, provided in the Supplemental Response to OC-0337 (Restricted).

[63] Responses to OC-0344 and 0345. Management has also not proposed any changes to the agreement that were ultimately rejected by the Internal Revenue Service (Response to OC-0346).

affiliate. That is why a regulated members' share of its consolidated group's tax liability cannot exceed the tax liability the entity would have owed to the IRS as a stand-alone taxpayer in many states.

In April 2020, PSEG's nuclear carryback claim and federal tax returns for the years 2011 and 2012 were approved by the Joint Committee on Taxation. Shortly thereafter, the federal income tax audits for these two years and 2013 through 2016 were concluded. This resulted in PSEG, PSE&G, and PSEG Power recording 2020 second quarter income statement benefits of $37 million, $9 million, and $25 million, respectively.[64]

PSEG's role in the Ocean Wind is characterized as an equity and tax equity investor.[65] Tax equity investors are used to efficiently monetize tax benefits or credits available to offshore wind investments that PSEG's partner, Orsted, cannot because it does not have sufficient U.S. taxable income.[66] The allocation methodology set out in the PSEG tax allocation agreement previously discussed is designed to ensure all entities pay or receive their stand-alone tax obligation. This may effectively eliminate PSE&G's income tax exposure from any adverse consequences of this offshore wind investment.

In the last management audit conducted by the BPU, an affiliate of PSE&G (PSEG Resources LLC) had entered into a number of leveraged leases although the income tax deductions associated with these leases had been disallowed by the IRS from 1997 to 2003.[67] At the time, PSEG had filed a protest of the IRS's position on the matter while at the same time taking steps to divest its interests in these leases. These leveraged lease investments totaled $1.6 billion at the end of December 2009.

Subsequent to the management audit, PSEG settled the federal IRS audit for tax years 2007 through 2010 in 2014, which included the leveraged lease issue. According to management, PSEG and its subsidiaries no longer continue to invest in these types of leveraged leases.[68]

Utility Rates Management

The Corporate Rates and Revenue Requirements group, which resides within the Utility Finance function, is responsible for maintaining a detailed Excel matrix that tracks the Company's pending and recently completed proceedings before the New Jersey BPU. Besides base rate cases, the matrix includes clause-type cost recovery mechanisms, infrastructure investment programs, new programs promoting energy efficiency and renewable generation, and other proceedings pending before the BPU.

[64] PSEG 2020 second quarter Form 10-Q, page 62.

[65] "Investment Recommendation to Acquire a 25% Interest in the Ocean Wind Project" presentation made to the PSEG board of directors on November 17, 2020, page 10, provided in the Supplemental Response to OC-0270 (Restricted).

[66] "Review of Potential Ocean Wind Investment Option" presentation made to the Finance Committee of the PSEG board of directors on July 20, 2020, page 10, provided in the Supplemental Response to OC-0271 (Restricted).

[67] In this business, PSEG Resources LLC (a wholly-owned subsidiary of PSEG Energy Holdings LLC) typically purchased energy-related assets to be leased back to the sellers. The purpose of this arrangement was for PSEG to obtain a fixed rate of return through the income from the lease payments as well as the tax benefits of interest and depreciation deductions.

[68] Response to OC-0343. Specifically, PSEG and its subsidiaries no longer invest in lease-in, lease-out (LILO) or sale-in, lease out (SILO) transactions which were at the heart of the dispute with the IRS (Response to OC-1871).

Information tracked in the matrix includes a description of the rate, annualized revenue impact, filing deadlines as well as anticipated dates of resolution and rate change.[69]

Separately, the Legal Department manages monthly State Policy Team and Federal Policy Team meetings which cover the status of rate proceedings before the BPU and the FERC. These meetings are attended by senior management as well as other high-level corporate management. Although the formulation of policy and strategy is the primary objective of these meetings, key upcoming regulatory compliance obligations and the status of pending proceedings are provided by the legal department subject to attorney-client privilege. The legal department also provides a monthly report under attorney-client privilege to management that has more detailed discussions of pending matters before the BPU and the FERC than the policy team materials.[70]

Performance, as measured by PSEG, focuses primarily on comparisons to peers and continuous improvement rather than assessments of how actual results compare to those projected from rates in effect. This is reflected in the Company's balanced scorecard system.[71]

In the most recent ratings report made available to us, S&P notes that management is effectively managing its regulatory risk by employing cost-recovery mechanisms and timely filing of rate cases with the BPU.[72] Likewise, Moody's characterizes the Company's regulatory environment as "supportive" and one that provides "contemporaneous returns." Specifically, "[i]n recent years, PSE&G's interaction with the BPU has led to a track record of largely predictable and consistent regulatory outcomes. It has also improved the utility's ability to recover costs in a timely manner and increased its ability to receive timely returns on over 90% of its investments."[73]

Internal Audit

The internal audit organization is discussed briefly in our chapter concerning Executive Management and Corporate Governance as it relates to the Company's compliance with NYSE rules that call for listed companies to have an internal audit function. Additional details concerning the internal audit function, especially related to its independence and the work it performs with respect to internal controls over financial reporting is documented in chapter on Accounting and Property Records.

Additional Information

PSEG's and PSE&G's balance sheets, income statements, and statements of cash flows for the companies' most recent fiscal years are provided for informational purposes only.

[69] Response to OC-0349.
[70] Response to OC-0349.
[71] Supplemental Response to OC-0349.
[72] S&P RatingsDirect Bulletin on PSE&G dated December 15, 2021, page 2, provided in Response to OC-0327 (Update).
[73] Moody's Credit Opinion of PSE&G dated October 19, 2021, pages 2-3, provided in Response to OC-0327 (Update).

Table 14-20 – PSEG Consolidated Balance Sheets December 31, 2021 and 2020

PSEG Consolidated Balance Sheets December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Current Assets:		
Cash and Cash Equivalents	$818	$543
Accounts Receivable, net of allowance	1,859	1,410
Tax Receivable	9	63
Unbilled Revenues, net of allowance	217	229
Fuel	296	277
Materials and Supplies, net	448	601
Prepayments	63	51
Derivative Contracts	72	60
Regulatory Assets	364	369
Assets Held for Sale	2,060	-
Other	44	27
Total Current Assets	**6,250**	**3,630**
Property, Plant and Equipment:		
Gross Property, Plant and Equipment	43,684	48,569
Accumulated Depreciation and Amortization	(9,318)	(10,984)
Net Property, Plant and Equipment	**34,366**	**37,585**
Noncurrent Assets:		
Regulatory Assets	3,605	3,872
Operating Lease Right-of-Use Assets	201	262
Long-Term Investments	541	536
Nuclear Decommissioning Trust Fund	2,637	2,501
Long-Term Tax Receivable	47	-
Long-Term Receivable from Variable Interest Entity	828	945
Rabbi Trust Fund	242	266
Other Intangibles	20	158
Derivative Contracts	28	9
Other	234	286
Total Noncurrent Assets	**8,383**	**8,835**
Total Assets	**$48,999**	**$50,050**
Source: PSEG 2021 Form 10-K, p. 72.		

Table 14-21 – PSEG Consolidated Balance Sheets December 31, 2021 and 2020

PSEG Consolidated Balance Sheets December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Current Liabilities:		
Long-Term Debt Due Within One Year	$700	$1,684
Commercial Paper and Loans	3,519	1,063
Accounts Payable	1,315	1,332
Derivative Contracts	17	21
Accrued Interest	121	126
Accrued Taxes	67	124
Clean Energy Program	146	143
Obligation to Return Cash Collateral	179	98
Regulatory Liabilities	388	294
Liabilities Held for Sale	144	-
Other	476	637
Total Current Liabilities	**7,072**	**5,522**
Noncurrent Liabilities:		
Deferred Income Taxes and Investment Tax Credits	5,759	6,502
Regulatory Liabilities	2,497	2,707
Operating Leases	191	252
Asset Retirement Obligations	1,573	1,212
Other Postretirement Benefit Costs	572	730
OPEB Costs of Servco	640	699
Accrued Pension Costs	318	1,128
Accrued Pension Costs of Servco	174	226
Environmental Costs	245	286
Derivative Contracts	17	4
Long-Term Accrued Taxes	100	88
Other	184	214
Total Noncurrent Liabilities	**12,270**	**14,048**
Long-Term Debt	15,219	14,496
Total Long-Term Debt	**15,219**	**14,496**
Stockholders' Equity:		
Common Stock	5,045	5,031
Treasury Stock	(896)	(861)
Retained Earnings	10,639	12,318
Accumulated Other Comprehensive Income	(350)	(504)
Total Stockholders' Equity	**14,438**	**15,984**
Total Liabilities and Stockholders' Equity	**$48,999**	**$50,050**
Source: PSEG 2021 Form 10-K, p. 73.		

Table 14-22 – PSEG Consolidated Statements of Income Years Ended December 31, 2021 and 2020

PSEG Consolidated Statements of Income Years Ended December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Operating Revenues	$9,722	$9,603
Total Operating Revenues	**9,722**	**9,603**
Operating Expenses:		
Energy Costs	3,499	3,056
Operation and Maintenance	3,226	3,115
Depreciation and Amortization	1,216	1,285
(Gains) Losses on Asset Dispositions	2,637	(123)
Total Operating Expenses	**10,578**	**7,333**
Operating Income	**(856)**	**2,270**
Income from Equity Method Investments	16	14
Net Gains (Losses) on Trust Investments	194	253
Other Income (Deductions)	98	115
Non-Operating Pension and OPEB Credits (Costs)	328	249
Loss on Extinguishment of Debt	(298)	-
Interest Expense	(571)	(600)
Income Before Income Taxes	**(1,089)**	**2,301**
Income Tax Benefit (Expense)	441	(396)
Net Income	**($648)**	**$1,905**
Source: PSEG 2021 Form 10-K, p. 70.		

Table 14-23 – PSEG Consolidated Statements of Cash Flows Year's Ended December 31, 2021 and 2020

PSEG Consolidated Statements of Cash Flows Years Ended December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Cash Flows from Operating Activities:		
Net Income	($648)	$1,905
Adjustments to Reconcile Net Income to Net		
Cash Flows from Operating Activities:		
Depreciation and Amortization	1,216	1,285
Amortization of Nuclear Fuel	187	184
(Gains) Losses on Asset Dispositions and Impairments	2,637	(123)
Loss on Extinguishment of Debt	298	-
Emission Allowances and Renewable Energy		
Credit Compliance Accrual	138	151
Provision for Deferred Income Taxes (Other		
than Leases) and ITC	(817)	139
Non-Cash Employee Benefit Plan (Credits) Costs	(178)	(105)
Leveraged Lease (Income), (Gains) and Losses,		
Adjusted for Rents Received and Deferred Taxes	(11)	(135)
New Realized and Unrealized (Gains) Losses on		
Energy Contracts and Other Derivatives	614	80
Cost of Removal	(121)	(106)
Net Change in Regulatory Assets and Liabilities	(271)	(101)
Net (Gains) Losses and (Income) Expense from NDT Fund	(229)	(278)
Net Change in Certain Current Assets and Liabilities:		
Tax Receivable	56	107
Accrued Taxes	(127)	124
Cash Collateral	(790)	(10)
Other Current Assets and Liabilities	(238)	73
Employee Benefit Plan Funding and Related Payments	(25)	(18)
Other	45	(70)
Net Cash Provided By (Used In) Operating Activities	**1,736**	**3,102**
Cash Flows from Investing Activities:		
Additions to Property, Plant and Equipment	(2,719)	(2,923)
Purchase of Emission Allowances and RECs	(98)	(111)
Proceeds from Sales of Trust Investments	2,100	2,234
Purchases of Trust Investments	(2,092)	(2,250)
Proceeds from Sales of Long-Lived Assets and Lease		
Investments	569	301
Contributions to Equity Method Investments	(111)	-
Other	107	73
Net Cash Provided By (Used In) Investing Activities	**(2,244)**	**(2,676)**
Cash Flows from Financing Activities:		
Net Change in Commercial Paper and Loans	256	(352)
Proceeds from Short-Term Loan	2,500	800
Repayment of Short-Term Loan	(300)	(500)
Issuance of Long-Term Debt	2,825	2,450
Redemption of Long-Term Debt	(3,082)	(1,365)
Premium Paid on Early Extinguishment of Debt	(294)	-
Cash Dividends Paid on Common Stock	(1,031)	(991)
Other	(75)	(72)
Net Cash Provided By (Used In) Financing Activities	**799**	**(30)**
Net Increase (Decrease) in Cash, Cash Equivalents and Restricted Cash	**291**	**396**
Cash, Cash Equivalents and Restricted Cash at Beginning of Period	572	176
Cash, Cash Equivalents and Restricted Cash at End of Period	**$863**	**$572**
Source: PSEG 2021 Form 10-K, p. 74.		

Table 14-24 – Public Service Electric and Gas Company Consolidated Balance Sheets December 31, 2021 and 2020

Public Service Electric and Gas Company Consolidated Balance Sheets December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Current Assets:		
Cash and Cash Equivalents	$294	$204
Accounts Receivable, net of allowance	1,050	1,004
Unbilled Revenues, net of allowance	217	229
Materials and Supplies, net	233	217
Prepayments	15	14
Regulatory Assets	364	369
Other	33	13
Total Current Assets	**2,206**	**2,050**
Property, Plant and Equipment:		
Gross Property, Plant and Equipment	38,588	36,300
Accumulated Depreciation and Amortization	(7,640)	(7,149)
Net Property, Plant and Equipment	**30,948**	**29,151**
Noncurrent Assets:		
Regulatory Assets	3,605	3,872
Operating Lease Right-of-Use Assets	92	99
Long-Term Investments	181	222
Rabbi Trust Fund	43	51
Other	123	136
Total Noncurrent Assets	**4,044**	**4,380**
Total Assets	**$37,198**	**$35,581**
Source: PSEG 2021 Form 10-K, p. 78.		

Table 14-25 – Public Service Electric and Gas Company Consolidated Balance Sheets December 31, 2021 and 2020

Public Service Electric and Gas Company Consolidated Balance Sheets December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Current Liabilities:		
Long-Term Debt Due Within One Year	$0	$434
Commercial Paper and Loans	-	100
Accounts Payable	571	671
Accounts Payable - Affiliated Companies	418	479
Accrued Interest	107	101
Clean Energy Program	146	143
Obligation to Return Cash Collateral	179	98
Regulatory Liabilities	388	294
Other	376	530
Total Current Liabilities	**2,185**	**2,850**
Noncurrent Liabilities:		
Deferred Income Taxes and Investment Tax Credits	4,874	4,524
Regulatory Liabilities	2,497	2,707
Operating Leases	83	88
Asset Retirement Obligations	363	314
Other Postretirement Benefit Costs	354	485
Accrued Pension Costs	132	612
Environmental Costs	191	236
Long-Term Accrued Taxes	6	7
Other	145	154
Total Noncurrent Liabilities	**8,645**	**9,127**
Long-Term Debt	11,795	10,475
Total Long-Term Debt	**11,795**	**10,475**
Stockholders' Equity:		
Common Stock	892	892
Contributed Capital	1,170	1,170
Basis Adjustment	986	986
Retained Earnings	11,524	10,078
Accumulated Other Comprehensive Income	1	3
Total Stockholders' Equity	**14,573**	**13,129**
Total Liabilities and Stockholders' Equity	**$37,198**	**$35,581**
Source: PSEG 2021 Form 10-K, p. 79.		

Table 14-26 – PSEG Consolidated Statements of Income Years Ended December 31, 2021 and 2020

PSEG Consolidated Statements of Income Years Ended December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Operating Revenues	$7,122	$6,608
Total Operating Revenues	**7,122**	**6,608**
Operating Expenses:		
Energy Costs	2,688	2,469
Operation and Maintenance	1,692	1,614
Depreciation and Amortization	928	887
Gain on Asset Dispositions	(4)	(1)
Total Operating Expenses	**5,304**	**4,969**
Operating Income	**1,818**	**1,639**
Net Gains on Trust Investments	2	3
Other Income (Deductions)	88	108
Non-Operating Pension and OPEB Credits (Costs)	264	205
Interest Expense	(402)	(388)
Income Before Income Taxes	**1,770**	**1,567**
Income Tax Benefit (Expense)	(324)	(240)
Net Income	**$1,446**	**$1,327**
Source: PSEG 2021 Form 10-K, p. 76.		

Table 14-27 – Public Service Electric and Gas Company Consolidated Statements of Cash Flows Years Ended December 31, 2021 and 2020

Public Service Electric and Gas Company Consolidated Statements of Cash Flows Years Ended December 31, 2021 and 2020 (in million $'s)		
Category	**2021**	**2020**
Cash Flows from Operating Activities:		
Net Income	$1,446	$1,327
Adjustments to Reconcile Net Income to Net		
Cash Flows from Operating Activities:		
Depreciation and Amortization	928	887
Provision for Deferred Income Taxes and ITC	116	53
Non-Cash Employee Benefit Plan (Credits) Costs	(156)	(103)
Cost of Removal	(121)	(106)
Net Change in Other Regulatory Assets and Liabilities	(271)	(101)
Net Change in Certain Current Assets and Liabilities:		
Accounts Receivable and Unbilled Revenues	(34)	(100)
Materials and Supplies	(16)	(2)
Prepayments	(1)	21
Accounts Payable	(71)	44
Accounts Receivable/Payable - Affiliated Companies, net	(32)	80
Other Current Assets and Liabilities	10	60
Employee Benefit Plan Funding and Related Payments	(10)	(4)
Other	(64)	(103)
Net Cash Provided By (Used In) Operating Activities	**1,724**	**1,953**
Cash Flows from Investing Activities:		
Additions to Property, Plant and Equipment	(2,447)	(2,507)
Proceeds from Sales of Trust Investments	35	40
Purchases of Trust Investments	(29)	(40)
Solar Loan Investments	29	13
Other	16	12
Net Cash Provided By (Used In) Investing Activities	**(2,396)**	**(2,482)**
Cash Flows from Financing Activities:		
Net Change in Commercial Paper and Loans	(100)	(262)
Issuance of Long-Term Debt	1,325	1,350
Redemption of Long-Term Debt	(434)	(259)
Contributed Capital	-	75
Cash Dividend Paid	-	(175)
Other	(13)	(17)
Net Cash Provided By (Used In) Financing Activities	**778**	**712**
Net Increase (Decrease) in Cash, Cash Equivalents and Restricted Cash	**106**	**183**
Cash, Cash Equivalents and Restricted Cash at Beginning of Period	233	50
Cash, Cash Equivalents and Restricted Cash at End of Period	**$339**	**$233**
Source: PSEG 2021 Form 10-K, p. 80.		

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15. ACCOUNTING AND PROPERTY RECORDS

Introduction and Overview

This chapter addresses those functional areas most closely associated with accounting-related matters as well as the internal controls over financial reporting. In addition, the Internal Audit organization is evaluated in terms of industry guidance.

Summary of Findings

1. Since the last management audit, several functions typically associated with the principal expenditure cycles of the utility have been moved from the oversight of the Executive Vice President and Chief Financial Officer to others. Payroll, from an administrative process, now resides in the Human Resources organization, and Accounts Payable reports to the General Counsel organization.
2. Rather than follow industry guidance, PSEG's Internal Audit organization currently reports administratively to the General Counsel. On a functional basis, it reports to the Audit Committee of the Board of Directors.
3. PSEG has begun to outsource some of its accounts payable and payroll responsibilities to outside parties. While outsourced payroll services have no contractual performance objectives that must be met, the third-party accounts payable service provider has certain critical service levels that must be met in order to avoid penalties. If critical service levels are exceeded, the outside accounts payable service provider can earn a premium.
4. As with other organizations throughout PSEG, performance measures tied to the achievement of departmental goals in accounting-related areas have been eliminated since the last management audit. However, there are a few enterprise-wide key performance metrics that are still tracked, which are most closely associated with accounting (e.g., Sarbanes-Oxley deficiency rates, timely remediation of Sarbanes-Oxley deficiencies, etc.). Performance in recent years has been largely favorable for these metrics. In addition, the attainment of contractual key service levels for outsourced payroll services have resulted in no penalties incurred or bonuses earned since performance began being tracked in mid-2020.
5. Benchmarking of accounting functions in recent years has identified instances in which the company trails its peers. According to management, it has taken steps to address these matters and implement changes to achieve improvement.
6. PSEG's primary accounting system is SAP, a system it has been using for over 20 years. Although it has been delayed twice in recent years, the current version of SAP employed by PSEG will no longer be supported beginning in 2030. The Company is in the process of reviewing its options for the replacement of this system.
7. Internal controls over financial reporting undergo a significant amount of scrutiny by various parties. One of these parties is the external auditors, who have opined in the most recent four

years that PSEG has maintained, in all material respects, effective internal control over financial reporting.

8. The Company has devoted from 7,200 to 10,500 annual hours of effort on the review of key internal controls as part of its Sarbanes-Oxley compliance testing program. None of the deficiencies identified in this testing have been classified as material weaknesses since the last management audit, and only eight have been characterized as significant deficiencies (none specifically attributed to PSE&G). Excluding deficiencies identified by management, the Sarbanes-Oxley deficiency rate has ranged from 1.58% to 5.52% in the most recent six years and has trended downward over the past four years.
9. Internal Audit plays a key role in evaluating the effectiveness of internal controls over financial reporting. The last two individuals assigned to be head of Internal Audit have an educational and work experience background predominately in law.
10. The Institute of Internal Auditors (IIA) has identified certain responsibilities that the board of directors should assume in order for Internal Audit to maintain organizational independence. Some of these responsibilities at PSEG have currently been delegated to the Executive Vice President and General Counsel, including the approval for the requisition of new staff in Internal Audit as well as Internal Audit's budget.
11. Based on an annual risk assessment, Internal Audit identifies areas to be audited in the upcoming year. The areas rated as highest risk are audited more frequently, every 2 to 4 years, while those rated lowest are audited every 4 to 6 years.
12. Internal Audit assigns one of four different opinions to the audit reports it issues. They are Well Controlled, Some Improvement Required, Major Improvement Required, and Not Adequately Controlled. No internal audits performed since the last management audit have resulted in a Not Adequately Controlled opinion.
13. Remediation taken by management to address Internal Audit concerns are verified immediately by Internal Audit only if the opinions rendered are either Not Adequately Controlled or Major Improvement Required. Otherwise, the steps taken by management are not verified until the next internal audit is performed on the subject.[1]
14. The external auditors identified no proposed adjustments to PSEG's financial statements in 2018 and only two each in the years 2019 and 2020. In each of these years, the adjustments were "passed" (not made) because they were immaterial to the financial statements both individually and in aggregate.
15. While PSE&G has recorded no asset impairments in recent years, some of its affiliates have recognized impairments or losses associated with their operations. The most significant of these was the $2.691 billion pre-tax impairment loss on the sale of PSEG Power's fossil generation assets recognized in 2021 because the purchase price of the assets was less than the carrying value of the assets at the time. However, as noted in the Finance chapter, we saw no evidence that funds were diverted from PSE&G to other entities to cover these losses.

[1] Internal Audit's Administrative Assistant requests status of management action plans for audit observations within audit reports by their due dates.

Recommendations

14.1 Internal Audit should continue to functionally report to the Audit Committee of the PSEG board of directors. However, on an administrative basis, it should ideally report to the CEO of PSEG. Alternatively, we recommend that Internal Audit should revert back to reporting administratively to the CFO, and the Audit Committee of the PSEG board of directors should document its rationale in writing for this reporting structure, including mitigating controls available for situations that could adversely impact the objectivity of the head of Internal Audit and the department as a whole. In such instances, the Audit Committee should periodically, but not less than annually, evaluate whether the head of Internal Audit is impartial and not unduly influenced by the administrative reporting line arrangement. Furthermore, conflicts of interest for the head of Internal Audit and all other audit staff should be monitored at least annually with appropriate restrictions placed on auditing areas where conflicts may arise.

14.2 When a new person is considered for the position of head of Internal Audit on a prospective basis, management and PSEG board's Audit Committee should select and approve a person with a professional and educational background as an accountant and/or financial auditor. In addition, future periodic external assessments of PSEG's Internal Audit function[2] should specifically include an assessment of the competence of the head of Internal Audit as well as a commentary on industry and peer best practices concerning the educational and professional qualifications of the head of Internal Audit, adequately supported by benchmarking data.[3]

14.3 The Internal Audit charter and the PSEG board of directors' Audit Committee charter should state that the Audit Committee has the responsibility to approve the staffing of the Internal Audit department (a key component of resource planning) and the budget of Internal Audit rather than the Company's executive management.

14.4 The PSEG Audit Committee charter should be modified to explicitly state that the Audit Committee is responsible for reviewing and approving the internal audit plan for the upcoming year.

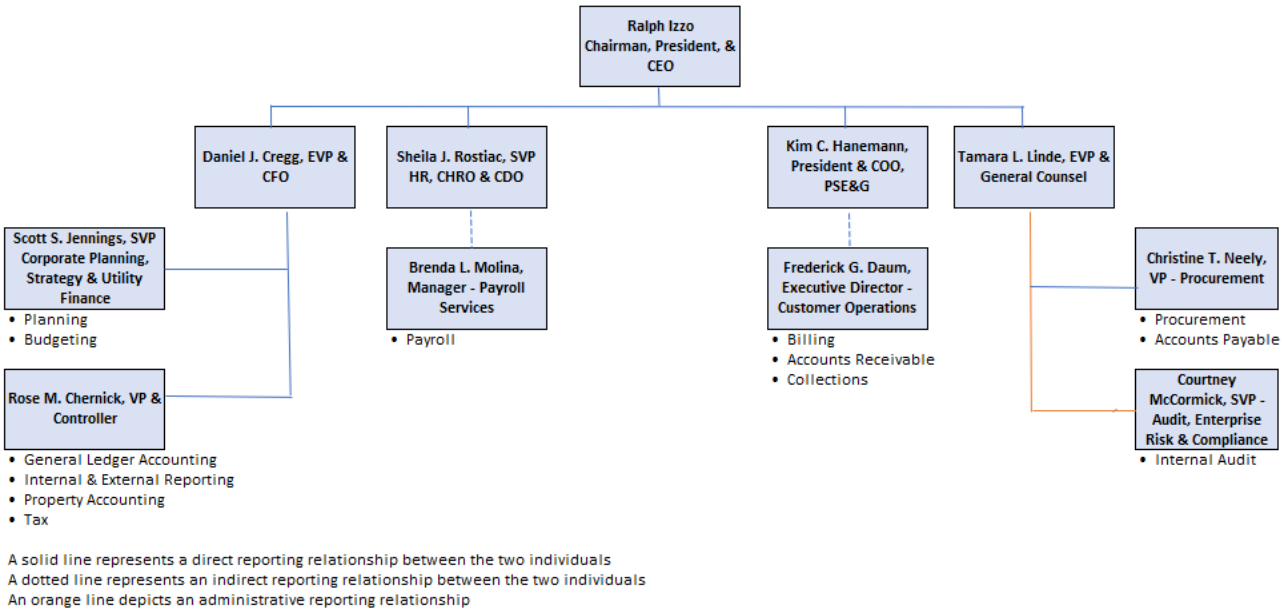
Organization

At the time of the last management audit, the functions responsible for the principal revenue and expenditure cycles of the utility along with general accounting and financial reporting resided primarily within PSEG Services Corporation (PSEG Services) under the oversight of the Executive Vice President

[2] An external quality assessment is required by the IIA and adopted by PSEG's Internal Audit organization in its Audit Procedures Manual. It is to be performed at least once every five years. (PSEG Internal Audit Services: Audit Procedures Manual, page 9 provided in Response to OC-0351 (Confidential))

[3] Available records from the last external assessment performed by Ernst & Young in July 2017 do not confirm that the head of the Internal Audit function at that time was interviewed as part of that assessment; however, former head of Internal Audit stated in response to our data request that she recalled being interviewed (see Responses to OC-0796 (Restricted), page 11, and 1270).

(EVP) and Chief Financial Officer (CFO).[4] Almost a decade later, these functions have been dispersed among several different senior officers as demonstrated in the following abridged organization chart:[5,6]



Other than the revenue / accounts receivable function which still resides within PSE&G, the other functions are shared services and handled by PSEG Services personnel. The timing of some of the more notable changes to the organization since the last management audit is summarized below:[7]

- In a reassignment of responsibilities within the CFO organization, Accounts Payable and Payroll was moved to the VP & Controller from the VP Finance – Energy Holdings and PSEG Services in September 2011.
- When the VP & Controller received a promotion to President – PSEG Services in August 2014, he continued to have responsibility for Accounts Payable and Payroll although he no longer reported to the CFO.
- In anticipation of the retirement of the President – PSEG Services, Payroll was moved to the organization headed by the Senior Vice President Human Resources, Chief Human Resources Officer and Chief Diversity Officer. Justification for this reorganization included the enablement of efficiencies and integration of key transformative human resources technology updates and compensation-related processes, payments, internal reporting, and analytics.

[4] The one notable exception at the time was the group responsible for revenue and accounts receivable which belonged to the Customer Operations organization within PSE&G.

[5] This organization chart is not meant to depict all responsibilities of each senior officer. Instead, it is designed to indicate how the primary utility revenue and expenditure cycles are assigned throughout the PSEG organization.

[6] Most recent data made available to us in Responses to OC-0418 (Confidential) and 0317 as well as 0602 and 1138 and details from the PSEG corporate website.

[7] Responses to OC-1125, 0418 (Confidential), and 1137.

- In March 2021 when the President – PSEG Services retired, the Procurement organization (including Accounts Payable) was transitioned to the organization headed by the EVP and General Counsel to take advantage of efficiencies primarily related to contract management.
- The head of Internal Audit[8] was promoted to Senior Vice President – Audit, Enterprise Risk and Compliance in the fourth quarter of 2021 and began administratively reporting to the EVP and General Counsel rather than the EVP and CFO.[9]

While from an accounting perspective, we would prefer to see all of these functions, with the exception of Internal Audit, report to the CFO so that management expectations are communicated by one executive rather than several, to enhance collaboration between related functions, to more easily identify redundancies in responsibilities between groups, and, most importantly, to increase the likelihood that financial results will be fairly presented; we also recognized the wide latitude that management has in organizing its operations. However, as it relates to Internal Audit, we believe industry guidance, which is driven by a concern for independence in fact and appearance, should take precedence over current management preferences.

As was noted in the previous management audit, the IIA has provided guidance on the topic of Internal Audit organizational independence. According to this guidance,[10]

> . . . The Institute [of Internal Auditors] believes strongly that to achieve necessary independence, the [Chief Audit Executive (CAE)] should report functionally to the audit committee or its equivalent. For administrative purposes, in most circumstances, the CAE should report directly to the chief executive officer of the organization (Practice Advisory 1110-2). (emphasis added)

Implementation Guidance 1110 of the IIA's International Professional Practices Framework has the following to say on the topic:[11]

> To enhance stature and credibility, the IIA recommends that the CAE report administratively to the chief executive officer (CEO) so that the CAE is clearly in a senior position, with authority to perform duties unimpeded.

Based on recent benchmarking performed by the IIA, the Edison Electric Institute and others, only 13 percent to 32 percent of companies have their Internal Audit Departments reporting administratively to someone other than the Chief Financial Officer or the Chief Executive Officer of the Company.[12]

[8] Internal Audit is also referred to as Internal Auditing Services. We will use those terms interchangeably.

[9] The General Counsel organization was recently renamed Law, Compliance, Claims and Procurement (Response to OC-1266). We will refer to it as the General Counsel organization as that is who heads it.

[10] In Response to OC-1876 (Confidential), when asked for current IIA practice advisories on organizational independence, the company confirmed that guidance on the matter had not changed since the last management audit.

[11] Response to OC-1876 (Confidential).

[12] Response to OC-0803.

Moreover, in our experience, it is becoming increasingly difficult to gain access to relevant information in a timely manner from companies subject to management audits overseen by regulators. In many cases, information is redacted for any of a number of reasons, including claims of attorney-client privilege, sensitivity, or relevance. These redactions frequently take time to make, so information is not provided in the typical turnaround time period but instead made available, at times, months later. Historical information that is widely disseminated is now no longer disclosed to management auditors because of claims that it is subject to non-disclosure agreements.[13]

Internal Audit plays a critical role in assessing an organization: as it should have unfettered access to information, reviews of those processes that are viewed as most critical on a year-to-year basis, and has a unique perspective on the operations of the Company. In our opinion, assigning Internal Audit to the General Counsel organization raises the possibility that critical information gathered by Internal Audit may become less accessible to regulators in the future as the duties and responsibilities of the law department and Internal Audit blur.

In our opinion, Internal Audit should continue to functionally report to the Audit Committee of the PSEG board of directors and the objective of direct interaction of the Chief Audit Executive with the Board of Directors as embodied in IAA Standard 1100 is a best practice that should be maintained. However, on an administrative basis, it ideally should report to the CEO of PSEG. Alternatively, Internal Audit should consider reverting back to reporting administratively to the CFO. The Audit Committee of the PSEG board of directors should document its rationale in writing for the administrative reporting structure for Internal Audits, including mitigating controls available for situations that could adversely impact the objectivity of the head of Internal Audit[14] and the department as a whole. In such instances, the Audit Committee should continue its practice of periodically, but not less than annually, evaluate whether the head of Internal Audit is impartial, including whether the function is not unduly influenced by the administrative reporting line arrangement. Furthermore, conflicts of interest for the head of Internal Audit and all other audit staff should be monitored at least annually with appropriate restrictions placed on auditing areas where conflicts may arise.[15]

[13] For example, then current stock analyst reports are frequently made available to brokerage customers. However, with one exception (Morgan Stanley), information provided to PSEG by such analysts was not permitted to be released to third parties by PSEG without approval from these analysists. PSEG attempted to obtain the analysts' permission to release this information to us under protection of the audit NDA, but the analysts except for Morgan Stanley denied PSEG permission to release the information.

[14] Given the different titles assigned to the person in charge of the Internal Audit department over the years, we will refer to this position generically as head of Internal Audit.

[15] This is consistent with supplemental policy issued by the Board of Governors of the U.S. Federal Reserve System for financial institutions.

Outsourcing

Accounts Payable

In July 2017, PSEG retained Tata Consultancy Services to perform accounts payable services pursuant to an amendment to an agreement between the two parties that originally involved other services. Services under this Amendment 4 of the agreement included:[16]

- Invoice processing,
- Payment processing,
- Vendor master,
- Procurement card (P card), and
- Travel and expense.

On July 23, 2018, the scope of work performed by TCS expanded to include exception processing related to Ariba, Ok2Pay, and the Online Document Center. The agreement between PSEG and TCS established Critical Service Levels that if unmet would result in penalties (credits) and if exceeded would result in bonuses (premiums). According to management, during this time period, TCS was not penalized for performance and actually earned a bonus of 3 percent in 2018 totaling approximately **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** for its accounts payable services.[17]

Sometime between July 23, 2018 and September 17, 2019, TCS and PSEG Services entered into a confidential settlement agreement which, among other things, terminated the accounts payable services provided by TCS to PSEG Services. Additional details were not provided by management.[18]

On September 17, 2019, Cognizant Technology Solutions (Cognizant) was retained to provide the following Accounts Payable services:[19]

- Manual processing of Company purchase order invoices,
- Processing of non-purchase order invoices,
- Processing of travel and expense claims, and
- Resolving Ariba OK2PAY.

PSEG Services continued to handle vendor master and banking updates, administration of the purchasing card program, SAP payment proposals, in-house check processing, internal control monitoring, tax filings (e.g., Form 1099), and overall customer support in-house.[20] PSEG Services also

[16] Supplemental Response to OC-1126 (Restricted).
[17] Supplemental Response to OC-1126 (Restricted).
[18] Response to OC-1258 and Interview of Courtney McCormick, Vice President Internal Auditing Services, on September 10, 2021.
[19] Response to OC-1126.
[20] Response to OC-1126.

handled automated processing of Company purchase order invoices. In dollar terms, these invoices account for 97 to 98 percent of all invoices in the 2020-2021 timeframe.[21]

As agreed to between Cognizant and PSEG, eight Critical Service Level metrics were tracked and scored on a monthly basis. Achievement of targeted performance for a given month was scored a **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** while below-target achievement could earn a score of either **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** depending on how Cognizant had performed. Above-target performance could earn a score of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. All months were weighted equally to determine an average weighted annual score. If the monthly score for any particular Critical Service Level metric was **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** or lower, the highest average weighted annual score for that Critical Service Level metric was capped at **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. If during the year, there were four or more months in which one Critical Service Level metric was scored **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** or lower, no bonus for the year could be earned by Cognizant.

Performance in 2020 was only measured for performance purposes during the second half of the year. During that time period, Cognizant did not earn a bonus nor incur a penalty. In 2021, because Cognizant scored **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**or lower on at least one Critical Service Level metric in four or more months, it was not eligible to earn a bonus despite having an average weighted annual score that exceeded **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.[22]

See further discussion of Cognizant's performance later in this chapter.

Payroll

Tasks associated with Payroll are handled internally by PSEG Services with the exception of tax services and garnishments. Tax services encompass such tasks as weekly and bi-weekly jurisdictional tax payments; monthly, quarterly, and annual reporting to tax authorities; and issuance of W-2s with the maintenance of an associated secure website. Garnishment services involve the management and processing of wage garnishment orders and disbursement of wage garnishment payments to appropriate payees. Both of these services are provided by Automated Data Processing (ADP) which took over tax services in 2013 and garnishments in July of 2021.

The contract between ADP and the Company **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** and management meets bi-weekly with ADP to address issues as needed. According to management, because ADP's historical tax service performance was considered "consistent and efficient," the company expanded its relationship with ADP to include garnishment services in 2021.[23]

[21] Response to OC-1886.
[22] Response to OC-1877 (Confidential).
[23] Response to OC-1127.

Performance

Controller

With respect to the Controller's organization, like many other organizations within PSEG Services, it did away with its own balanced scorecard since the last management audit. However, a few of the key performance indicators tracked on the balanced scorecard for the enterprise as a whole are accounting-related and shown in the following table:[24]

Table 15-1 – PSEG Accounting-Related Key Performance Indicators

PSEG Accounting-Related Key Performance indicators			
Key Performance Indicator	**L/H**	**Target**	**Actual**
2018:			
SOX 404 Test Deficiency Rate (%)	L	4%	6%
Timely Remediation of SOX 404 Test Deficiencies (days)	L	14	12
Controllable O&M ($M)	L	2,143	2,125
2019:			
SOX 404 Test Deficiency Rate (%)	L	4%	4%
Timely Remediation of SOX 404 Test Deficiencies (days)	L	14	11
Controllable O&M ($M)	L	2,095	2,081
2020:			
SOX 404 Test Deficiency Rate (%)	L	3%	2%
Timely Remediation of SOX 404 Test Deficiencies (days)	L	13	17
Controllable O&M ($M)	L	2,072	2,066
2021:			
SOX 404 Test Deficiency Rate (%)	L	3%	2%
Timely Remediation of SOX 404 Test Deficiencies (days)	L	13	13
Controllable O&M ($M)	L	2,079	2,132
Responses to OC-1128, OC-0304 (Confidential), OC-0304 Supplemental (Restricted), and OC-1887 (Restricted). Numbers presented in red are key performance metrics that were not achieved.			

Actual SOX 404 test deficiencies identified in 2018 amounted to 16 (8 by Deloitte & Touche and 8 by Internal Audit). Only one of these sixteen deficiencies was specifically related to PSE&G. Given that 290

[24] Although these KPIs are typically attributed to accounting-related organizations given the nature of the indicator, these organizations do not necessarily have complete control over their accomplishment.

controls were tested, the resulting calculated rate was 6%. It is unknown why the rate was 50% higher than the targeted performance that was set.[25]

In 2020, the time to remediate five deficiencies was substantially above the 13-day target set by the Company (remediation times for these five deficiencies ranged from 17 to 91 days). The only PSE&G-specific deficiency identified during 2020 was remediated in 6 days. The identity of the five deficiencies and reasons for the delays in remediating them are unknown.[26]

The Company attributed its inability to meet its 2021 target related to controllable O&M expense to PSE&G storm costs that did not meet the criteria for deferral, cyber and information technology costs, non-PSE&G pandemic expenses, litigation, and damages.[27]

Although not necessarily occurring every year, the targeted performance for KPIs tracked for the Controller's organization do demonstrate some continuous improvement over time.

Accounts Payable

As noted previously, Cognizant recently assumed several critical responsibilities related to the company's accounts payable function. The agreement between the company and Cognizant sets out certain performance expectations that if not met result in a penalty and if exceeded result in a bonus. These critical service level metrics are summarized in the following two tables for 2020 and 2021:

Table 15-2 – Cognizant PSEG Accounts Payable Critical Service Level Performance for the Last Six Months of 2020

[BEGIN CONFIDENTIAL]

Cognizant
PSEG Accounts Payable Critical Service Level Performance
For the Last Six Months of 2020

Critical Service Level	L/H	Target	Months Target Not Achieved	Months Target Achieved	Months Target Exceeded
Invoice Processing Cycle Time: Non PO (% w/i 1 business day)					
Invoice Processing Cycle Time: PO (% w/i 2 business days)					
Quality Assurance Review (% accuracy rate)					
Document Center (average days backlog)					
Exceptions (average days unassigned backlog in exception status)					
Manual Travel and Expense Report Processing (% w/i 2 business days) (A)					
Daily Travel and Expense Exception Process (% w/i 2 business days) (A)					
Travel and Expense Daily Audit (% completed daily w/ all non-compliance r					

Response to OC-1877 (Confidential).

PO = purchase order
(A) For union employees only

[END CONFIDENTIAL]

[25] Response to OC-1885.
[26] Response to OC-1885.
[27] Response to OC-1887 (Restricted) and informal verbal clarification received from the company on July 15, 2022.

The Company attributed the lackluster performance in 2020 with respect to invoice processing cycle times (PO) with a lack of proper resource levels due to attrition and to an individual employee performance issue. To address these matters, Cognizant focused on hiring new employees, training additional resources, and implementing overtime. This matter was not fully resolved until the second half of 2021.

With respect to the poor performance associated with the quality assurance review, PSEG noted that Cognizant was not effectively looking at systematic causes and implementing corrective actions during the fourth quarter of 2020 and the first half of 2021. With PSEG's encouragement, Cognizant began to track timely detailed information on defects found which led it to identify two employees that were major contributing factors to the under-performance. One employee received additional training and immediate feedback which led to improvements in performance. The other employee eventually was terminated after a performance program was unsuccessful.[28]

Table 15-3 – Cognizant PSEG Accounts Payable Critical Service Level Performance

[BEGIN CONFIDENTIAL]

Cognizant
PSEG Accounts Payable Critical Service Level Performance
2021

Critical Service Level	L/H	Target	Months Target Not Achieved	Months Target Achieved	Months Target Exceeded
Invoice Processing Cycle Time: Non PO (% w/i 1 business day)					
Invoice Processing Cycle Time: PO (% w/i 2 business days)					
Quality Assurance Review (% accuracy rate)					
Document Center (average days backlog)					
Exceptions (average days unassigned backlog in exception status)					
Manual Travel and Expense Report Processing (% w/i 2 business days) (A)					
Daily Travel and Expense Exception Process (% w/i 2 business days) (A)					
Travel and Expense Daily Audit (% completed daily w/ all non-compliance r					

Response to OC-1877 (Confidential).

PO = purchase order
(A) For union employees only

[END CONFIDENTIAL]

Performance issues with respect to invoice processing cycle time (PO) and quality assurance review in 2021 were largely the result of underlying causes carried over from the prior year. Please see the discussion of remedial action taken by Cognizant after Table 15-2 above.

Because the performance for these critical service levels is negotiated and the relationship between Cognizant and the Company is in its infancy, it is not entirely unexpected that the targeted performance does not demonstrate continuous improvement over the short period of time that we have summarized above. However, we would anticipate that PSEG will take steps to encourage improvement in performance as it negotiates future contracts between the parties.

[28] Response to OC-1902 (Confidential).

Payroll

Unlike the functional areas of Controller (Accounting) and Accounts Payable, Payroll Services does not maintain any formal performance measurement goals or objectives. At times, the department informally reviews such items as cost per paycheck and off-cycle check processing, but the results of these informal reviews are not retained and thus were not provided to the management auditors.[29]

Benchmarking

[BEGIN CONFIDENTIAL] [redacted] **[END CONFIDENTIAL]** performed benchmarking analyses on many of PSEG's accounting-related functions in 2017 using contemporaneous plan data. In an August 2017 presentation, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** found that PSEG's costs to provide these services were frequently more than the first quartile of several differently-comprised peer groups, including Fixed Assets, General Ledger Accounting, External Reporting, and Planning and Performance Management. **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** also found that:[30]

- PSEG's budgeting process was more complex, manual and took twice as long to complete compared to peers,
- PSEG management reporting was created using PC spreadsheets and distributed manually, and
- Access to data was time consuming as evidenced by the fact that PSEG personnel spent 75% of their time accessing data vs. reporting it.

With respect to the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** findings that costs at PSEG were higher than peers, the company attributed this to the higher cost of living for the area in which PSEG operates coupled with a workforce that was longer tenured than others.[31]

According to management, the following actions have been or are scheduled to be taken to address the challenges identified by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**:[32]

- Delayed the annual start of the budgeting process and reduced the number of iterations,
- Simplified aspects of intercompany billing which removed "layers" from the budget process,
- Reduced complexity and system maintenance, improved processing, and enhanced reporting through the use of overhead consolidations,
- Replaced the Company's budgeting tool,

[29] Response to OC-1884.

[30] "PSEG Finance Benchmark Results" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated August 2017, pages 8 and 25, provided in the Supplemental Response to OC-0458 (Restricted).

[31] Response to OC-1891.

[32] Response to OC-1892.

- Implemented Workiva and converted several monthly reports to this platform which allowed more timely reporting, less effort, and eliminated the dependence on spreadsheets and manual distributions,
- Implemented Automation Anywhere to automate transactional functions such as downloading data from SAP and transforming data into reports,
- Streamlined the monthly management reporting exercise by eliminating several spreadsheet and manual inputs along with eliminating complex variance explanations, and
- In the process of implementing Winshuttle Studio which can be used to create, extract, and transform SAP data.

With respect to Accounts Payable, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** observed that the PSEG cash disbursements process was very efficient with costs and productivity better than peers, which it attributed to a high percentage of automated transactions. However, it saw opportunities for improvement in PSEG's cycle time, invoice and expense report error rates, system integration, and standardization of policies and procedures.[33] Management identified the following actions it has taken to improve the accounts payable function since the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** study was performed:[34]

- Moved the Accounts Payable organization into Procurement to realize synergies and to have a single management team for the entire procure-to-pay process,
- Reduced error rates via root-cause analysis,
- Utilized six-sigma to redesign specific processes,
- Outsourced aspects of the process to vendors with world-class processes and experience, and
- Standardized Accounts Payable policies and procedures across PSEG.

[BEGIN CONFIDENTIAL] [redacted] **[END CONFIDENTIAL]** also evaluated PSEG's payroll function during this time. It concluded that PSEG's time and attendance process was highly automated with below-peer costs and staffing levels. It also noted that PSEG's payroll costs and productivity compared favorably to peers. However, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** believed that PSEG could benefit from additional payroll automation and sharing of data with Human Resources.[35] PSEG has since reorganized and placed the Payroll department within Human Resources which promotes integration of processes; outsourced some of the more generic, routine activities which has led to more simplified processes; and migrated from a legacy on-premise SAP Human Resources module to a cloud-based SAP solution which has both increased automation and improved process flows.[36]

[33] "PSEG Cash Disbursements Benchmark Results" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated August 4, 2017, pages 8, 14, and 16, provided in the Supplemental Response to OC-0458 (Restricted).

[34] Response to OC-1894.

[35] "PSEG Payroll Benchmark Results" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated July 2017, pages 8 and 13, provided in the Supplemental Response to OC-0458 (Restricted).

[36] Response to OC-1895.

In 2018, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** presented to PSEG an analysis of the company's CFO organization that was intended to identify ways to increase the competitive position of PSEG Power's fleet of generators by lowering costs.[37] Compared to a peer group of companies in the utility, chemical, and natural resources industries, PSEG was found to have a higher than median cost per FTE in each of general accounting,[38] fixed asset accounting, and enterprise performance management (which includes budgeting and planning). Corporate tax was the one accounting-related area in which the Company's cost per FTE was less than the benchmark median.[39]

As was the case a year earlier with regard to the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** study, PSEG attributed the higher than median costs per FTE in the various CFO functions to the high cost of living in the area in which PSEG operates along with the longer-tenured workforce that PSEG employs.[40]

To address **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** concerns that PSEG planning, reporting, and analysis processes could be simplified; PSEG consolidated and reduced the number of employees involved in these tasks along with reducing the number of planning/budgeting iterations, reducing/streamlining the number of reports, and implementing new planning and reporting technology.

As to opportunities that **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** identified in Internal Audit to reduce effort expended by the group, the Audit Committee of the PSEG board of directors was apprised of the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** report, and it was decided to defer the hiring of two open positions in the department, which were subsequently eliminated.[41] In addition, with the divestiture of the PSEG fossil generating assets and the downsizing of the ER&T organization, the Audit Committee will have a decision to make regarding the reallocation of audit effort to PSE&G and investments in off-shore wind or the rightsizing of the Internal Audit organization on a prospective basis.

Two years later, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** performed a strategic alternatives review for PSEG in which it compared normalized staffing levels of typical service company functions to

[37] Response to OC-1888.

[38] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** characterized this as "Record to Report" which it defined as "[a]ccounting functions that are backward looking to produce periodic reports / close out each period." "PSEG Project Mindset Opportunity Review: CFO Organization & Procurement" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated the week of February 26, 2018, page 11, provided in the Supplemental Response to OC-0458 (Restricted).

[39] "PSEG Project Mindset Opportunity Review: CFO Organization & Procurement" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated the week of February 26, 2018, page 12, provided in the Supplemental Response to OC-0458 (Restricted).

[40] Response to OC-1889.

[41] Response to OC-1890.

a utility peer group.[42] While the intended use of the study was not to rationalize the benchmark level, the following table demonstrates that in 2020, PSEG's accounting-related functions were generally leaner, with a few exceptions, than a utility of comparable size:

[BEGIN CONFIDENTIAL]

Table 15-4 – PSEG Staffing Quartile Ranking in [redacted] Study (Normalized by Total Assets)

PSEG Staffing Quartile Ranking in [redacted] Study (Normalized by Total Assets)	
Function	**Quartile**
Payroll Accounting & Admin	3rd
Accounts Payable / Accounts Receivable	1st
Property Accounting	2nd
General Ledger & Corporate Accounting	1st
Tax	1st
Budgeting	2nd
Financial Planning	3rd
Source: "PSEG Strategic Alternatives Review: Executive Update" presentation by [redacted] dated 2020, p. 8 provided in the supplemental response to OC-0458 (Restricted)	

[END CONFIDENTIAL]

Accounting Systems

The key information technology (IT) system used by PSEG accounting functions is SAP, a world-wide leader in enterprise application software. PSEG has used SAP for over 20 years for enterprise resource planning, accounts payable, payroll, budgeting, forecasting, and planning. PSEG's relationship with SAP was further solidified in 2009 when PSE&G began using SAP for customer billing and accounts receivable.[43]

SAP notified PSEG that its support for PSEG's current version of the software would end in the near future. Originally, SAP support was to end in 2025, but it has been extended on two different occasions, and it is currently scheduled to end in 2030.[44] In the meantime, PSEG has migrated its payroll and human resources system from SAP to Success Factors. Approval has been obtained to proceed with salesforce.com for the Customer Relationship Management Roadmap, and a request for proposal is being developed to release in the third or fourth quarter of 2022 to solicit requests from system integrators. According to management, the current SAP system is fully supported by Rimini Street, so no functions have been adversely affected.[45]

[42] The purpose of this review was ". . . to inform future state organizational design." "PSEG Strategic Alternatives Review: Executive Update" presentation by **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** dated 2020, page 13, provided in the Supplemental Response to OC-0458 (Restricted).

[43] Response to OC-0002.

[44] PSEG Management Audit Kick-Off presentation, page 129, and Responses to OC-0498 and 1874.

[45] Response to OC-1874.

In addition to SAP, PSEG employs various add-on and independent applications in carrying out its accounting duties including, but not limited to:[46]

- Hyperion (consolidation and financial reporting)
- PowerPlan / PowerPlant (property accounting)
- PowerPlan / PowerTax (tax depreciation, tax provisions, and tax repairs)
- Ariba (purchase order invoices)
- Willis Tower Watson (employee benefits)
- Success Factors (payroll and human resources)

Internal Controls

In 1985, the Committee of Sponsoring Organization (COSO) was organized to sponsor an independent private-sector initiative that studied the causal factors that can lead to fraudulent financial reporting. In addition, COSO developed recommendations for public companies, their independent auditors, regulators, and educational institutions.

COSO defines internal control as follows:[47]

> . . . a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance.

In the annual disclosure of the financial statements of PSEG, the independent auditors opine on the company's internal controls over financial reporting based on the criteria established by COSO. The focus of our audit in this chapter will also be primarily on these same internal controls. However, to the extent we became aware of deficiencies in the effectiveness or efficiency of accounting-related operations, we will address these matters also.

Independent Auditors

Internal controls over financial reporting are reviewed by several different groups on a recurring basis. As noted in the preceding section, the independent auditors are required to opine on the effectiveness of the internal control over financial reporting maintained by company management. These particular internal controls include those policies and procedures that:

- Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company,

[46] Responses to OC-0002 and 1875.
[47] COSO "Internal Control – Integrated Framework Executive Summary" dated May 2013, page 3.

- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company, and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

In each of the last four years, Deloitte & Touche LLP, PSEG's independent auditor, opined that PSEG had maintained, in all material respects, effective internal control over financial reporting.[48]

Management Assessment of Internal Controls (Sarbanes-Oxley Section 404)

As previously noted in the chapter on Executive Management and Corporate Governance, the Sarbanes-Oxley Act (SOX) requires public companies to comply with certain rules concerning the oversight their board of directors and management provide. One of those rules (Section 404) prescribes that each annual financial report (Form 10-K) issued by the Company must contain an internal control report which states that management has a responsibility to establish and maintain an adequate structure and procedures over internal controls related to financial reporting. In addition, an assessment by management concerning the effectiveness of the associated internal control environment must be included.

While the Internal Audit organization has a small, dedicated group assigned to the testing of internal controls pursuant to SOX Section 404, other members of Internal Audit assist in this testing as time permits.[49] On an annual basis from 2018 to 2020, Internal Audit spent from 7,200 hours to 10,500 hours each year testing internal controls pursuant to SOX.[50] According to management, SOX-related activities and testing accounted for 12 percent to 18 percent of Internal Audit personnel's total time during these years.[51]

Internal controls tested by Internal Audit include those determined to be key in preventing or detecting a material misstatement of the Company's financial reports. Management identified 51 key controls related to the following critical business cycles and functions – expenditure cycle (goods and services), expenditure cycle (payroll), revenue cycle, budget reporting and tracking.[52]

While Internal Audit can change the importance that a control is assigned from year-to-year based on a risk assessment, key controls largely remain constant over extended periods of time although they have

[48] PSEG 2018 Form 10-K, page 185; 2019 Form 10-K, page 183; 2020 Form 10-K, page 186, and 2021 Form 10-K, page 167.

[49] Response to OC-1139.

[50] Response to OC-1141.

[51] Response to OC-1142.

[52] Response to OC-1134 and informal clarification received from the company by e-mail on June 24, 2022. Given the nature of some of these key controls (fossil, nuclear, etc.), these do not all apply to PSE&G, the utility.

slowly decreased in recent years. The primary exception to this rule is a SOX optimization and rationalization project that was conducted in the 2012/2013 timeframe. As a result of this project, the number of SOX key controls was reduced by 60 to 70 controls.[53] The following table shows the number of SOX key controls along with the number of control failures for the past six years. The SOX deficiency rate tracked for performance measurement purposes above does not include those deficiencies identified by management:

Table 15-5 – PSEG Summary of SOX Failures and Key Controls

PSEG Summary of SOX Failures and Key Controls					
Year	Total Failures	Failures Identified by Mgmt	Failures Used in KPI Calc	Year-End Key Controls	Failure Rate
2016	28	13	15	290	5.17%
2017	22	12	10	288	3.47%
2018	22	6	16	290	5.52%
2019	22	12	10	261	3.83%
2020	20	14	6	265	2.26%
2021	14	10	4	253	1.58%
Response to OC-1897 (Confidential).					

The Company provided no explanation for the fluctuation in the failure rate in recent years that has ranged from 1.58% to 5.52%.[54] All controls identified as key are tested each year.[55]

Failures in SOX 404 control testing are assigned to one of three different classifications depending on the severity or nature of the failure. These classifications consist of deficiencies, significant deficiencies, and material weaknesses. The criteria employed by the company to assign these classifications is as follows:[56]

- Deficiency – occurs when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A deficiency in design exists when a control necessary to meet the control objective is missing, or an existing control is not properly designed so that, even if the control operates as designed, the control objective would not be met. A deficiency in operation exists when a properly designed control does not operate as designed or when the person performing the control does not possess the necessary authority or competence to perform the control effectively.

[53] Response to OC-0789.
[54] Responses to OC-1896, 1897 (Confidential), and 1898.
[55] Response to OC-0788.
[56] Response to OC-1145.

- Significant Deficiency – a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for oversight of a registrant's financial reporting.
- Material Weakness – a deficiency or combination of deficiencies in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the registrant's annual or interim financial statements will not be prevented or detected in a timely basis.

There have been no material weaknesses noted in SOX 404 testing in the years 2011 to 2021. Since 2011, there have been only eight significant deficiencies identified, all attributable to PSEG Services.[57] Only three of these occurred from 2018 to 2021, and they involved the following:[58]

- Taxes – Management did not appropriately reevaluate the application of generally accepted accounting principles guidance in APB 28 – Interim Reporting after 2017 tax reform and the 2018 rate case settlement. These events impacted the flow back of excess deferred taxes to PSEG Services' customers, which skewed the effective tax rate due to seasonality of gas revenue collection quarter over quarter. Corrections were made prior to Quarter 1 financial statement issuance. The impact was estimated to be $25 million on the company's interim (Q1 2019) income statement.

  The company took the following steps to remediate this issue for the next quarterly reporting period (Q2 2019). Management planned to create a new control to ensure the accounting guidance was appropriated applied in the interim reporting periods. The first part was a control that addressed the calculation of the average estimated tax rate (AETR) via the planning process, which includes management's discretion on what constitutes taxable transactions outside of ordinary income (discrete items) and ensuring that the AETR is appropriately applied to the current year-to-date ordinary pre-tax book income. The second part was an ongoing quarterly review of the estimated AETR to ensure it reflects the most recent changes to PSEG's annual forecast.
- General Accounting – Evidence of review was lacking for 40 journal entries directly posted to the general ledger. Additionally, an oversight control used to monitor journal entries directly posted was lacking. This functionality is an approved and authorized process, but oversight is necessary to adequately monitor this entitlement in order to ensure compliance per company policy (2020).

[57] Responses to OC-0004 and 1896 (some summing required).

[58] Supplemental Response to OC-0005, Response to OC-1903 (Confidential), Interview of Rose Chernick, Vice President and Controller, on August 27, 2021, and informal response received from the company on June 29, 2022. It should be noted that these significant deficiencies do not include those associated with entity-level controls, which are controls that help ensure that management directives pertaining to the entire entity are carried out and that establish guidelines around governance setting forth an organization's values through policies and procedures (see Response to OC-1899).

In addition to the person involved in the matter no longer working for the Company, the Company took the following remedial steps to adequately address the matter by March 2021: 1) the Journal Entry Practice 630-4 and SOX narrative on journal entries was updated, 2) targeted communications from the Controller to the list of users and their managers served as a reminder to prepare the entries with appropriate backup and to notify appropriate personnel that there are direct post entries to be reviewed. In addition, personnel with privileged access were notified that violations of the journal entry practices will result in the removal of this access, and 3) a back-end control that provided notice to managers / directors of entries that have been direct posted was developed.

- Expenditures – A control was lacking to prevent the duplicate transfer of files in a payment system (2021).

  The Company took the following steps to remediate the matter: 1) the third party payment provider was blocked from sending files to PSEG until it remedied the causation on its systems, 2) a setting was adjusted to only run a file once before moving to an error status, 3) the Company put a temporary halt to SFTP (Secure Shell File Transfer Protocol) connections, and 4) manually-run invoice files were reviewed prior to release.

The remediation of significant deficiencies and material weaknesses is verified by Internal Audit unlike steps taken to correct deficiencies.[59]

Internal Audit

Internal Audit (aka Internal Auditing Services or Internal Audit Services) is a group tasked with ". . . support[ing] PSEG's strategic objectives and enhanc[ing] and protect[ing] organizational value by providing independent, objective assurance and advisory services that improve the Company's operations, strengthen its control environment, and help ensure the integrity of financial reporting and compliance with laws, regulations and internal governance."[60]

Departmental Organization, Leadership, and Independence

Internal Audit is comprised of 30 individuals, most of whom are accountants or financial auditors although the group also has some specialists in information technology and environmental health and safety.[61] The current Senior Vice President – Audit, Enterprise Risk, and Compliance, Courtney McCormick, is not an accountant or an auditor and has no significant academic or professional experience in either of these disciplines. Ms. McCormick joined PSEG as a corporate transactions attorney specializing in finance and securities law. She held a variety of roles within PSEG, prior to leading the Internal Audit function, including overall responsibility for corporate governance and corporate transactions, including finance, mergers and acquisitions and SEC reporting compliance, shareholder services and the claims and corporate security function. In addition, Ms. McCormick has

[59] Response to OC-1139.
[60] Excerpt from Internal Audit's mission obtained from the Internal Audit Charter provided in Response to OC-0350.
[61] Responses to OC-0798 (Confidential) and 1139.

held operational roles within PSE&G, as she headed Renewables and Energy Solutions from 2016 through 2018.[62] Ms. McCormick has been head of Internal Audit since July 2018. Her predecessor, Christine Neely, was also an attorney.

In April of 2022, Atul Saple was promoted to the Sr. Director- Internal Audit, reporting to Ms. McCormick in her expanded role as Senior Vice President – Internal Audit, Enterprise Risk & Compliance. Mr. Saple is responsible for the day-to-day operations of the Internal Audit function and has over twenty-five years in audit and accounting experience. In addition, Mr. Saple is a certified public accountant.

In our experience, the head of Internal Audit is typically an accountant or financial auditor. There are many reasons for that, including having a leader with a detailed understanding of the requirements surrounding the fair presentation of financial information which is a key component of the position, knowing where opportunities for efficiencies and savings are possible through an analysis of available financial data, and serving as an independent financial expert to the board's Audit Committee as a check on the corporate accounting function.

Without commenting on the past job performance of either Mss. McCormick or Neely, just as one would not expect management to assign a Human Resources expert as the head of Information Technology or an engineer as the head of a Company's Law Department, in our opinion, the assignment of an attorney as the head of Internal Audit is not a best practice.

We recommend that when a new person is considered for the position of head of Internal Audit on a prospective basis, management and PSEG board's Audit Committee select and approve a person with a professional and educational background as an accountant and/or financial auditor. In addition, future periodic external assessments of PSEG's Internal Audit function[63] should specifically include an assessment of the competence of the head of Internal Audit as well as a commentary on industry and peer best practices concerning the educational and professional qualifications of the head of Internal Audit, adequately supported by benchmarking data.[64]

Although we previously made a recommendation to address our concerns regarding the administrative reporting relationship of the head of PSEG's Internal Audit department earlier in this chapter, our proposed change does not completely alleviate potential issues with the organizational independence of the department. The IIA has commented on the matter and stated that organizational independence of

[62] Background obtained from corporate website as well as Interview of Courtney McCormick, then Vice President Internal Auditing Services, on September 1, 2021.

[63] An external quality assessment is required by the IIA and adopted by PSEG's Internal Audit organization in its Audit Procedures Manual. It is to be performed at least once every five years. (PSEG Internal Audit Services: Audit Procedures Manual, page 9, provided in Response to OC-0351 (Confidential)).

[64] Available records from the last external assessment performed by Ernst & Young in July 2017 do not confirm that the head of the Internal Audit function at the time was interviewed as part of the assessment; however, the former head of Internal Audit stated in response to our data request that she recalled being interviewed (see Responses to OC-0796 (Restricted), page 11, and 1270).

Internal Audit is achieved when the head of Internal Audit functionally reports to the Company's board of directors, which occurs when:[65]

- The board approves the internal audit charter,
- The board approves the risk-based internal audit plan,
- The board approves the internal audit budget and resource plan,
- The board receives communications from the chief audit executive on the internal audit activity's performance relative to its plan and other matters,
- The board approves decisions regarding the appointment and removal of the chief audit executive,
- The board approves the remuneration of the chief audit executive, and
- The Board makes appropriate inquiries of management and the chief audit executive to determine whether there are inappropriate scope or resources limitations.

In the case of PSEG, the General Counsel currently approves the requisition for new staff in Internal Audit and approves the department's budget.[66]

Although Internal Audit has confirmed its organizational independence every year since 2013,[67] to ensure that there is no misunderstanding regarding the matter on a prospective basis, the Internal Audit charter and the PSEG board of directors' Audit Committee charter should state that the Audit Committee has the responsibility to approve the staffing of the Internal Audit department (a key component of resource planning) and the budget of Internal Audit rather than the Company's executive management.

Audit Effort, Risk Assessment, and Overview of Report Opinion Grading System

As would be expected, the Internal Audit organization devotes the majority of its time to the conduct of internal audits. From 2018 to 2020, Internal Audit devoted from 54 percent to 60 percent of its annual time on internal audits, including quick impact audits (QIAs) and continuous audits.[68]
The choice of which internal audits should be conducted is based on an annual risk assessment which is performed on all entities within the audit universe. Entities consist of lines of business or processes subject to audit (e.g., PSEG Fossil or materials management). Risk factors considered in this assessment include internal controls; stability / process complexity; materiality / financial; legal and regulatory / safety, public sensitivity, and image; and corporate focus / strategic impact / executive management

[65] IIA Standard 1110 – Organizational Independence provided in Response to OC-1876.

[66] Responses to OC-1139 and 1138. Overland asked for confirmation of certain information obtained during the Interview of Courtney McCormick, then Vice President Internal Auditing Services, on September 1, 2021 (OC-1139). With the subsequent reorganization that transferred the administrative reporting of Internal Audit from the EVP and CFO to the General Counsel, confirmation of approvals initially attributed to the EVP and CFO have now been attributed to the General Counsel.

[67] Response to OC-1148.

[68] Response to OC-1142. QIAs consist of a self-assessment process whereby management responds to a questionnaire provided by Internal Audit (page 19). Continuous audits involve data analytics of discrete areas with an emphasis on identification of anomalies. (PSEG Internal Audit Services: Audit Procedures Manual, page 19 provided in Response to OC-0351 (Confidential) and Interview of Courtney McCormick, then Vice President Internal Auditing Services, on September 1, 2021)

concerns. After assigning a rating to each risk factor, a total risk score for each entity is determined which Internal Audit assigns to one of three levels – High, Moderate, or Low.[69]

Subject to consideration of emerging issues, management concerns, and corporate focus; the risk levels above determine the typical frequency of internal audits performed on each entity which conforms to the following schedule:[70]

- High risk – every 2 to 4 years,
- Moderate risk – every 3 to 5 years, and
- Low risk – every 4 to 6 years.

Once work on an engagement has been completed, an opinion is rendered by Internal Audit to communicate the results of the work it has performed. The four different opinions rendered by PSEG Internal Audit are as follows:[71]

- Well Controlled – Controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met. No audit observations noted.

  Opinion definition: Virtually all controls deemed necessary to minimize the risk of material loss are functioning as intended and documented appropriately. Only minor control exceptions were noted, and either adequate compensating controls are in place or the risk of loss is immaterial.

- Some Improvement Required – Generally, controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risk are being managed and objectives should be met. One or more moderate risk observations noted, with no major impact on the overall system of internal controls.

  Opinion definition: Many controls deemed necessary to minimize the risk of material loss are functioning as intended and documented appropriately. A limited number of isolated control issues may exist, but they are not expected to prevent achievement of business objectives. Previous audit issues have been properly addressed or a small number of minor repeat issues exist.

- Major Improvement Required – A high residual risk exists in a major scope or risk area. The controls evaluated are unlikely to provide reasonable assurance that risks are being managed and objectives met.

  Opinion definition: Controls necessary to minimize the risk of material loss are either not in place, not performing as designed, or not documented appropriately. Accordingly, the overall

[69] PSEG Internal Audit Services: Audit Procedures Manual, pages 13, 14, and 24, provided in Response to OC-0351 (Confidential).

[70] Response to OC-1151.

[71] PSEG Internal Audit Services: Audit Procedures Manual, pages 31-32, provided in Response to OC-0351 (Confidential).

control environment contains weaknesses which, either individually or collectively, cause it to operate with a level of ineffectiveness or inefficiency which must be addressed. This rating may be assigned if a significant number of repeat issues from previous audits are noted.

- Not Adequately Controlled – High residual risk exists in two or more major scope or risk areas. Controls evaluated do not provide reasonable assurance that risks are being managed and objectives met.

  Opinion definition: The control environment contains significant weaknesses and immediate action is required. This rating may be assigned if there is evidence of fraudulent activity, management's intentional negligence, or minimal action taken toward addressing previous audit findings.

Recommendations made by Internal Audit in audit reports in which an opinion of "Major Improvement Required" or "Not Adequately Controlled" are rendered are verified by Internal Audit shortly after management action plans have been implemented. Moderate observations contained in audit reports assigned a "Some Improvement Required" opinion require administrative follow-up, which means that the action owner must confirm in writing that an action has been completed. Otherwise audit recommendations made in a report assigned a "Some Improvement Required" opinion are not verified by Internal Audit until the next scheduled audit is conducted.[72]

While repeat observations made in internal audit reports do not necessarily affect the audit report opinion rendered, all repeat findings are communicated to senior management and the Audit Committee of the PSEG board of directors.[73]

Since the current opinion scale was adopted in 2013, Internal Audit has not issued a report with a "Not Adequately Controlled" opinion.[74]

Results of Selected Internal Audits

With respect to the accounting-related areas that the BPU identified in the scope of this management audit that formal internal audit reports were issued by PSEG's Internal Audit organization from January 1, 2018 to mid-2021, the following is a summary of the opinions rendered and significant observations made.

Revenue / Accounts Receivable Cycle – We identified at least eleven internal audits that were reported during this three and a one-half year period concerning this functional area.[75] They include:

[72] Response to OC-1139. The Internal Audit Administrative Assistant requests the status of management action plans for audit observations within the audit reports by the due dates.

[73] Response to OC-1268.

[74] Response to OC-1152.

[75] In some cases, we limited our review to the most recent internal audit conducted on the subject.

Table 15-6 – PSEG Internal Audit Reports Issued Revenue/Accounts Receivable Cycle January 2018 – June 2021

PSEG Internal Audit Reports Issued Revenue / Accounts Receivable Cycle January 2018 - June 2021		
Description	**Project Code**	**Rendered Opinion**
Customer Payment Processing	17-AU-12	Well Controlled
PSE&G Revenue Accounting	18-AU-19	Some Improvement Required
Meter Reading	18-AU-20	QIA - No Opinion
Billing for Third Party Suppliers	18-AU-21	Well Controlled
Revenue Integrity	18-AU-22	QIA - No Opinion
Meter Reading	18-AU-48	QIA - No Opinion
Credit and Collections	19-AU-22	Some Improvement Required
Field Collections	19-AU-23	Some Improvement Required
Customer Billing	20-AU-22	Well Controlled
Customer Contact	19-AU-21	Some Improvement Required
Meter Installation and Usage	20-AU-21	Some Improvement Required
Response to OC-0354. Note: A decision was made to convert an audit of Meter Reading to a QIA. Therefore, Project No. 18-AU-20 identified in OC-0354 was ultimately addressed in Project No. 18-AU-48. QIA = Quick Impact Audit		

With respect to the PSE&G Revenue Accounting audit (18-AU-19), Internal Audit made one "medium" observation -- PSE&G places significant reliance on multiple interrelated spreadsheets to calculate reportable revenues. Management planned to address this observation by investigating several different options and recommending a course of action. The options included replacement of spreadsheets with stand-alone software, consideration of robotic process automation, and use of technology solutions compatible with or as part of the new enterprise resource planning system. The report was silent on which option was selected.[76]

Internal Audit identified one "moderate" observation in the Credit and Collections audit (19-AU-22) which involved improvements that could be made to the controls ensuring the timely completion of idle gas service inspection notifications. Management took several steps to address the matter, including the resumption of a monthly "Pending Idle Service" report, correcting the logic involved in creating the aforementioned report, updating procedures to enhance communications between internal groups and systems, and setting management expectations with regard to the timeframe for completing idle gas inspection notifications.[77]

[76] PSE&G Revenue Accounting report, pages 3-4, provided as an attachment to the Response to OC-0785 (Restricted).
[77] Credit and Collections report, pages 3-5, provided as an attachment to the Response to OC-0786 (Restricted).

In the Field Collections audit (19-AU-23), Internal Audit noted one "moderate" observation which was as follows -- a process for filing Internal Revenue Service (IRS) Form 8300 for cash receipts greater than $10,000 does not exist. Failure to complete timely Forms 8300 could result in the incurrence of penalties by the company. Management consulted with its PSEG Long Island operations and developed a process document to report qualifying cash receipts. The process was to be implemented by Customer Operations and would provide reasonable assurance that cash receipts in excess of $10,000 would be reported.[78]

The one "moderate" observation identified by Internal Audit in the Customer Contact audit (19-AU-21) involved the lack of instructional documentation and quality control measurements in social media customer support compared to that found in the call centers. Management's action plan to address this observation included the establishment of a new Social Care and Digital Analytics team by Customer Technology which established practices for handling these types of inquiries. In concert with Billing and Revenue Operations, these practices were then to be documented as procedures. Customer Technology also planned to establish standards for handling social interactions and to develop a quality monitoring plan.[79]

In the Meter Installation and Usage audit (20-AU-21), Internal Audit found that gas meter information in SAP was inconsistent in some cases and could lead to customer billing errors. This observation was rated "moderate" at the time. The issue involved instances in which bills for customers receiving higher than normal gas pressure (HTNP) were not being adjusted appropriately to account for the higher density of gas they were receiving. Management developed a three-pronged action plan to address the matter including: 1) the identification of HTNP meters with potential inconsistencies in reported pressures, 2) implementation of a query which will ensure that designed, installed, and billed pressures match, and 3) reinstatement of a control report.[80]

A review of the QIA reports indicated that in all cases, Internal Audit noted that "[m]anagement's responses, which were well supported by corresponding documentation, were consistent with an adequately controlled environment."[81]

Expenditure / Payroll Cycle – Among the internal audit reports issued between January 2018 and June 2021 were the following five audits in this functional area, including those concerning performance scorecard validation which is pertinent to the payments made to executives and non-executives eligible for short-term incentive compensation:[82]

[78] PSE&G Field Collection report, pages 3-4, provided as an attachment in Response to OC-0786 (Restricted).
[79] Customer Contact report, pages 3-4, provided as an attachment in Response to OC-0787 (Restricted).
[80] Meter Installation and Usage report, pages 3-4, provided as an attachment in Response to OC-0787 (Restricted).
[81] Meter Reading report, page 2, provided as an attachment in Response to OC-0785 (Restricted).
[82] There was a Time Sheet Management audit (19-AU-13-LI) conducted on PSEG Long Island operations, but it has been omitted from discussion as it involves matters largely outside the scope of our audit.

Table 15-7 – PSEG Internal Audit Reports Issued Expenditure/Payroll Cycle January 2018 – June 2021

PSEG Internal Audit Reports Issued Expenditure / Payroll Cycle January 2018 - June 2021		
Description	**Project Code**	**Rendered Opinion**
PSEG Scorecard Validation	17-AU-34	Well Controlled
PSEG Scorecard Validation	18-AU-02	Well Controlled
PSEG Scorecard Validation	19-AU-28	Well Controlled
PSEG Scorecard Validation	20-AU-31	Well Controlled
Payroll	20-AU-35	Some Improvement Required
Response to OC-0354.		

The Payroll audit conducted by Internal Audit had three moderate observations. They were as follows:[83]

- Key Service Organization Control (SOC-2) Report for a sub-service provider to ADP was not reviewed by management,
- Access to a share drive and an external application containing sensitive payroll data was not promptly removed for transferred Payroll Services employees, and
- No evidence of documented user acceptance testing for SAP payroll tax updates.

The management action plans designed to remediate these Internal Audit observations included:

- requesting and analyzing the SOC-2 report for a Company that provides certain hosting operations, data center management, and network management services to ADP (ADP Global Enterprise Technology and Solutions),
- ensuring that all future SOC reports are analyzed,
- participating in improvement efforts led by Procurement / Privacy in this area pertaining to sensitive information,
- coordinating timely entitlement reviews for share drive and ADP access that correspond with associates transferring from Payroll Services,
- performing and documenting semi-annual entitlement reviews for share drives and the ADP ad-hoc reporting system,
- clarifying and communicating guidance for managing access to organizational share drives and external software containing confidential and private information,
- documenting steps performed for user acceptance testing including expected and actual results,
- documenting and storing evidence reviews and approvals, and
- saving all validation documentation in PSEG's IT Service Now (repository for testing documents).[84]

[83] Payroll Services report, pages 3-8, provided as an attachment in Response to OC-0787 (Restricted).
[84] Payroll Services report, pages 3-8, provided as an attachment in Response to OC-0787 (Restricted).

Executive Compensation – While the expenditure / payroll cycle audits performed by Internal Audit include some that affect executive compensation, namely those associated with the PSEG scorecard validation, there were four audit reports issued by Internal Audit from early 2018 to mid-2021 that were specifically limited to executive compensation. They were as follows:

Table 15-8 – PSEG Internal Audit Reports Issued Executive Compensation January 2018 – June 2021

PSEG Internal Audit Reports Issued Executive Compensation January 2018 - June 2021		
Description	**Project Code**	**Rendered Opinion**
Performance Shares Payout	18-AU-01	Well Controlled
Performance Shares Payout	19-AU-27	Well Controlled
Performance Shares Payout	20-AU-30	Well Controlled
Performance Shares Payout	21-AU-19	Well Controlled
Response to OC-0354.		

Work Orders and Property Accounting – Among the audit reports issued in the three and a half years ending in June of 2021 were the following six reports that concern work orders and/or property accounting, including one (Vendor Contracts – PSE&G) that is indirectly related to the matter:

Table 15-9 – PSEG Internal Audit Reports Issued Work Orders and/or Property Accounting January 2018 – June 2021

PSEG Internal Audit Reports Issued Work Orders and/or Property Accounting January 2018 - June 2021		
Description	**Project Code**	**Rendered Opinion**
Fixed Asset Accounting	18-AU-26	Well Controlled
Vendor Contracts - PSE&G	19-AU-14	Some Improvement Required
Gas System Modernization Program - Phase 2	19-AU-18	Some Improvement Required
Electric Transmission Expansion Projects	20-AU-16	Well Controlled
Equipment Ordering Process - PSE&G	20-AU-17	Well Controlled
Change Order Process with Contractors - PSE&G	20-AU-19	Well Controlled
Response to OC-0354.		

Two moderate observations were made in the Vendor Contracts audit report (19-AU-14). They were:[85]

- Certain contracts include terms that require contractors to perform an annual self-audit for time billed to PSEG to determine if certain Federal tax limits were exceeded and if refunds are to

[85] Vendor Contracts – PSE&G Electric Distribution report, pages 4-7, provided as an attachment in Response to OC-0786 (Restricted).

PSE&G. A solution for ensuring compliance with this standard contractual provision was not effectively executed. (Repeat Observation)

- Review and approval of invoices are not consistently documented, paid timely and billed according to contract terms and Company procedures.

Management action plans to address these Internal Audit concerns included closing out the payroll tax audit process for 2017 and 2018; developing, piloting, and implementing an enterprise-wide process to recover payroll tax overpayments to suppliers for applicable contracts which was assigned to Procurement; and providing additional training to applicable staff for invoice review and processing which will include: 1) understanding the key contract terms and conditions to be complied with by contractors, 2) noting that the processing of invoices occurs only when appropriate supporting documentation has been obtained and pricing agrees to contract terms, 3) understanding that the processing of invoices must comply with delegation of authority requirements, and 4) reinforcing the concept that properly and fully presented invoices are paid in accordance with the contract payment terms.[86]

Consistent with the discussion above regarding repeat observations made by Internal Audit, the first matter was disclosed to the Audit Committee of the PSEG board of directors.[87]
The Gas System Modernization Program (GSMP) audit report (19-AU-18) also had two moderate observations. They were:[88]

- Written permits to perform construction work for selected towns are not always obtained.
- Although the GSMP II program has a risk register, the current register lacks key aspects such as risk impact on costs and schedule for each identified risk. Also a probability range for the risk of occurrence is not identified.

To address the first observation, management planned to take actions which included adopting an enhanced permit tracking process which will include dated notes or an agency contact form that reflects verbal agreements from a representative of the town scheduled for construction; assigning to the permitting engineer the responsibility of consolidating the contractor tracking sheets, the district tracking sheets, and the verbal notes into one tracker; and reviewing with the project managers and the outreach staff the need to clearly state “work is approved to commence” and identifying who approved the work in the meeting minutes if hard copies cannot be obtained in a timely manner.[89]

[86] Vendor Contracts – PSE&G Electric Distribution report, pages 4-7, provided as an attachment in Response to OC-0786 (Restricted).

[87] September 16, 2019 Interim Report to Audit Committee made by Internal Audit, page 2, provided in Response to OC-0271 (Restricted).

[88] Gas System Modernization Program II report, pages 4-5, provided as an attachment in Response to OC-0786 (Restricted).

[89] Gas System Modernization Program II report, page 4, provided as an attachment in Response to OC-0786 (Restricted).

The second observation was to be remediated by having the project management team create a high-level risk register that shows schedule and cost impacts for each risk, review and discuss the risk register on a monthly basis at team staff meetings, and communicate risk concerns to the project team at the team staff meetings and ask for responses to the concerns on a monthly basis.[90]

Budget Reporting, Tracking, Revision, and Analysis – We identified no internal audit reports with a primary focus on the company's budgeting process during the time frame requested. However, we note that Internal Audit had plans to audit Corporate Planning and Budgeting later in 2021 (21-AU-39).[91] The opinion rendered in that audit is unknown.

Other Accounting Matters

Passed Audit Adjustments

In the course of auditing the Company's financial statements, the external auditors quantify misstatements that do not individually merit a correction to the published results because of their immateriality. However, if enough of these "small" adjustments are discovered, they cumulatively could lead to an adjustment that the company would have to record in order for the financial statements to fairly present the company's financial condition and results.

In 2018, PSE&G had no uncorrected misstatements of either its balance sheet or its statement of income.[92]

Deloitte & Touche identified two audit adjustments that impacted PSE&G's 2019 financial statements and ultimately were passed. One involved an adjustment to the Tax Adjustment Credit Regulatory Deferral for actual SHARE deductions returned to customers. Because the adjustment was not made, PSE&G revenues were understated by $16 million, income tax expense was understated by $12 million, net assets were overstated by $12 million, and net liabilities were overstated by $16 million.[93]

The second adjustment that was not made concerned a reduction in the Pension and Other Post-Retirement Employee Benefit obligations and Regulatory Asset for a difference in estimate based on mortality tables. As a result of the adjustment not being made, PSE&G's non-current assets were overstated by $20 million and non-current liabilities were overstated by $20 million (Other Post-Employment Benefit Costs - $3 million and Accrued Pension Costs - $17 million).[94]

[90] Gas System Modernization Program II report, page 5, provided as an attachment in Response to OC-0786 (Restricted).

[91] Response to OC-0352.

[92] Response to OC-0007 (Restricted).

[93] Response to OC-1132 (Restricted).

[94] Responses to OC-0007 (Restricted) and 1132 (Restricted).

PSE&G also passed on the recording of two adjustments identified by the external auditor for 2020. The first of these adjustments was similar to one of the adjustments passed by the Company in 2019. Because Tax Adjustment Credit Regulatory Deferral was not adjusted for the actual SHARE deductions returned to customers, revenues were understated by $9 million, income tax expense was understated by $7 million, net assets were overstated by $9 million, and net liabilities were overstated by $11 million.[95]

The second 2020 adjustment not made by PSE&G involved an adjustment for over-accruals of levels of effort (LOE) between accounts payable and property, plant, and equipment.[96] The passing of this entry resulted in an overstatement of both property, plant, and equipment and accounts payable by $29 million.[97]

In both 2019 and 2020, the Company represented that the aggregated uncorrected financial statement misstatements were immaterial.[98]

Asset Impairments

While the rules governing the U.S. measurement of assets and liabilities for financial statement purposes differs from one asset/liability category to another, the concept of fair value has been adopted for long-lived assets (property, plant, and equipment) that are no longer recoverable. Given the significance that these assets have for capital-intensive businesses such as utilities and power generators, it is important to understand what these write-downs of assets actually represent. In some cases, they represent a change in the business environment that few, if any, could anticipate. In others, they are an indication of the astuteness of past management decisions. Fair value is also a concept that is used in measuring goodwill and other assets. While not perfect, the quantification of asset impairments over time provides an estimate of the amount of consideration paid for an asset that has permanently been lost.[99]

According to management, PSE&G has not had to perform any impairment testing during the years 2018 to 2021. However, affiliates of PSE&G have recognized impairments during this same time period. These include:[100]

- In 2018, Energy Holdings recorded pre-tax charges of $20 million due in part to the economic challenges facing coal generation in PJM and liquidity issues facing NRG REMA.

[95] Response to OC-1132 (Restricted).

[96] Levels of effort accruals are made on major construction projects that include vendor contracts under terms that pay the vendor on a "percentage of completion" or "milestone" basis. For example, if a vendor is 25% complete on a contract, but the terms of the contract indicate that the vendor is paid at a 10% milestone and 50% milestone basis. PSEG recognizes a 15% level of effort accrual (25% - 10%) (see informal response received from the company on July 15, 2022).

[97] Response to OC-1132 (Restricted).

[98] Response to OC-0007 (Restricted).

[99] Increases in the fair value of previously impaired long-lived assets do not get recorded as a reversal of an impairment, so there are some instances in which historical impairments do not represent permanent losses.

[100] Response to OC-0044 (including updates).

- PSEG Power recognized an impairment loss of $16 million in 2019 on the remaining balance of its goodwill related to the acquisition of the Albany Steam Generating Station in 2000. Management attributed the decrease in the fair value of PSEG Power to the continued decline in wholesale power market pricing.
- When PSEG Power entered into a purchase and sale agreement in 2019 to sell its interests in the Keystone and Conemaugh generation plants along with related assets and liabilities, it recognized a loss of $402 million because the sale price was less than the carrying value of the plants.
- PSEG Energy Holdings recognized a pre-tax write-down of $58 million in 2019 after performing an annual review of estimated residual values embedded in its leverage leases and determining that the coal-fired Powerton lease had experienced a decline in value that was other than temporary stemming from an increase in the national carbon price forecast and a groundswell of support for a low carbon future as evidenced by a recent heightening of environmental concern by scientists, legislators, the power industry, and the general public.
- In 2020, PSEG Power recognized a $3 million impairment of available-for-sale debt securities in its Nuclear Decommissioning Trust after performing a periodic assessment.
- When PSEG Power entered into agreements to sell the company's fossil generating portfolio in 2021, it recorded a pre-tax impairment loss on sale of approximately $2.691 billion because the purchase price was lower than the carrying value at the time. As noted in the chapter on Finance, a significant portion of this loss was attributed to three recently completed plants.
- Finally, PSEG Energy Holdings recognized a $10 million pre-tax impairment of the residual value of its Renaissance Center leveraged lease investment as a result of adverse commercial real estate market conditions.

As was noted in the Finance chapter, despite all of these impairments and losses recognized in recent years by PSE&G's affiliates, we saw no evidence that funds were being diverted from PSE&G to these affiliates.

Prior Audit Recommendations

In the last management audit, the auditor made four recommendations with respect to Accounting and Property Records. Each of those recommendations will be identified below, and a short discussion regarding their current status will follow.

1. *To conform to industry guidance and practice and to promote the appearance of independence, the Internal Auditing Services group headed by its vice president, William Metzger, should report administratively to the PSEG CEO, Ralph Izzo, rather than to the CFO as is currently the case.*

   PSEG rejected this recommendation and justified its decision by pointing out that many other companies employ an administrative reporting structure that has Internal Audit reporting to the CFO.

Recently, PSEG has reorganized its Internal Audit group to report administratively to the General Counsel. There is little precedent for doing this as demonstrated in data submitted by the Company in this audit, and given that industry guidance on the matter has remained unchanged, Overland has once again recommended that Internal Audit report administratively to the CEO. If the company chooses to continue to ignore prevailing industry guidance, alternatively, we have recommended that Internal Audit report administratively to the CFO once again only if the Audit Committee justifies this reporting relationship in writing and performs an annual evaluation of Internal Audit for conflicts of interest.

2. *PSEG should implement employee payroll self-service data maintenance as a cost saving strategy.*

   The Company adopted this recommendation by implementing EPortal, a project sponsored by Human Resources, which was designed to allow employees to self-service such items as address changes, direct deposit or banking changes, and W-4 changes.[101]

3. *The PSEG Audit Committee Charter should be modified to explicitly state that the Audit Committee is responsible for reviewing and approving the internal audit plan for the upcoming year.*

   As noted earlier in the chapter, functional oversight of Internal Audit by the board includes a responsibility to approve the risk-based internal audit plan. Neither the corporate governance principles nor the corporate by-laws discuss board responsibility for the approval of the internal audit plan, so as noted in the previous audit, the Audit Committee charter is the obvious document to address this matter.

   However, although the Company claims to have accepted this recommendation, the documentary evidence cited in the Company's response to the prior management audit is not particularly compelling with respect to the Audit Committee assuming responsibility for approval of the internal audit plan.[102] A review of the current Audit Committee charter indicates that the Audit Committee charter continues to be silent on the matter of responsibility for internal audit plan approval. However, the head of Internal Audit confirmed to us during our interview with her that the Audit Committee in practice approves the internal audit plan.

[101] PSEG Response to the Prior Audit Report dated July 13, 2012, page 17, provided in Response to OC-0443 (Confidential).

[102] According to the company Response, the Audit Committee charter was amended to include the following provision: "The Committee shall review the planned scope of audits to be performed by the internal audit function on an annual basis, as well as the function's performance relative to staffing, budget and other criteria of import to the Committee in the discharge of its function." (PSEG Response to the Prior Audit Report dated July 13, 2012, pages 17-18, provided in Response to OC-0443 (Confidential)). There is no cited change to the charter with respect to who is responsible for approving the internal audit plan.

Given that the matter of documenting this responsibility still remains outstanding and has not been effectively addressed by the Company or the board since the last management audit, we repeat the recommendation in this audit.

4. *Since it has been outstanding for over three year, PSEG should provide the BPU 1) an estimate of the cost to remediate the significant control weakness associated with manual non-purchase order checks and 2) quarterly status reports on this outstanding audit finding until completely remediated and validated by Internal Audit.*

   According to the Company, the control weakness was remediated in the 2011-2012 timeframe by automating the delegation of authority in file net and validation by Internal Auditing Services was to have occurred by year-end 2012. A review of an August 2014 audit report update indicates that the matter was communicated to the BPU as having been completed.[103]

[103] PSEG Response to the Prior Audit Report dated July 13, 2012, page 18, and PSE&G Summary Update: BPU Management/Affiliate Audit Report Recommendations provided in Response to OC-0443 (Confidential).

16. ELECTRIC DISTRIBUTION AND OPERATIONS MANAGEMENT

Introduction and Overview

This chapter addresses PSE&G's Electric Transmission, Distribution and Operations Management; specifically focusing on the areas of System Operations and Maintenance, Asset Management, System Planning, Load Management, Fuel Management, Pooling, Interchange and Economic Dispatch, Smart Grid Development and Deployment, and IT systems.

Summary of Findings

A. System Operations and Maintenance

1. System Operations and Maintenance is supported through a matrix style organization that is linked through process and is monitored through robust performance metrics.
2. Electric Operations staffing has remained mostly flat to declining ranging from approximately 3,200 to 3,500 employees over a 5-year period.
3. Company leaders stated they endeavor to keep overtime at approximately 30 percent, and generally the data indicates these levels are sustained.
4. Based on spend for 2020, contractors comprise around 50 percent of total labor spend for both O&M and Capital when compared to in-house labor.
5. Leadership noted that typical strategies such as partnering with trade schools, working with unions to develop a candidate pool, and moving employees into critical roles when they express an interest are all underway to account for future resource needs.
6. The 5-year lookback on safety performance revealed a declining trend (positive) for OHSA Recordables and Days Away. The Company generally compares favorably to the 1st Quartile peer utilities.
7. The Electric System Operations Center's Energy Management System NERC CIP and Forced Automatic Outage Rate (FAOR) metrics currently indicate good performance.
8. The Emergency Preparedness group reports to the Vice President of Electric Operations through the Senior Director Electric T&D Operations Support, which is a direct link to the leader who is also responsible for the tactical response to any major weather event.
9. The Company noted that they are in the process of developing value stream maps for all storm restoration processes which will document these processes and will help to close any identified gaps.
10. The Company participates in the North Atlantic Mutual Aid group (NAMAG) who coordinates the sharing of restoration resources between utilities. In recent years, the Company has made 2 requests for crews and provided crews on 2 occasions.

B. Electric System Reliability

11. PSE&G, similar to other Northeastern utilities, maintains an aging asset base that, while currently reliable, does require an intensive inspection monitoring program to stay ahead of problematic reliability issues.
12. Our analysis of outage data indicates the Company is quite competent at managing reliability. When compared to their peers even their worst performing years are better than the benchmark and on average is at or exceeds 1st decile performance.
13. Tree related outages continue to be the leading cause in both the number of outages and the amount of outage minutes.
14. To support improvements in reliability, the Company maintains a list of Poorest Performing Circuits (PPC), to identify specific circuits that rank the lowest in system reliability. Efforts are directed at creating the actions necessary to drive improvements in PPC reliability, which appear to be very effective.
15. Company supplied SAIFI figures for Energy Strong circuits trended lower (better) than system average, and CAIDI generally aligned with the system average.
16. When compared to their peers, PSE&G's inspection and maintenance costs per customer was $77.82 and $4.25 per MWh. This indicates that spend per customer ranks within the top decile (positive) but the cost per MWh is closer to the 2nd quartile.
17. The Company generally hit their Vegetation Management completion rate targets for Transmission and Distribution over a 5-year period, with the exception of 2017 where Distribution was far below target.

C. System Planning

18. The Company maintains a robust set of documentation for their Transmission and Distribution planning activities. Their plans align to industry standards as well as PJM requirements specific to Transmission.
19. The Company maintains three separate forecast models (base, low and high forecast) to capture the potential EV proliferation on a 5- and 10-year horizon, to identify and potential issues.

D. Capital Project Management

20. There is a robust set of documentation that details the project management processes used for Capital Project Management. These documents detail the governance, estimating, safety, scope management, and schedule management processes, among others.
21. The Company is in the process of growing the Centralized Work Planning and Scheduling Group capability through implementing new processes.
22. The Investment Planning process is detailed in their "Establish the Detailed Capital Electric Delivery One-Year Five-Year Work/Cost Plan" document and serves to develop a unified Transmission and Distribution capital plan.
23. Analysis of the Energy Strong programs uncovered no issues regarding compliance to the Company's defined Capital Project Management policies and procedures. While there are some

deviations, including the program's organization and the independent monitor reporting, these all appear to be reasonable and within industry practices.

E. Load Management

24. Historically, PSE&G's load growth has been low to flat, averaging less than 1% per year for electric customers.

F. Fuel Management

25. PSE&G complies with all relevant environmental regulations mandated at the state or federal level.
26. The Company recently launched Clean Energy Future Energy Efficiency (CEF-EE) program, which is part of the Company's "Powering Progress" vision. The centerpiece of this program is a $1 billion investment in energy efficiency.
27. The Company's previous Demand Response program stopped accepting new customers in 2014 and was discontinued in 2018 due to "changes in the PJM capacity market rules that were inconsistent with program rules." However, a new Order was issued June 2020 "Directing the utilities to establish energy efficiency and peak demand deduction programs" by fiscal year 2024/2025.
28. Energy efficiency and the demand response programs will be improved through PSE&G's smart meter deployment approved in January 2021, allowing $700 million to be spent to provide 2.3 million electric customers with smart meters.

G. Smart Grid Development and Deployment

29. The recently created Utility of the Future group is responsible for the Company's smart grid strategy and they work with senior leadership to that ensure smart grid plans are aligned to Corporate Strategy, which itself is aligned to applicable state and federal policies.

H. IT Systems

30. The Company is ahead of the curve regarding the lifecycle maintenance of applications to ensure that they maintain current applications that are stable and usable for now and into the future.

Recommendations

System Operations and Maintenance

16.1 The Company should leverage advanced computerized tools to assist with staffing forecasts that optimizes internal hiring and contractor utilization. This should be coordinated with a broader corporate effort to accurately model and forecast staffing needs by leveraging input from

leadership through a formalized process. The output of this model should be the generation of a short- and long-term resourcing plan.

16.2 The Company should conduct a time study for all front-line supervision within Electric Operations, then benchmark to other utilities for best practices. Pending the results of the study, the Company should strive to reduce the administrative burden, if applicable, so supervisors can maximize their time overseeing employee safety and productivity.

16.3 The Company should prepare checklists for all ICS roles that capture required activity for all phases of restoration. The checklist should be aligned to the Company's response plans and with the goal of supporting the effective management of each ICS role.

16.4 The Company should re-evaluate their ETR process to determine whether Damage Assessment can be better incorporated to support ETR development in the earliest phase of major events. Additionally, the Company should indicate their compliance to the ETR standards established by the BPU by implementing a tracking method and reporting their compliance through every submitted Major Event report.

16.5 The actions and initiatives resulting from AARs conducted after each weather event should incorporate project management rigor and governance to ensure accountability, timeliness and transparency.

Asset Management

16.6 In addition to tracking PPCs at a circuit level, the Company should also track the substations that tend to contain a concentration of PPCs to identify trends that could support asset management recommendations at the substation level.

System Planning

16.7 More advanced DER penetration and EV Charger forecasts should be prepared on a short- and long-term basis. This effort should use more advanced forecasting methods such as economic modeling, industry data, and surveying.

Smart Grid Development and Deployment

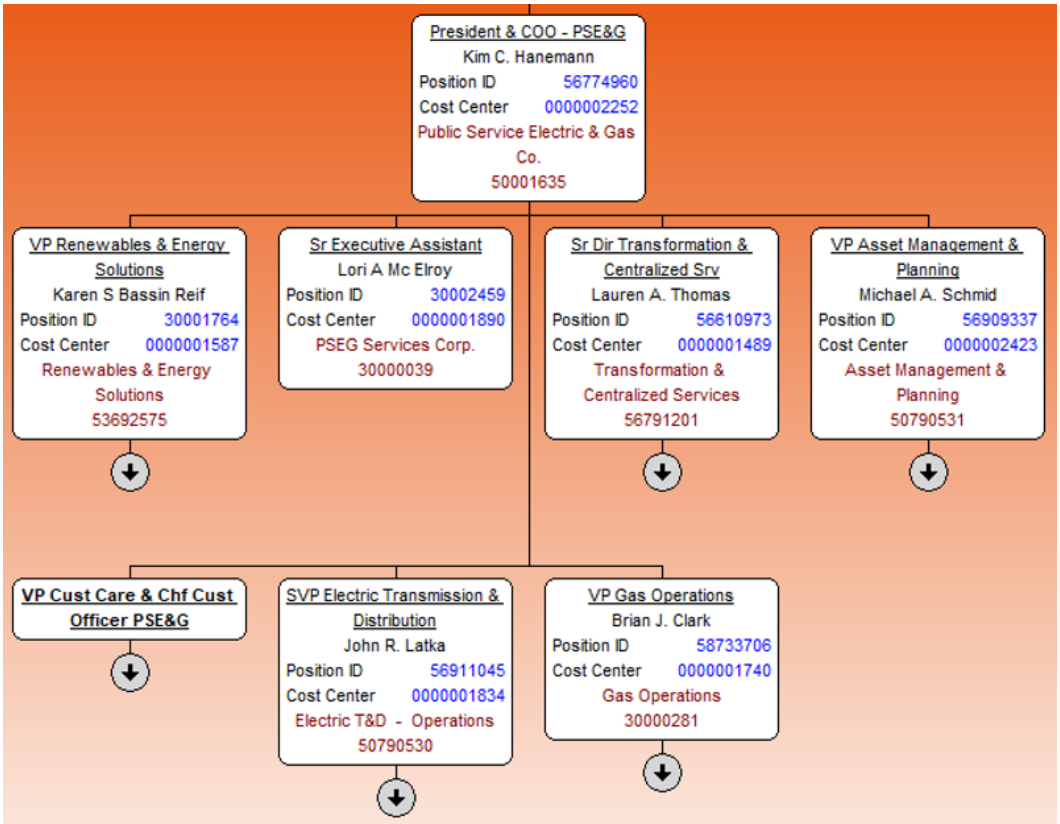
16.8 To ensure the proper oversight and management of the Company's Smart Grid strategy and implementation, including deploying their Integrated Distribution Plan (IDP), they should implement a PMO and associated program management frameworks to manage.

System Operations and Maintenance

Organization

The responsibility for the Company's Electric System Operations and Maintenance is organized under the President and COO of PSE&G who in turn has 3 senior leaders with specific electric operations and maintenance responsibilities including; the Senior Vice President of Electric Transmission and Distribution, the Vice President of Asset Management and Planning, the and the Senior Director of Transformation & Centralized Services, as shown in Table 16-1.[1] System Operations and Maintenance is also supported by a number of other groups through a matrix style organization that is linked through process and is monitored through performance metrics.[2] To ensure the effective oversight of their service territory, the Company maintains 4 divisions; Palisades, Southern, Metropolitan, and Central. Each division contains an organization that is responsible for the management of the distribution electric system, while transmission is coordinated with the divisions through a centralized transmission organization that spans the entire service territory and beyond.

Table 16-1– Electric System Operations and Maintenance organization[3]



[1] Response to OC-0084 (Confidential).
[2] Response to OC-0834.
[3] Response to OC-0084 (Confidential).

Staffing

Like all utilities across the United States, PSE&G is not immune to the challenges facing the industry with respect to workforce retirement and a changing talent pool. This is particularly problematic for roles that are more technical in nature including construction, maintenance, system operations and engineering roles which typically require a long employee development cycle. Additionally, a retiring/resigning workforce can prove problematic as it can lead to an accelerated knowledge drain, increased investment requirements for training, not being able to deliver the volume of work required by investment plans, and the risk of extended outage durations due to a lack of coverage.

Overland analyzed the Company's current staffing to understand their specific resourcing trends, the steps in place to build a candidate pipeline, and to evaluate the efforts underway to retain existing employees. We evaluated the contractor strategy used to fill resourcing shortfalls while also considering cost and productivity. Overland also reviewed the approaches used to evaluate future staffing requirements to determine if a forecasted model exists to assist with planning both short- and long-term staffing needs.

Resource Forecasting

The Company states that staffing levels are determined during the business planning process, where levels for MAST (non-union) and Union represented employees are evaluated against "specific business operating needs."[4] They claim that these levels are adjusted based on known and forecasted "projects, outages, safety, reliability and other unique business requirements."[5] Overland analyzed the historical staffing levels to identify any particular trends. Within the Electric Operations organization staffing generally remained flat to declining with a range from approximately 3,200 to 3,500 employees over a 5-year period [6] as shown in Table 6-2. The Vice President of Electric Operations stated that their current staffing level for 2020 represents a shortfall based on commitments made to the unions, however, the commitment numbers were not specified.[7] While the Company's staffing levels remain flat, several leaders indicated that they have future staffing concerns, particularly in the context of attracting skilled labor workforce during the pandemic.

[4] Response to OC-0090.
[5] Response to OC-0090.
[6] Response to OC-0091.
[7] Interview of Jack Bridges, Vice President Electric Operations, on August 10, 2021.

Table 16-2– Electric Operations Historical Staffing

Electric Operations Historical Staffing					
Function	**2016 Total Actuals**	**2017 Total Actuals**	**2018 Total Actuals**	**2019 Total Actuals**	**2020 Total Actuals**
Electric Operations	1882	1832	1853	1782	1503
Asset Management & Centralized Services	829	843	786	628	621
Delivery Projects & Construction	789	816	908	876	1091
Approximate Total Electric Utility	**3500**	**3491**	**3547**	**3286**	**3215**
Note: Asset Management and Centralized Services may include some Gas Employees.					
Response to OC-0091.					

Overtime

A symptom of staffing challenges is increased overtime levels to cover for staffing shortfalls. Company leaders stated they endeavor to keep overtime at approximately 30 percent, and generally the data indicates these levels are sustained.[8] However, certain job activities consistently exceeded 30 percent over a 5-year period[9] as shown in Table 16-3. The Company states that plans are underway to increase staffing for these respective activities, but due to the specialized skillset required it is difficult mitigate overtime with contractors or employees from other groups. Since these areas have consistently experienced elevated overtime, Overland believes that the Company would benefit from a strategic staffing plan so they can manage and fill roles more strategically.

[BEGIN CONFIDENTIAL]

Table 16-3– Electric Operations Overtime Average Over a 5 Year Period

Job Activity	
[redacted]	[redacted]
Electric Operations 5-year Average	**30.87%**
Response to OC-0833.	

[END CONFIDENTIAL]

[8] Interview of Jack Bridges, Vice President Electric Operations, on August 10, 2021.

[9] Response to OC-0833 (Confidential).

Contractor Utilization

Overland also analyzed contractor utilization to determine how they are deployed, if costs are evaluated against in-house employees, and how productivity is measured and compared to in-house crews. Overland observed that field-based roles, engineering, and project management are the areas with the greatest concentration of contracted resources. Contractors are primarily used for larger projects where there is a long duration requirement but can also fill in for emergent work as needs dictate. Additionally, contractors are used for emergency response events which is discussed in in the Major Event Response section.

The Company stated that they do not track the historical number of contractors on property, nor do they forecast future contractor needs.[10] Looking at the Company's spend for 2020, contractors comprise approximately 50 percent of total labor spend for both O&M and Capital when compared to in-house labor[11] as shown in Table 16-4.

Table 16-4 – Internal vs Contractor Labor

2020 Internal Labor & Outside Services Actuals			
Group	**O&M**	**Capital**	**Total**
Internal Labor			
P&C	$ 9,795,296	$ 15,801,346	$ 25,596,642
EOPS	$ 27,252,775	$ 60,304,069	$ 87,556,844
VP-TD	$ 30,677,024	$ 71,249,664	$ 101,926,688
Subtotal Internal Labor	**$ 67,725,095**	**$ 147,355,079**	**$ 215,080,174**
Ouside Labor			
P&C	$ 613,896	$ 8,590,992	$ 9,204,888
EOPS	$ 53,573,863	$ 155,153,765	$ 208,727,628
VP-TD	$ -	$ -	$ -
Subtotal Outside Services	**$ 54,187,759**	**$ 163,744,757**	**$ 217,932,516**
Total Costs	**$ 121,912,854.00**	**$ 311,099,835.94**	**$ 433,012,689.94**
% of Internal Labor	**56%**	**47%**	**50%**
% of Outside Services	**44%**	**53%**	**50%**
Response to OC-0976.			

The Company stated that they support contractor cost containment by competitively sourcing all project work to keep cost as low as possible.[12] This approach can limit the amount of oversight required but places the Company at risk for spot increases in labor costs. Additionally, the Company stated that they do not analyze contractor costs from a holistic perspective but rather on a project-by-project basis since they are all competitively bid.[13]

[10] Response to OC-0092.
[11] Response to OC-0976.
[12] Interview of Abigail Phillips, Senior Director Program Areas, on September 22, 2021.
[13] Interview of Abigail Phillips, Senior Director Program Areas, on September 22, 2021.

Overland is concerned by the lack of strategic analysis for contractor use, specifically with the lack of cost and productivity analysis which can inhibit the ability to stabilize labor costs. This is particularly concerning given the volume of work contractors perform for the Company.
Given the identified resourcing concerns, Overland recommends that the Company prepare a comprehensive resource plan that considers both short- and long-term needs. This plan at a minimum should consider retirements, staffing trends, long term business needs including specific technical training needs, a contractor utilization strategy and other factors. Specific to contractor resources, Overland recommends that their utilization is analyzed through a comprehensive cost and productivity study that considers work type, cost, productivity and availability. This approach should support more insight into the decisions around contractor utilization. Additionally, the Company did not provide any details to indicate the tools/systems used, or the formal processes followed to support staffing forecasts. Therefore, Overland recommends that the Company implement an advanced computerized resourcing model and develop the associated processes to capture needs from leadership to build a comprehensive short- and long-term resource plan. This approach aligns with industry recognized approaches used to assist with staffing needs.

Overland also recommends that the Company should leverage advanced computerized tools to assist with staffing forecasts to optimize internal hiring and contractor utilization. This should be coordinated with a broader corporate effort to accurately model and forecast staffing needs, leveraging input from leadership through a formalized process. The output of this model should be the generation of a short- and long-term resourcing plan.

Employee Hiring and Retention

To support the outcomes from the recommended resource plan, Overland reviewed the Company's plans to address industry challenges regarding identification and sourcing of qualified candidates. Company leadership noted that typical strategies such as partnering with trade schools, working with unions to develop a candidate pool, and moving employees into critical roles when they express an interest are all underway.[14] These efforts are comparable to current industry practices.

To keep existing employees engaged and retained once hired, Overland reviewed how the Company evaluates employee sentiment and the resulting actions taken to improve identified opportunity areas. Currently, this is measured annually through a "People and Culture" survey, to "gauge employee engagement, focus, motivation and productivity."[15] The survey results drive initiatives that are designed to help improve areas that are performing below target, and are tracked through a People Score Card where metrics track trends.[16] Overland believes that the Company is utilizing an industry standard method for managing employee engagement, and all initiatives reviewed were focused on employee satisfaction which is a major contributor toward long-term retention.

[14] Interview of Jack Bridges, Vice President Electric Operations, on August 10, 2021.
[15] Response to OC-0987.
[16] Response to OC-1393 (Confidential).

Safety

Ensuring that employees leave work in the same condition they arrive is critically important for any utility. Layers of protections are necessary to drive toward zero incidents every day, including but not limited to, having appropriate leadership oversight and tone, the implementation of well-defined and understood policies, proper field supervision, regular safety and trade specific training and effective measurement systems. Company leadership discussed how they manage these layers of protection during several interviews and Overland reviewed the Company's metrics and KPIs to evaluate the Company's effectiveness at managing safety performance. Benchmarking data was also reviewed to determine how the Company ranked against their peer group.

Internal Employee Safety

The Company's safety metrics include OSHA Recordable Incident Rate, OSHA Days Away Rate (Severity), and Motor Vehicle Accident Rate (MVA) as shown in Table 16.5 below. The 5-year lookback on performance revealed a declining trend (positive) for OHSA Recordables and Days Away and the Company generally compares well to the 1st Quartile peer utilities. However, the Company does have a relatively flat but high MVA rate.[17] Specifically, metrics indicate a high number of MVAs in the Metropolitan division, which is likely due to the urban density of that division.[18] To drive improvements in these numbers, the Company detailed both short and long-term initiatives currently being implemented, including:[19]

Short-Term Initiatives

- Motor Vehicle Accident Communication Campaign, including Bi-Weekly Safety Topics, Video Communication and Executive Messaging centered on the theme of "Driving is Working."
- Implementation of Division & District Level Driver Scorecards, Mentoring & Recognition, and utilizing the Automated Vehicle Location System (AVLS).
- Focus Driver Evaluation efforts for drivers in a new job classification with less than 2 years of driving on new equipment/vehicles.
- Retrain associates on the use of the Circle of Safety & Spotter Utilization.
- Implement a Motor Vehicle Pre-Driving Checklist to reinforce driver preparation.

Long-Term Initiatives

- Equip new vehicles/equipment, where available, with standard driver assist technologies that will raise the level of driver awareness.
- Pilot Artificial Intelligence technology in vehicles/equipment that are currently not equipped with driver assist technologies to determine effectiveness of after-market technology.

[17] Response to OC-1393 (Confidential).
[18] Response to OC-0831 (Confidential).
[19] Response to OC-0831 (Confidential).

- Evaluate the Company's current driver training programs for effectiveness and modify to emphasize key training components targeted at specific vehicles and equipment and drivers.

Table 16-5 – 5 Year Safety Reports for Electric Distribution with Benchmarking Comparison

5 Year Safety Reports for Electric Distribution					
Company	**2015**	**2016**	**2017**	**2018**	**2019**
OSHA Recordable Incident Rate					
PSG&E	1.72	1.67	1.39	1.69	1.43
1st Quartile	1.92	1.96	1.94	1.56	1.57
OSHA Days Away Rate (Severity)					
PSG&E	27.52	30.96	17.71	18.64	9.57
1st Quartile	28.50	21.60	29.83	29.59	25.12
Motor Vehicle Accident Rate					
PSG&E	7.45	10.96	9.36	9.16	9.10
1st Quartile	3.55	5.66	4.10	4.82	5.97
Response to OC-0094.					

5 Year Safety Reports for Electric Distribution					
Company	**2015**	**2016**	**2017**	**2018**	**2019**
OSHA Recordable Incident Rate					
PSE&G	1.72	1.67	1.39	1.69	1.43
1st Quartile	1.92	1.96	1.94	1.56	1.57
OSHA Days Away Rate (Severity)					
PSE&G	27.52	30.96	17.71	18.64	9.57
1st Quartile	28.50	21.60	29.83	29.59	25.12
Motor Vehicle Accident Rate					
PSE&G	7.45	10.96	9.36	9.16	9.10
1st Quartile	3.55	5.66	4.10	4.82	5.97
Response to OC-0094.					

The efforts described are reasonable and appropriate, especially with their focus on accidents involving stationary objects since it represents nearly 50 percent of all accidents.[20]

Overland believes that safety efforts, including those concerning MVAs, are reinforced through the direct supervision and mentoring of field-based crews. When asked, the Company stated that they do not monitor supervisors' "time in the field" through any sort of time study or other means.[21] Overland believes that time studies and the continued monitoring of supervisor's time in the field serves to promote the Company's safety culture and productivity. Since no conclusions can be made about the amount of time supervisors spend in the field, Overland recommends that the Company conduct a time-study for field-based supervisors and benchmark their peer utilities to understand if improvements are needed.

[20] Interview of Ronald Shute II, Senior Director Construction & Maintenance, on September 24, 2021.
[21] Response to OC-1449.

Recommendation: The Company should conduct a time study for all front-line supervision within Electric Operations, then benchmark other utilities for best practices. Pending the results of the study, the Company should strive to reduce the administrative burden, if applicable, so supervisors can maximize their time overseeing employee safety and productivity.

Contractor Safety

While Contractors are ultimately responsible for their own safety performance, the Company monitors contractor safety through the use of scorecards and will take action should performance drop below certain targets.[22] The goal is to drive contractors to a high level of safety performance so that all employees whether internal or contracted are protected. The Company indicated that they use the following escalating actions should contractor safety fall below certain targets:[23]

- **Minor Underperformance** – Conversation about the results and action plans to resolve.
- **Moderate Underperformance** – Meeting between Senior PSE&G leadership and contractor leadership.
- **Significant Underperformance** – May include contract termination.

Overland reviewed all Contractor scorecards for the last 2 years to evaluate contractor performance and to understand if off-target performance was remedied when identified. For the identified cases of underperformance, the Company provided their high-level remediation details which conformed to company standards, indicating solid controls and management of underperformance.

System Operations

Organization

The Company operates the electric system through the use of four Divisions Operations Centers located in each division for distribution assets and one centralized ESOC for transmission assets. There is an additional back up transmission ESOC should the primary ESOC be unavailable. The Division Operations Centers are managed by each divisions' Division Operations Manager and are responsible for all assets 69kV and below. The transmission ESOC is managed by the Senior Director of Electric System Operations and is responsible for all assets 100kV and above, they also monitor the 69kV system.

Operations

The Division Operations Centers and ESOC responsibilities include taking circuits and other equipment out of service for line work, switching for loading issues, dispatching crews to outages, monitoring system alarms, compliance to NERC rules (for transmission), and more. They maintain 24 hour 365 days

[22] Response to OC-0984 (Confidential).
[23] Response to OC-1391.

a year operation with worker shifts consisting of 12-hour rotations. Employees within this group are required to have at least 8 hours of rest between shifts and are typically limited to 5 consecutive workdays in a row to limit overtime, they also alternate between day and night shifts. Sick time, vacations and emergency events are typically covered by overtime. ESOC also requires each employee's 5th week of work to be focused on training but can be skipped if there is an operational need.[24]

The Division Operations Centers are heavily software reliant and use several applications to manage day-to-day operations including SAP, Outage Management System (OMS), Mobile Electric GIS Applications (MEGA), Distribution Work Management System (DWMS), and has future plans for a new Mobile Workforce Management System (MWMS) and new MEGA application.[25] Since this group is very reliant on technology to manage their responsibilities, they maintain business continuity plans to account for computer network outages or other interruptions. Dashboards are maintained to monitor their computer systems and have the internal capability to troubleshoot issues should a system go down. Should those efforts fail, "System Reliability" is notified to fix the issue. Should the Transmission ESOC need to evacuate or experiences an outage, they have a robust method to notify and move employees to the backup ESOC, a practice the Company regularly practices. Similarly, all Division Operations Centers can backup each other when needed.[26]

Operational Issues with Distributed Energy Resources (DER)

Division Operations Centers and ESOC leaders stated that there have been no changes in how they operate the system as a result of current DER penetration levels. However, to prepare for the future they have been recently deploying new software applications.[27] Specifically, the Company is currently in the process of implementing a new Advanced Distribution Management Solution (ADMS) which will allow for a greater level of insight of operational resources. Once fully deployed, ADMS will be a collection of integrated applications used to manage the future electric distribution system including an advanced Supervisory Control and Data Acquisition (SCADA) system, Distribution Management System (DMS)/Distributed Energy Resource Management System (DERMS) and Outage Management System (OMS). The Division Operations Centers are primary users of these applications which will allow for greater electric system flexibility through the optimization of DERs and improved operational decision making through the increased amount of data provided. The companion OMS system will be better integrated into these applications to allow for greater outage analysis which will support the dispatch of resources for restoration, as necessary.[28]

The advanced SCADA application was scheduled to be deployed on or about December 2021. DMS/DERMS is in the development phase and is scheduled to be deployed over three releases, with the final release to be deployed by the end of 2022. OMS is being developed using Agile methodology so

[24] Interview of Ronald E. Wharton, Senior Director Electric System Operations, on September 28, 2021.
[25] Response to OC-0829.
[26] Interview of Jack Bridges, Vice President Electric Operations, on August 10, 2021.
[27] Response to OC-0856.
[28] Response to OC-0859 (Confidential).

smaller deployments will occur over its development timeline. The Company is currently in the eighth sprint release, with the final sprint to be completed by the end of 2022.[29]

Performance Management

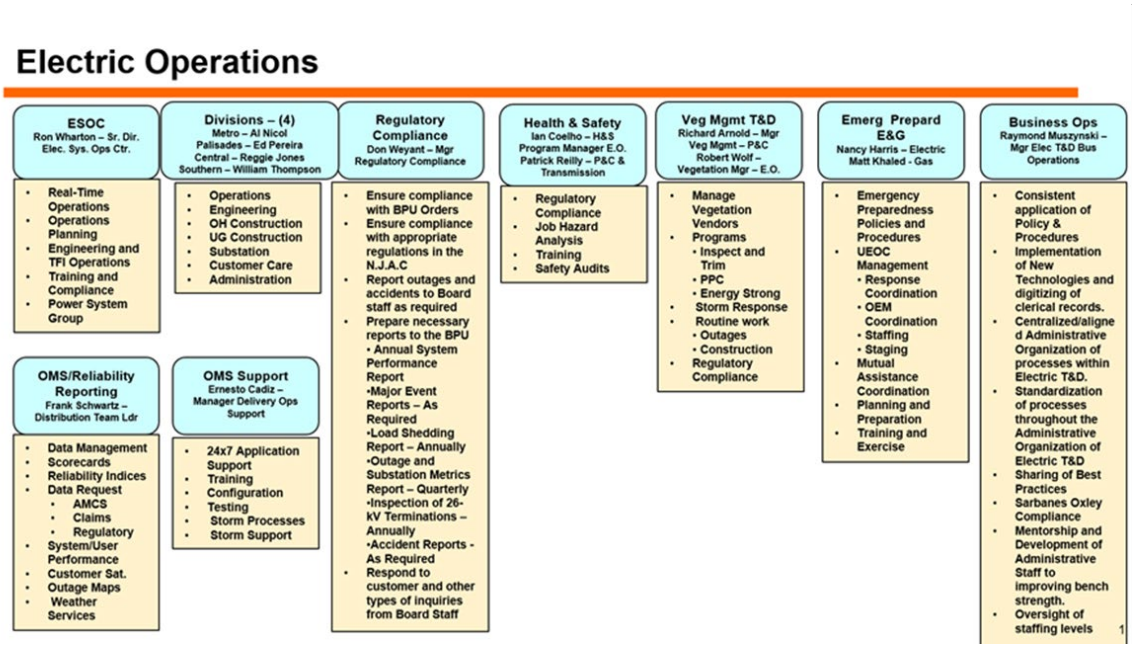
The Company's Division Operations Centers and ESOC performance is managed, in part, through the use of metrics that rollup to a balanced scorecard at the Electric Operations level. The Division Operations Centers and ESOC directly influence the NERC-CIP and Forced Automatic Outage Rate (FAOR), and both metrics currently indicate good performance.[30] Other measures including CAIDI and ETR accuracy (for blue sky ETRs) are influenced by the Division Operations Centers and ESOC through the speed of recognizing an outage, and how rapidly and accurately they dispatch crews to respond. Since the Company has traditionally performed well in these areas, it would appear the Division Operations Centers and ESOC are an effective component of these measures.[31,32,33]

Major Event Response

The Company manages restoration activities caused by major weather events through the use of response plans that detail the processes and procedures for event anticipation, realization and closure. Specifically, there are three plans including "Storm/Outage Restoration Plan," "Distribution System Damage Assessment Guide," and "Safety Standards and Procedures."[34] The Company has a dedicated Emergency Preparedness group to assist with the management of these plans and to ensure their compliance. This group reports to the Vice President of Electric Operations through the Senior Director Electric T&D Operations Support, which is a direct link to the leader who is also responsible for the tactical response to most major events. Additionally, they are matrixed into the Electric Operations organization to support the response plan process owners and ensure their compliance to the plans, as shown in Table 16-6. The members of the Emergency Preparedness organization also have specific responsibilities for certain response processes such as storm assignment activation and management of the Emergency Operations Center (EOC).

[29] Response to OC-0859 (Confidential).
[30] Response to OC-0830 (Confidential).
[31] Response to OC-1345.
[32] Response to OC-0830 (Confidential).
[33] Response to OC-0739 (Confidential).
[34] Response to OC-0742.

Table 16-6 Emergency Preparedness Organization within Electric Operations[35]



Upon the anticipation of a major weather event, the Company opens their EOC to coordinate the activities detailed in their response plans. The EOC is staffed by employees with roles that align to the Incident Command System (ICS), which is a widely adopted method for managing major events and aligns to federal, state and local government approaches. The staffing of the ICS organization is based on predetermined assignments which includes a primary person, and a back-up should the primary person not be available.[36] Having predesigned assignments helps eliminate confusion during response activation and limits issues with continuity due to lack of individual experience.

Event Response Activation

The response activation process is initiated by the Incident Commander, the individual ultimately responsible for event restoration, who weighs information from a variety of sources including from weather information vendors, historical data, and information from individual divisions to determine the "Storm Severity Level." There are six severity levels with each increase in number indicating escalating anticipated or realized storm impact severity as shown in Table 16-7. Designating a severity level directs the scale of response, the projected number of crews needed, and the type of processes activated. The Company stated that they maintain more "event levels" than other peer utilities because they believe the added flexibility provides for better rightsizing of the response to avoid under- or overestimation.[37]

[35] Response to OC-0993.
[36] Response to OC-0965.
[37] Interview of Nancy Harris, Manager Emergency Preparedness, on November 04, 2021.

Table 16-7 – Strom Severity Levels[38]

Storm level	0	1	2	3	4	5	6
System Conditions (during the event)							
Conditions Possible	Normal weather	Minor lightning, snow or icing; moderate winds	Widespread, heavy thunderstorms; moderate snow and/ or ice accumulation; gale force	Near Tropical Storm or Nor'easter conditions; moderate to heavy snow/ice storm; ice accumulation; gale force to hurricane winds; possible tornado activity, minor flooding, coastal storm.	Tropical Storm or Nor'easter; heavy snow/ice storm; ice accumulation; gale force to hurricane winds; possible tornado activity, minor flooding, coastal storm. Frozen Precip ratio 6:1 or less	Tropical Storm or Nor'easter; heavy snow/ice storm; ice accumulation; gale force to hurricane winds; possible tornado activity, moderate Flooding, coastal storm. Frozen Precip ratio 4:1 or less	Cat 1, Cat 2 or Cat 3 Hurricane direct hit, off season snow/ice storm, multiple tornado events Widespread Severe Flooding
Wind Speed	Less than 25 mph	25 to 40 mph	41 to 50 mph	51 to 60 mph	61 to 75 mph	Greater than 76 mph	74-110 mph
OMS Incidents (on Screen during event)	up to 100 per division	100-200 per division	200 per division	300 plus per division	500 per division	1,000 per division	5,000+ for the Company
Storm Impacts (results of event)							
Expected Customers Interrupted	3K-12K	10K-20K	10K-65K	50K-175K	100K to 250K	200K-750K	700K-2M+
Anticipated Restoration Time	Default (Same Day)	up to 24-48 hours	up to 2 days	2-4 days	2-7 days	7-14 days	7-21 Days
Expected Damage	Minimal	Minor	Moderate; localized or widespread; moderate vegetation impact	Heavy; widespread; significant vegetation impact	Heavy; widespread, possible Substation Flooding; significant vegetation impact	Extremely Heavy; widespread, Transmission damage, Substation Flooding; significant vegetation impact	Severe and Widespread Damage, Substation Flooding, Transmission Damage; significant vegetation impact
Total # of OMS Incidents		300-2K	500-4K	1K-7K	5K-10K	10K-40K	80K

To ensure that all required activities are performed during the response activation phase, best practices indicate that checklists are used. However, Overland asked for ICS role specific checklists and the Company referred to their high-level response checklists.[39] Best practices require that checklists exist for all ICS roles to ensure compliance to response plans and to ensure that no activities are missed while preparing for, actively managing and closing event response. Overland recommends that the Company prepare role specific checklists to ensure response effectiveness and auditable compliance to their response plans.

Overland recommends that the Company should prepare checklists for all ICS roles that capture required activity for all phases of restoration. The checklist should be aligned to their response plans and should support the effective management of each ICS role.

Upon activation, the Company deploys their Emergency Response processes which detail the tactical activities needed to support restoration. The Company noted that they are in the process of developing

[38] Response to OC-0742.
[39] Response to OC-0963.

value stream maps that document these processes and to close any identified gaps.[40] Overland is encouraged by this action as it will preserve institutional knowledge and will provide a method for systemically driving improvements to storm response processes. This will also provide a more effective means for measuring their processes and will further drive performance through carefully selected KPIs.

Event Resourcing

To support response process staffing, the Company maintains a list of employees and their Emergency Response roles which, upon event anticipation, is activated through the Manager of Emergency Preparedness. All employees who work for PSE&G have both a primary and secondary emergency response role which allows for process scaling and flexibility for major events.[41] The Company also has the ability to activate their gas utility employees to serve in specific roles such as Wires Down Standby, Damage Assessment, and back-office roles.[42]

From a restoration crew perspective, the Company is able to activate all internal resources and they can also utilize their on-property contractors. Should they need to further augment their restoration resources, the Company participates in the North Atlantic Mutual Aid group (NAMAG) who coordinates resource sharing among utilities. The Company indicated they actively request and supply restoration crews when necessary and noted they only submit requests when they believe they have exhausted all other Company available resources.[43]

Table 16-8 – Recent NAMAG Request or Provided Resources

NAMAG Participation		
Status	**Reqeusted/*Provided***	**Comments**
Crews Requested	500 Line, 200 Tree	June 3, 2020 Storm
Crews Requested	1500 Line	ISAIS Storm
Crews Provided	125 FTE	FP&L request for Hurricane Irma
Crews Provided	25 FTE	PG&E request for Wildfires
Response to OC-0836.		

NAMAG Participation		
Status	**Reqeusted/*Provided***	**Comments**
Crews Requested	500 Line, 200 Tree	June 3, 2020 Storm
Crews Requested	1500 Line	Isaias Storm
Crews Provided	125 FTE	FP&L request for Hurricane Irma
Crews Provided	25 FTE	PG&E request for Wildfires
Response to OC-0836.		

[40] Response to OC-1231 (Confidential).
[41] Response to OC-0966.
[42] Response to OC-1231 (Confidential).
[43] Response to OC-0836.

To ensure appropriate assumptions for response staffing are made, Overland asked for evidence of the analytical tools used, however, the Company indicated this practice is performed through institutional knowledge based on historical information.[44] They did note, however, they will likely be able to use analytical tools once the value stream mapping initiative is complete, which Overland strongly encourages.[45]

Estimated Time of Restoration (ETR) and Damage Assessment

Damage Assessment and Estimate Time of Restoration (ETR) are two interrelated processes that can be supportive of each other. Damage assessment can help inform and refine ETRs if used appropriately, providing Customers more accurate information to help with decisions, such as, whether to relocate to a hotel or other temporary housing.

The Company maintains a robust Damage Assessment process with a defined policy and training materials to support those responsible.[46] The process also employs applications including MEGA and Survey123, which provides a mobile view of GIS allowing Damage Assessors to simply upload damage details. This is beneficial since information arrives in near real time so leadership can ultimately have a faster, more detailed view of system impacts. Additionally, MEGA and Survey123 feed into a MEGA LKP Process that allows for the rapid generation and dispatch of assignable repair jobs for restoration crews.[47]

The ETR process is also well documented, consistent with standards set through regulatory requirements; specifically through Docket No. E01211050 which includes:[48]

- Within 24 hours after weather event or other major event has exited the service territory, an Electric Distribution Company (EDC) shall provide the municipal officials with a Global ETR.
- ETRs for individual customers shall be developed by the EDCs and made available as follows:
    - Within 48 hours of the event exiting the service territory for outages projected to last up to 7 days.
    - Within 72 hours of the event exiting the service territory for outages projected to last between 8 to 10 days.
    - Within 96 hours of the event exiting the service territory for outages projected to last over 10 days.

OMS data supports the generation of ETR's for blue-sky and minor weather events where depending on certain factors, multipliers can be added to account for the number of damage locations vs. the number

[44] Interview of Nancy Harris, Manager Emergency Preparedness, on November 04, 2021.
[45] Interview of Abigail Phillips, Senior Director Continuous Improvement, on September 22, 2021.
[46] Response to OC-0748.
[47] Response to OC-0748.
[48] Response to OC-0748.

of available crews to restore. Prior to the start of a major weather event the Company will rely upon a number of "strategies" to provide an ETR. Below are the Company's five ETR approaches:[49]

1. Default – OMS Calculated: What is typically used during blue sky and possibly low impact events.
2. Multiplier – OMS Calculated: Is an added factor to account for more minor events, typically accounts for delays due to weather, travel, work volume or crew availability.
3. Global: Calculated early for a major event using weather information, division input and crew information.
4. Work Plan: A manual high-level estimate based on a volume of work identified through the course of a major event.
5. Crew Assessment: More refined "high confidence" data based on the time to complete work for each assigned job.

Overland observed that the Damage Assessment process was not explicitly used to assist with early phase ETR development. For example, other utilities tend to have a two-phase damage assessment model to assist with refining ETRs. Phase one is a fast damage assessment which is used to determine the scale of damage and is typically completed within 24 hours of the end of a major event. This assists with the refinement of the global ETR and provides insight into system impact beyond OMS data. Phase 2 assessments, which is detailed in PSE&G's plan, are more detailed and provide specific data points to support locationally specific ETRs.[50]

Overland recommends that the Company determine whether Damage Assessment can be better incorporated to support ETR development in the earliest phase of major events.

Overland also observed that the Company only tracks ETR performance for "blue-sky" outage events.[51] ETR standards are set in Docket No. E01211050 which cover both "blue-sky" and major events. There is no way to the Company is compliant to these standards for a major event.[52] Overland believes the Company should implement a tracking method to ensure their compliance to the ETR standards set in Docket No. E01211050 and report their compliance through each Major Event report.

The Company should re-evaluate their ETR process to determine whether Damage Assessment can be better incorporated to support ETR development in the earliest phase of major events. Additionally, the Company should indicate their compliance to the ETR standards established in Docket No. E01211050 by implementing a tracking method and reporting their compliance through every submitted Major Event report.

Event Drills and After-Action Reviews (AAR)

[49] Response to OC-0748.
[50] Response to OC-0020.
[51] Response to OC-1345.
[52] Response to OC-0960.

The Company ensures event readiness by conducting an annual 75 percent outage storm response drill to test their processes and capabilities. The Company extends invites to county Offices of Emergency Management (OEM) and also works with the NERC OEM.[53] These drills include a series of injects that are developed to test potential event scenarios. For example, this may include blocked roads, certain critical customers/infrastructure without power, communication challenges, etc.[54] Overland finds that the Company drills are well designed and include an appropriate level of participation internally.

All drills and major events conclude with an After-Action Review (AAR) to source information and feedback on what worked well and what could be improved. The Company shared their list of AAR actions generated for Tropical Storm Isaias. While the list of actions is reasonable, there does not appear to be any sort of project management rigor used to track the delivery of them. It was also unclear from Company provided information if they utilize any sort of governance to ensure oversight of action plan delivery. The Company should assign individuals to be responsible for each action which will help drive accountability to ensure timely delivery. Overland recommends that the Company implement project management tools and approaches to drive improvements for their storm response processes, and once the value stream mapping project is complete, there should be a clear link to process and the measurement of benefits derived from AAR actions.

The actions and initiatives resulting from AARs conducted after each weather event should incorporate project management rigor and governance to ensure accountability, timeliness and transparency.

Asset Management

Organization

The Asset Management organization is responsible for the asset management strategy and associated tasks, energy supply, and system compliance for the Company. The Organization is comprised of 6 functional areas, 4 of which directly support Electric Operations, including:[55]

- Electric Delivery and Transmission Strategy: Short- and Long-Term strategy and planning for electric Transmission and Distribution assets. Interact with PJM for system stability, loading, asset assessments, project coordination etc.
- Energy Supply Acquisition and Operations: Responsible for BGS, BGSS, retail choice, non-utility generation and renewables, energy settlement and energy administration.
- Electric Asset Strategy and Systems: Develops and manages the asset management strategy, third party attachments, capital project identification and development, and NERC compliance. Also responsible for driving electric reliability by monitoring causes and the development of strategy for driving improvements. Also has utility of the future responsibilities.

[53] Interview of Jack Bridges, Vice President Electric Operations, on August 10, 2021.
[54] Response to OC-1172.
[55] Interview of Michael Schmid, Vice President Asset Management and Planning, on August 10, 2021.

- Investment Planning: Responsible for building the Company's 10-year plan based on long-term needs and forecasted/expected changes in the industry.

Asset Management Strategy and Asset Condition

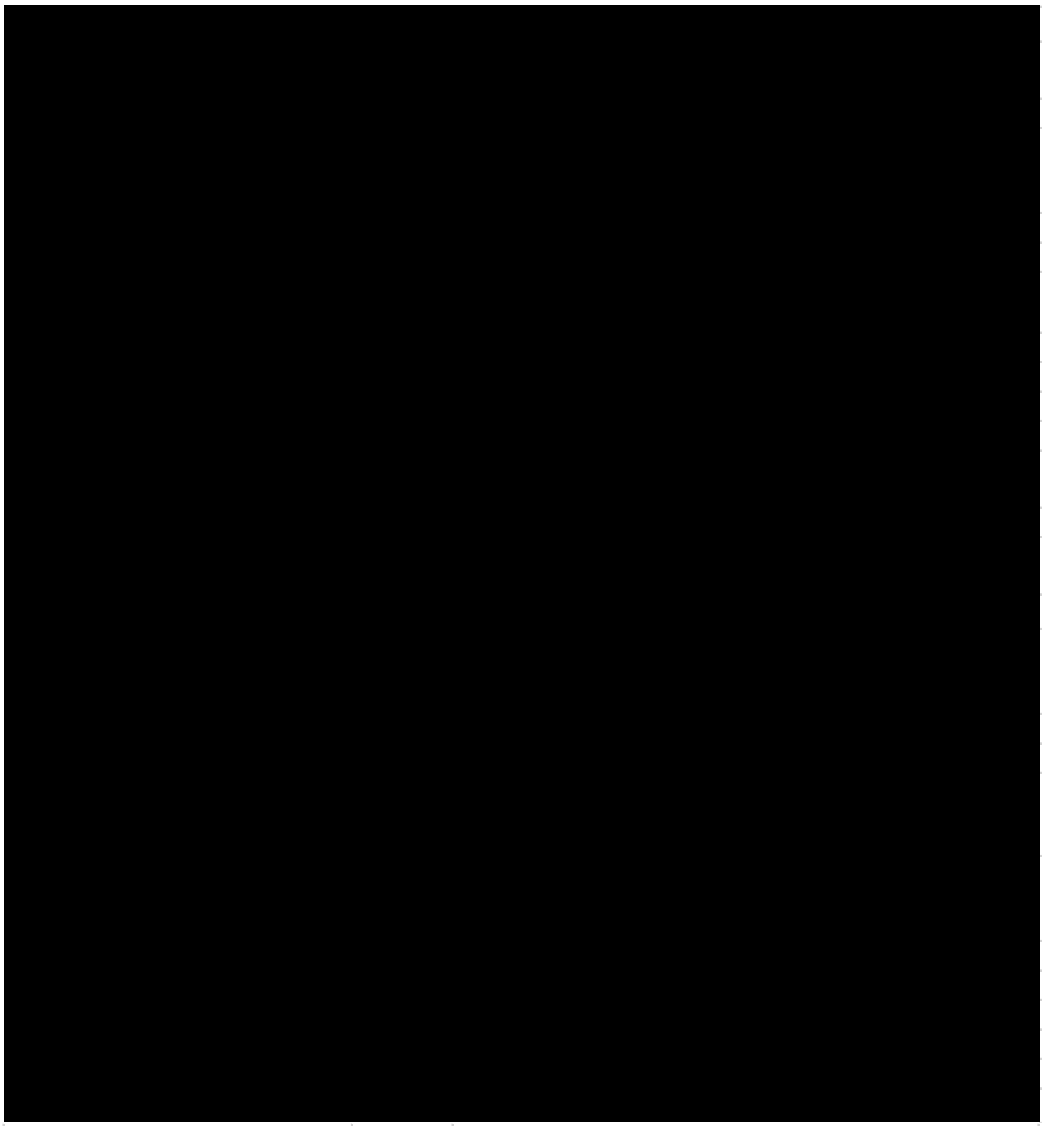
The Electric Asset Strategy and Systems team is tasked with managing the Company's electric assets and is structured such that individuals are responsible for specific assets. This allows for a level of focus, so they remain familiar with the particularities of an asset and maintain continuity over the entire electric system. These individuals are connected to operations so when an asset fails, they conduct an investigation to determine the cause and recommend the appropriate mitigation steps based on operating data, asset condition, age, maintenance findings and other factors. For systemic reliability issues this group can develop strategies to replace and repair assets on a large scale should their analysis dictate.[56]

Overland requested an asset health report to determine, for each asset class, their average age and inspection cycle to determine the overall condition of the system and to weigh the efforts taken to manage ageing and/or systemically unreliable assets.

[56] Interview of Raymond Alvarez, Senior Director Asset Strategy, Tech and Systems, on September 20, 2021.

[BEGIN CONFIDENTIAL]

Table 16-9– Major Assets Age and Inspection Cycles



[END CONFIDENTIAL]

PSE&G, similar to other Northeastern utilities, maintains an aging asset base that, while currently reliable, does require an intensive inspection and monitoring program to stay ahead of problematic reliability issues. Overland conducted a targeted review of Company assets to determine their "useful life" statistics, which highlighted that several assets were at or nearing the end of what is considered the "end of useful life." However, there are approaches that can be implemented through a robust maintenance program to extend the useful life of an asset.

The following section explores PSE&G's maintenance and inspection program, including compliance to their policies, and begins with the analysis of the Company's system reliability.

System Reliability

Company employees interviewed throughout the audit stated the importance of reliability, and detailed the steps taken to ensure it remains a priority. This section explores the reliability programs at the Company and analyzes their effectiveness by analyzing historical data.

The Company monitors system reliability through the use of industry recognized metrics including the following:[57,58]

- **System Average Interruption Frequency Index (SAIFI):** Measures how frequently outages occur on average.
- **Customer Average Interruption Duration Index (CAIDI):** The ratio of SAIDI and SAIFI which is typically considered the average restoration time.
- **System Average Interruption Duration Index (SAIDI):** The outage duration any particular customer may experience.

These metrics drive many reliability focused efforts across the Company including how outage cause data is collected, how capital improvement projects are developed, how assets are maintained and inspected, how the system is designed and operated, and the governance that supports the performance of the process.

Beginning with governance, Company leadership monitors SAIFI and CAIDI performance regularly through the Company's Electric Operation's balanced scorecard. The scorecard includes trends, targets, Year and Months to Date data divided by division.[59] More focused discussions about reliability during the daily operations call covers topics concerning outages and abnormal conditions. Should there be an issue that needs to be addressed, departments will act as necessary to remedy any issues.[60]

Our analysis of outage data indicates the Company is quite competent at managing reliability. While fluctuations in year over year reliability exist for 2017 and 2019, overall the Company performs well. When compared to their peers even PSE&G's worst performing years are better than their benchmark and on average is at or exceeds 1st decile performance.

[57] Response to OC-0109.
[58] IEEE Guide for Electric Power Distribution Indices - Standard 1366.
[59] Response to OC-0831 (Confidential).
[60] Interview of Albert P. Nicol, Senior Director Electric T&D Operations, on November 4, 2021.

Table 16-10 – PSE&G Reliability Metrics

PSE&G Reliability Metrics					
	2016	2017	2018	2019	2020
SAIFI	0.63	0.58	0.81	0.70	0.80
CAIDI	76.28	56.39	78.16	60.74	70.20
SAIDI	48.38	32.88	63.54	42.32	56.11
Response to OC-0109.					

Table 16-11– PSE&G Reliability Benchmarking

PSE&G Reliability Metrics						
	2016			2020		
	PSE&G	Benchmark	Median	PSE&G	Top Decile	1st Quartile
SAIDI Excluded	63.50	77.50	100.90	47.30	49.70	66.00
SAIFI Excluded	0.81	0.88	1.02	0.61	0.55	0.64
CAIDI Excluded	78.00	87.00	101.00	77.00	76.00	84.00
MAIFI Excluded	1.14	1.41	3.17	1.15	1.15	1.26
CEMI 4 or More Excluded	2.70%	1.40%	3.50%	1.70%	1.30%	2.00%
CEMI 0 Excluded "Perfect Power"				43.70%	53.60%	50.80%
Response to OC-1558.						

At PSE&G, Vegetation related outages continue to be the leading cause in both the number of outages and the amount of outage minutes. The Company's response to Vegetation management is explored in more detail later in this Chapter. Overhead and Underground construction are the second and third leading outage causes and duration. This category tends to be general in nature and relates to some sort of failure in overhead or underground assets. The fourth most common outage cause is animal contact, however, outage duration for this type of outage is typically short because it results in little to no damage to infrastructure.

Table 16-12– Count of Distribution Outages by Cause

Distribution Outage Hours By Cause										
	2016		2017		2018		2019		2020	
Outage Cause	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages
Animal	1670	8.01%	1249	7.54%	937	5.16%	1104	6.19%	1353	6.67%
Construction OH	2744	13.16%	2379	14.37%	2893	15.95%	2189	12.27%	3298	16.27%
Construction UG	5117	24.54%	3945	23.82%	4398	24.24%	3743	20.98%	3658	18.04%
External	1128	5.41%	1361	8.22%	1394	7.68%	1545	8.66%	1719	8.48%
Lightning	644	3.09%	486	2.93%	689	3.80%	369	2.07%	557	2.74%
Other	987	4.73%	821	4.96%	909	5.01%	922	5.17%	1190	5.87%
Outside Plant Equip.	903	4.33%	791	4.78%	966	5.33%	599	3.36%	524	2.58%
Supply & Station Equip.	266	1.27%	436	2.64%	823	4.54%	242	1.35%	141	0.70%
Tree	7021	33.67%	5005	30.23%	4958	27.33%	6936	38.88%	7793	38.44%
Weather	373	1.79%	84	0.50%	173	0.96%	189	1.06%	42	0.21%
Total Outage Hours	**20851.5**		**16556.7**		**18141.6**		**17836.9**		**20274.7**	
Year over Year Increase or *Decrease*			*20.6%*		9.6%		*1.7%*		13.7%	
Response to OC-0832.										

Table 16-13– Chart of Distribution Outage Cause Count Percentages

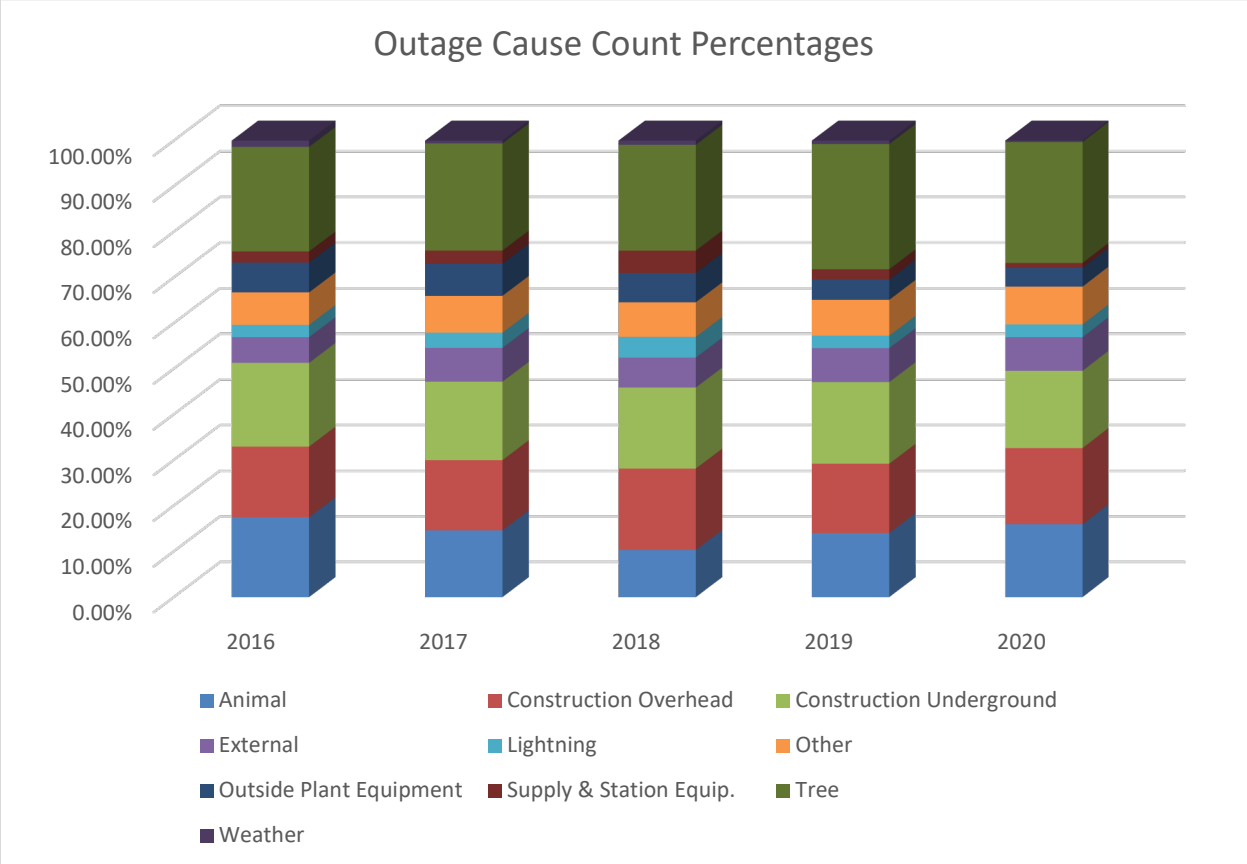
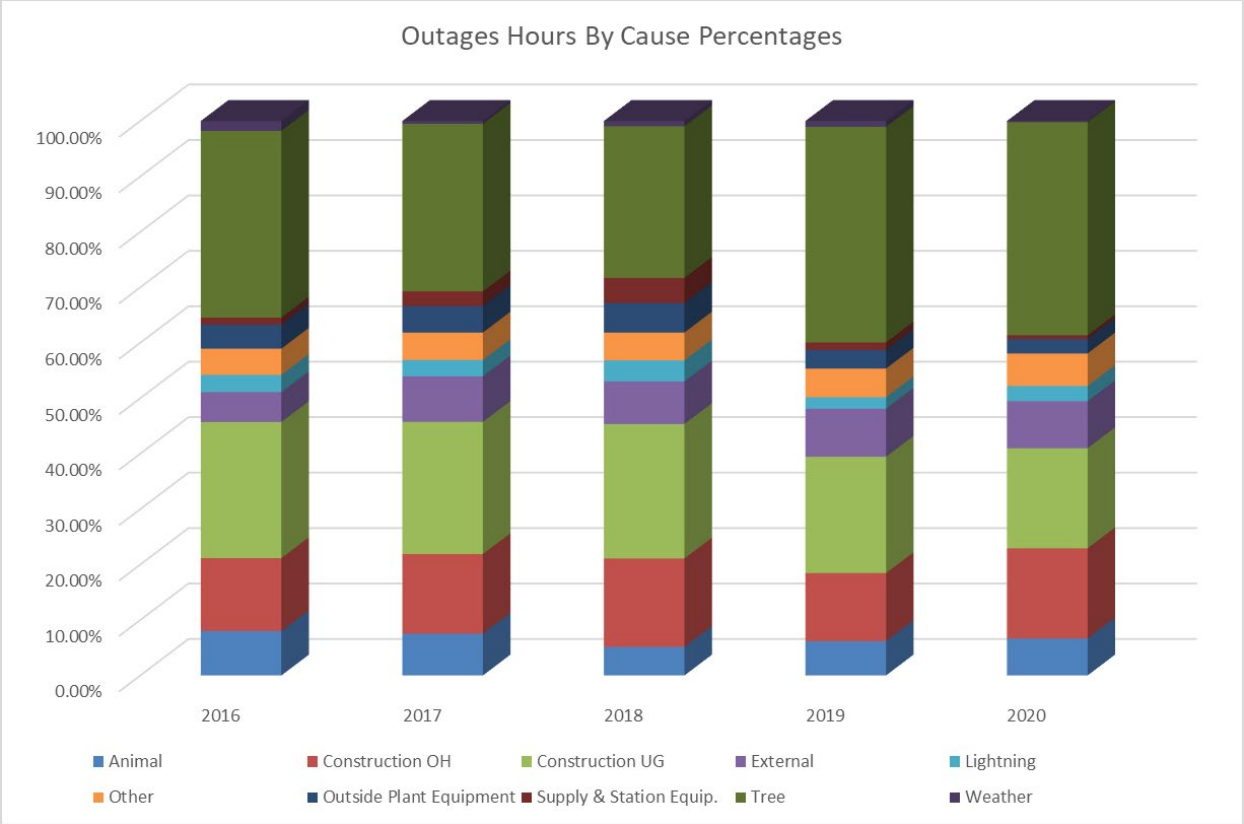


Table 16-14– Distribution Outage Hours by Cause

Distribution Outage Hours By Cause										
	2016		2017		2018		2019		2020	
Outage Cause	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages	Outage Hours	% of Outages
Animal	1670	8.01%	1249	7.54%	937	5.16%	1104	6.19%	1353	6.67%
Construction OH	2744	13.16%	2379	14.37%	2893	15.95%	2189	12.27%	3298	16.27%
Construction UG	5117	24.54%	3945	23.82%	4398	24.24%	3743	20.98%	3658	18.04%
External	1128	5.41%	1361	8.22%	1394	7.68%	1545	8.66%	1719	8.48%
Lightning	644	3.09%	486	2.93%	689	3.80%	369	2.07%	557	2.74%
Other	987	4.73%	821	4.96%	909	5.01%	922	5.17%	1190	5.87%
Outside Plant Equip.	903	4.33%	791	4.78%	966	5.33%	599	3.36%	524	2.58%
Supply & Station Equip.	266	1.27%	436	2.64%	823	4.54%	242	1.35%	141	0.70%
Tree	7021	33.67%	5005	30.23%	4958	27.33%	6936	38.88%	7793	38.44%
Weather	373	1.79%	84	0.50%	173	0.96%	189	1.06%	42	0.21%
Total Outage Hours	**20851**		**16557**		**18142**		**17837**		**20275**	
Year over Year Increase or *Decrease*			*20.6%*		9.6%		*1.7%*		13.7%	
Response to OC-0832.										

Table 16-15 – Chart of Distribution Outage Hours by Cause Percentages



The most frequent cause of outages on the Transmission system varies year to year, ranging from Human caused, to Inside Plant, to a Company Tie. Inside plant relates to some sort of substation based failure. No consistent trends could be formulated based on this data.

Table 16-16 – Top 5 Transmission Outage Causes by Minutes

Top 5 Transmission Outage Causes By Minutes							
2017		2018		2019		2020	
Cause	Minutes	Cause	Minutes	Cause	Minutes	Cause	Minutes
Human Error	33763	Inside Plant Other	118519	Inside Plant Other	43317	Tie - Company	22298
Coupling Capacitor	3283	Relay	22400	Gas System	9573	Generator Inside Plant - Other	13076
Generator Inside Plant - Other	5416	Tie Company	18759	Generator Inside Plant - Other	9241	Cable	7184
GIS Leak	5312	Third Party	15661	Tie Company	7640	Animal	5712
Other	3822	Generator Inside Plant - Other	11210	Insulator	5519	IP Other	5370
Response to OC-0832.							

Poorest Performing Circuits

To support improvements in reliability, the Company maintains a list of Poorest Performing Circuits (PPC) to identify specific circuits that rank the lowest system reliability. Efforts are focused on making improvements, whether it is off-cycle tree trimming, Branch fusing a circuit, or addressing a specific asset condition.[61] Each year the Company updates the list of PPCs where they identify major causes, recommended actions, actions actually taken, and any applicable comments for each division.

Analysis indicates that by and large, the efforts taken by the Company appears to be effective for managing PPCs. There are many instances over the last 5 years that a circuit only appears once on the list, indicating that mitigation efforts are often effective. However, there are instances where a circuit appears on the list more than once, not only for the original cause but also for new causes. Overland reviewed a sample of circuits on the PPC list to determine if they were included within the Company's recently filed, November 2022, Infrastructure Advancement Program (IAP) to ensure they are prioritizing improvements to PPCs. Of the circuits sampled, Overland observed that certain PPCs were included in the Spacer Cable conversion project. It is also likely that the Pole Upgrade project would improve PPCs, but Overland was unable to make this determination given the way data was presented.[62]

Overland's analysis also uncovered a number of substations that frequently contain circuits on the PPC list. While each circuit has unique factors that lead to outages, Overland believes that the Company should also track outages at the substation level to conduct a more global review of failures to identify any particular trends that can be mitigated at the substation and incorporate lessons learned from one

[61] Response to OC-0109.

[62] In the Matter of the Petition of Public Service Electric and Gas Company for Approval of an Infrastructure Advancement Program (IAP) filed November 4, 2021.

circuit within the substation to another more proactively (i.e. inspections, tree trimming, lighting protection, etc.).

In addition to tracking PPCs at a circuit level, Overland recommends the Company should also track the substations that tend to contain a concentration of PPCs to identify trends that could support asset management recommendations at the substation level.

Energy Strong, Infrastructure Advancement Program and Other Capital Initiatives

Infrastructure improvement programs can effectively address reliability by implementing specific system design standards to help promote resiliency against tree damage, lighting issues, wind damage and animal caused outages. Specific to PSE&G, accomplish this through the extensive use of spacer cable, looped circuits, up-sizing poles, installing automated reclosers, and upgrading and raising substations.

Beginning in 2014, the Company initiated a major step change improvement to their electric system through the deployment of Energy Strong (ES) 1 and later ES 2. The now completed ES 1 program was focused on raising, moving or hardening 26 switch- and substations, reconfigured circuits for critical facilities, and deploying smart grid technology. ES 2 continued by raising additional substations, up-sizing poles and wire for select circuits, additional smart grid deployments, and the deployment of ADMS.

To determine the impact of this program, Overland analyzed reliability data for all circuits and substations upgraded through ES. Circuits impacted by ES 2 may not experience significant improvement due to the on-going nature of the program.[63]

Table 16-17– Energy Strong Circuits– Reliability Metrics

Energy Strong Circuits vs System Averages - Reliability Metrics					
	2016	**2017**	**2018**	**2019**	**2020**
SAIFI ES Circuits	0.46	0.39	0.43	0.33	0.35
SAIFI System Average	0.63	0.58	0.81	0.70	0.80
CAIDI ES Circuits	73.25	58.60	65.60	63.93	74.94
CAIDI System Average	76.28	56.39	78.16	60.74	70.20
Response to OC-1451.					

SAIFI figures for ES circuits trended lower (better) than system average, and CAIDI generally aligned with the system average. Given that a portion of ES was focused on raising, relocating and protecting substations to defend against major weather events, significant improvements to reliability for minor non-flood events would not always be expected. However, other ES derived improvements such as upsizing poles, wires and new reclosers appear to have resulted in SAIFI improvements by effectively

[63] Response to OC-1451 (Confidential).

reducing the number of outages experienced when compared to system averages. However, the duration of outages, CAIDI, falls largely within system averages despite the ability of automatic reclosers to limit outage exposure. This could be due to a number of factors; however, no material conclusion could be made based on available data.

In addition to ES, the Company also manages other capital infrastructure and asset management programs that target specific asset needs. These programs typically address asset/equipment with specific concerns whether they are age related or if they are particularly failure prone. Specific programs that execute on this include the following:[64]

- **Pole Replacement Program:** Replacing poles that have reached the end of life.
- **Porcelain Cutout Replacement:** This type of cutout is known for a higher rate failure and can be hazardous to crews operating them. Many utilities have been focused on replacing some form of porcelain style cutouts.
- **Poorest Performing Circuits:** To implement the mitigating steps to improve performance of the worst performing circuits.
- **Recloser Control:** No details provided by the Company.
- **Statewide Buried Underground Distribution (BUD) Program:** Replacing of aging failure prone underground distribution cable.
- **Paterson Cable Replacement.**
- **Substation Eliminations:** Elimination of 10 substations, mostly Class C design, that have reached the end of their useful life.

As ES wraps up, IAP was filed in an effort to continue the Company's trend of system performance improvements which is more focused on "last mile" distribution assets.[65] The proposed approaches are generally consistent with other utilities. However, Overland observed the wide-scale use of Spacer Cable in our analysis. Spacer cable overhead construction is more prone to lighting strikes and associated outages. The Director of Transmission & Distribution Engineering, Reporting noted that they considered this risk by installing shield wire, which Overland recognizes as a reasonable approach.[66]

Recognizing that IAP is still in early phases of development, Overland's analysis of the Company's efforts under ES and other current capital programs has or will have a positive impact on normal system interruptions and will likely continue to improve major event reliability as well.

[64] Response to OC-0114 (Confidential).
[65] Response to OC-0114 (Confidential).
[66] Interview of Edward Gray, Director Transmission & Distribution Engineering, Reporting, on November 17, 2021.

Time to Dispatch

Time to dispatch can help shorten an outage's duration if, for example, the Company properly staffs and stages field resources across their service territory and dispatchers are capable of rapidly deploying them.

Table 16-18 – Average Time to Dispatch in Minutes by Year

Average Time to Dispatch (Minutes)					
	2016	2017	2018	2019	2020
Time in minutes	281.15	242.35	272.62	269.06	240.97
Response to OC-0835.					

Analysis of Company provided data indicates that the average time to dispatch is at or above 4 hours.[67] When asked to clarify the data and the components of the measure, the Company confirmed it's the time it takes for a crew (usually a troubleshooter) to respond to the scene.[68] Given this explanation, the Company supplied data appears to be inaccurate since the national total outage duration (including restoration) for normal, non-major event, days is approximately 2 hours.[69] Additionally, the Company's previous audit conducted in 2011 indicated that average dispatch time was around 30 minutes..

Electric System Inspection and Maintenance

Given the advanced age of the Company's infrastructure, a thoughtful balance is needed for well-designed maintenance and inspection and capital programs so the replacement of assets is based on proper cost and reliability analysis. This section focuses on the inspection and maintenance of the Company's electric assets to ensure their useful life is maximized to optimize costs while also ensuring the ability to operate effectively, reliability and safely.

As previously discussed, the Company maintains defined inspection cycles to enable a regular cadence that optimizes cost and the reliability of the system. The type of inspection varies by assets but can include:[70]

- **Visual inspection:** a qualified individual(s) visually looks over an asset to determine, for example, if there are leaks, rust, physical damage.
- **Infrared inspection:** using an infrared camera to look for unusual hot spots that may be a precursor to failure.
- **Operation inspection:** Operate the asset in a test mode/environment or deenergized to determine if action meets standards.

[67] Response to OC-0835.
[68] Response to OC-1350.
[69] https://www.eia.gov/todayinenergy/detail.php?id=43915.
[70] Response to OC-1285.

- **Oil Samples:** For oil filled devices to determine if dissolved gas or moisture exists that would indicate a failing condition.
- **Doble test:** For testing di-electrics to ensure proper insulation levels are maintained to potentially eliminate tracking failure.
- **Helicopter inspection:** Typically, a visual inspection that can be coupled with other inspection methods, usually performed on transmission lines or other hard to reach assets.

The Company primarily utilizes SAP to auto-generate work orders for Inspection and Maintenance tasks on preestablished cycles. Any work beyond what has been preestablished is called "incremental work" and can be initiated through the occurrence of a failure or incident. Incremental work is developed and scheduled similar to any other type of unplanned work where a scope is developed and an associated work order is generated, scheduled, and performed as needed.[71]

For any maintenance task that requires testing, the Company uses their internal testing lab. This includes testing items such as transformer oil, meters, rubber insulated good and others. This is a 61-employee organization with a mostly flat to declining budget, with very little work outsourced as shown in Table 16-9. The Company states that a backlog of 900 items in the "High Voltage Equipment Testing" category and 600 items in the "Asset Calibrations" categories currently exist.[72] They did not state how this backlog impacts operations or if it negatively impacts any maintenance cycles. Overland observed that since the last audit, the testing group's headcount decreased by almost half from 117 to 61 without a corresponding increase in spend for outsourced testing.[73] At no point did Company employees indicate that testing was an issue. However, Overland would encourage the Company to explore ways to either reduce the backlog by finding alternate methods of testing or to prioritize the backlog to ensure reliability.

Table 16-19 – 5 Year Testing Budget

Testing budget					
	2017	**2018**	**2019**	**2020**	**2021**
Testing Lab Budget	$19,501,277	$20,681,860	$20,397,421	$18,970,177	$18,328,035
Outsourced Testing	$64,000	$20,300	$20,300	$26,900	$26,900
Total Electric Operations	**$19,565,277**	**$20,702,160**	**$20,417,721**	**$18,997,077**	**$18,354,935**
Response to OC-1562.					

Field based inspection and maintenance budgets are developed though annual planning and budgeting process. A number of tools used to evaluate maintenance vs replace decisions including the use of a risk-based approach developed by Black and Veatch based on "Reliability Centered Maintenance," which is

[71] Response to OC-0098 (Confidential).
[72] Response to OC-1562.
[73] PSEG Final Audit Report – Public Version – Jan 2012. Released by Overland Consulting.

an industry recognized method for balancing cost vs. reliability and safety. Under this model several methods can used including preventative, predictive, or where applicable, non-destructive testing which all can help extend the life of an asset.[74]

The Company's maintenance and inspection spend over the past 5 years has been mostly declining over the past five years.[75] Averaged over a 5-year period, the budget declined approximately 3 percent. Over that same time period the Company's capital expenditures remained flat to declining, with capital expenditures offsetting a certain amount of maintenance expense.

Table 16-20 – 5 Year Electric Capital and O&M spend

Electric Capital and O&M spend (numbers in millions)					
	2016	**2017**	**2018**	**2019**	**2020**
Capital Electric Transmission	$1,599	$1,467	$1,262	$1,373	$1,207
Capital Electric Distribution	$597	$591	$700	$455	$586
O&M Electric Operations	$192	$188	$215	$191	$233
Total Electric Operations	**$2,388**	**$2,246**	**$2,177**	**$2,019**	**$2,026**
Response to OC-0108.					

Overland also reviewed the Company's planned vs actual spend over the past 5 years to determine if they were able to effectively manage their inspection and maintenance work. The Company spend varied significantly but averages to a 13 percent year over year variance.[76]

Table 16-21 – 5 Year Planned vs Actual Maintenance Spend

Planned vs Actual Maintenance Spend						
	2016	**2017**	**2018**	**2019**	**2020**	**5 year average**
IP PM Transmission	77.3%	103.3%	90.5%	77.1%	107.8%	89.5%
IP CM Transmission	136.8%	88.2%	91.2%	84.0%	94.9%	97.7%
OH PM	69.5%	109.3%	73.7%	64.5%	81.1%	77.8%
OH CM	79.1%	83.1%	104.5%	136.3%	87.5%	97.3%
UG CM	888.9%	590.0%	512.5%	141.9%	94.5%	403.5%
UG PM	68.9%	65.8%	100.8%	97.0%	130.9%	89.2%
Weighted Overall	**130.8%**	**130.8%**	**124.6%**	**87.7%**	**95.7%**	**113.2%**
Response to OC-0102.						

When compared to their peers through benchmarking data, PSE&G's inspection and maintenance costs per customer was $77.82 and $4.25 per MWh. This indicates that spend per customer ranks within the top decile but the cost per MWh is closer to the 2nd.[77] Since the Company has a fairly large urban and suburban service territory, customer density is significant, which can have the effect of lowering

[74] Response to OC-0099 (Confidential).
[75] Response to OC-0108.
[76] Response to OC-0102 (Confidential).
[77] Response to OC-0101.

maintenance cost per customer. The Company's 2nd quartile cost per MWh is more or less in line with the expectations for a large coastal utility with aging assets. Given the Company's flat spend coupled with, reasonable cost metrics when compared to peers, and their overall reliability, Overland does not have any material concerns with the Company's inspection and maintenance programs.

Vegetation Management

Organizationally, Vegetation Management's responsibility falls under the Senior Director of Electric T&D Operations Support, who in turn Reports to the Vice President of Electric Operations. This group is responsible for both the Transmission and Distribution tree programs due to a recent realignment that brings both lines of business under one leader for cost management purposes.[78] Leadership noted they negotiate prices with vendors every year to ensure the best price for a given scope.[79]

The Company's program is regulated under N.J.A.C 14:5-9. Therefore they must adhere to a cycle of inspecting and trimming each circuit (when needed) every four years.[80] The goal is to ensure that hazardous trees are cleared to a safe distance from poles and conductors to minimize the likelihood of a contact. Contact risk is typically greatest during weather events, especially high wind events and with heavy wet snow. The Company can and does accelerate inspections and trimming on circuits that may have particular reliability issues, like PPCs, or accelerated growth by maintaining a buffer in the program to allow for "off-cycle" inspections and trimming.[81] This ensures that the planned "on-cycle" circuits do not get bumped in order to accommodate "off-cycle" circuits.[82] Overland evaluated the Company's spend and completion rates in the following tables.[83]

[78] Interview of Paul Toscarelli, Director Emergency Preparedness, on September 20, 2021.
[79] Interview of Paul Toscarelli, Director Emergency Preparedness, on September 20, 2021.
[80] Response to OC-0111.
[81] Response to OC-0964.
[82] Response to OC-0964.
[83] Response to OC-0741.

Table 16-22 – 5 Year Planned vs Actual Vegetation Management Completions

Distribution VM Mileage Completion (26, 13 & 4kV)							
Year	**2017**	**2018**	**2019**	**2020**	**2021***	**5 year total (exc 2021)**	**5 year average**
Planned	4,984	4,104	3,381	4,367	3,683	16,836	92.66%
Actual	3,612	4,455	3,072	4,461	2,267	15,600	
Transmission VM (138, 230, 345 & 500kV) mileage completion							
Year	**2017**	**2018**	**2019**	**2020**	**2021***	**5 year total (exc 2021)**	**5 year average**
Planned	206	223	202	199	233	830	99.88%
Actual	200	228	202	199	128	829	
Transmission VM (69kV) mileage completion							
Year	**2017**	**2018**	**2019**	**2020**	**2021***	**5 year total (exc 2021)**	**5 year average**
Planned	39	65	89	117	95	310	100.00%
Actual	39	65	89	117	35	310	
*2021 work plan is on schedule to complete planned mileage.							
Response to OC-0102.							

The Company 5-year average planned to actual completion rate for Transmission was 100 percent. The company had challenges hitting planned levels for Distribution. This is mostly due to a far below target 2017 attainment with other years at just below or above target.[84]

[84] Response to OC-0741.

Table 16-23 – Outage Cause Count highlighting tree caused outages

Distribution Outage Count By Cause										
	2016		2017		2018		2019		2020	
Outage Cause	Count	% of Outages	Count	% of Outages	Count	% of Outages	Count	% of Outages	Count	% of Outages
Animal	1222	17.46%	880	14.59%	672	10.33%	828	14.02%	1022	15.92%
Construction OH	1083	15.47%	927	15.37%	1158	17.80%	895	15.16%	1072	16.70%
Construction UG	1285	18.36%	1037	17.20%	1156	17.77%	1057	17.90%	1087	16.93%
External	395	5.64%	447	7.41%	427	6.56%	439	7.43%	473	7.37%
Lightning	188	2.69%	201	3.33%	295	4.53%	162	2.74%	180	2.80%
Other	498	7.11%	486	8.06%	493	7.58%	463	7.84%	531	8.27%
Outside Plant Equip.	458	6.54%	426	7.06%	419	6.44%	261	4.42%	264	4.11%
Supply & Station Equip.	170	2.43%	173	2.87%	318	4.89%	135	2.29%	69	1.07%
Tree	1605	22.93%	1416	23.48%	1510	23.21%	1620	27.43%	1702	26.51%
Weather	96	1.37%	37	0.61%	59	0.91%	45	0.76%	20	0.31%
Total Count of Causes	**7000**		**6030**		**6507**		**5905**		**6420**	
Year over Year Increase or *Decrease*			*13.9%*		7.9%		*9.3%*		8.7%	
Response to OC-0832.										

The Company did not provide requested per unit pricing for Vegetation Management but Overland was able to calculate the average cost per mile per year to evaluate their effectiveness at cost management. Over the recent 5-year period, the Company averaged a 2 percent per mile cost increase. However, Overland was not able to determine if all contactors were similarly priced, but with relatively small, aggregated cost increases over 5 years, no significant concerns were noted.[85]

[BEGIN CONFIDENTIAL]

Table 16-24 – Vegetation Management Cost Per Mile

Vegetation Management Expense and Cost Per Mile					
	2016	2017	2018	2019	2020
VM Distribution Expenses	$26,880,000	$35,100,000	$21,200,000	$31,900,000	$29,600,000
Distribution Miles Trimmed					
Cost Per Mile					
Response to OC-0111.					

[END CONFIDENTIAL]

System Planning

System Planning Overview

System Planning considers the wide range of factors that influences short- and long-term loading for the electric system and the steps to manage loading. This includes population growth, new businesses

[85] Response to OC-0111.

driven by economic factors, public policy such as electrification, and the proliferation of renewables. These factors may either result in increasing or decreasing system demand both in a micro (circuit by circuit) and macro (division or system-wide) scale over the planning time horizon.

System planning for Transmission and Distribution at PSE&G is primarily coordinated through the Senior Director of Electric Delivery planning who is organized under the Asset Management and Planning organization. The Transmission focused organization contains two groups, PJM RTO regional planning and Technical studies group. The PJM RTO regional planning group is responsible for participating in all PJM committees which includes planning, transmission expansion advisory, and transmission planning subcommittees. This group also builds and runs the models used to determine N-1 criteria violations. The Technical Studies group supports the PJM market efficiency open window and resulting analysis, and the PJM generation and merchant transmission interconnection queue.

The distribution focused system planning group contains Project Development and Asset strategy teams. The Project Development team analyzes the system for violations such as capacity or voltage issues and works with the Divisions to identify operational challenges, such as summer loading challenges, then develops mitigation solutions. The Distribution Asset strategy team remains coordinated with their Transmission counterparts to prepare the long-term forecasts used for long-term solution development. This group is responsible for 26kV and 69KV assets, while the Divisions maintain a similar role for system voltages below 26kV. Any projects or programs that are generated by this group enters the capital planning process as detailed in the next section.

For Transmission planning purposes, the Company maintains a document called “Transmission Planning Reliability Criteria” which is filed with FERC and is led by PJM. Distribution planning maintains two documents called “Criteria for Planning the Sub-Transmission and Distribution System 2020” and “Planning Criteria -Distribution.” There is intrinsic coordination between the Transmission and Distribution planning groups since they both can influence each other.[86] For example, their documents follow a similar framework with the following areas in common but with the segment specific requirements provided:[87,88]

- **Applicable Ratings:** State segment specific voltage ranges and the rating criteria used such as temperatures and emergency ratings where applicable.
- **Thermal and Voltage Assessments:** The standards applied to the steady state voltages through ANSI C84.1.
- **Short Circuit Requirements:** Details the standards for short circuit ratings, pre-fault voltage and requirements.

[86] https://pjm.com/-/media/planning/planning-criteria/pseg-planning-criteria.ashx.
[87] Response to OC-0087 (Confidential).
[88] https://pjm.com/-/media/planning/planning-criteria/pseg-planning-criteria.ashx.

Additionally, the Transmission planning criteria document also details the power quality, system reserve requirements, equipment assessment and storm hardening requirements for the transmission system. The Distribution planning criteria document details applicable contingencies, DER requirements, spare and mobile transformer requirements, protection system requirements, and asset management details.[89,90]

DER, EV, Storage and EE system planning consideration

Overland focused on the Company's planning capability in response to the anticipated increase in DER penetration. This has been a recent concern for the industry because DER was traditionally considered a means for load curtailment, however, as penetration increases serious operational challenges can occur if not properly planned. Overland also focused on the Company's response to other disruptors such as Electric Vehicles (EV), Storage, and Electrification which all pose unique system challenges that could change the load profile of the electric system. Additionally, Overland recognizes that the Company is deploying a new Energy Efficiency program which should have positive system impacts but should also be included into system planning activities.

For DER, the Company stated they take the real power generated and adjust substation peak load based on the curtailment provided to already connected sources. To plan for future DER, the load is forecasted manually with loading reduced on a zonal basis (South/Central/North) with a zonal appropriate factor applied; the resulting reduction is then subtracted from the station's load forecast. There are additional system stability calculations that are made to account for DER thermal contributions based on potential system backfeed. For installations larger than 500kW the Company requires developers to install a SCADA link so the Company can monitor load, power and voltage.[91] The Company will regularly monitor these results and perform system analysis as needed. For longer term planning needs, including 5, 10, 15 years ahead, the Company has several scenarios used to model the impact to the system, however, no specific details were provided. The Company has not performed any formal DER penetration forecasts, they only look at historical applications to determine the expected volume for a given year.[92] While Overland believes this approach may work for short term needs, it should be a priority to forecast potential DER to more accurately model scenarios used for long term forecasts, especially for any changes in policy or technology that may have significant system implications.

Regarding EV impacts, while there is a lot of focus on light vehicles which are usually charged at home and at night, Overland believes a more immediate concern is the proliferation of large EV commercial vehicles such as buses and large trucks. These vehicles can be charged during the day, during peak loading, and will be clustered in localized areas. Understanding the potential system impacts of this vehicle type is a serious need. The Company states that they maintain three separate models (base, low forecast and high forecast) to capture the potential EV proliferation on a 5- and 10-year horizon. They

[89] Response to OC-0087 (Confidential).
[90] https://pjm.com/-/media/planning/planning-criteria/pseg-planning-criteria.ashx.
[91] Response to OC-0855.
[92] Response to OC-0857 (Confidential).

run their 5- and 10-year forecasts based on all three models to identify any potential issues. While this may be an effective approach from a system or macro perspective, commercial vehicle load is going to be locationally specific and will likely impact individual distribution circuits and substations the most. Overland recommends that the Company produces a more locationally specific EV forecast to account for commercial EV penetration.

More advanced DER penetration and EV Charger forecasts should be prepared on a short- and long-term basis. This effort should use more advanced forecasting methods such as economic modeling, industry data, and surveying.

Capital Project Management

Organization and Procedures

With the volume and scale of capital spend at PSE&G, the governance, processes, and policies to support it are wide and complex, and correspondingly the responsible organization spans multiple functions. Capital Programs are largely initiated through the Electric Delivery Planning organization, which is responsible for the development of solutions for any identified system challenge or projected need. This also includes, for Transmission, being responsive to PJM committees such as the "Transmission Expansion Advisory Committee and "Transmission Planning Subcommittee," and also supporting the PJM planning process.[93]

The Project Management Office is responsible for taking identified capital programs and providing oversight through reporting that drives the governance process. They are also responsible for construction estimates, beginning with feasibility estimates and continuing with other more detailed estimates throughout a project's lifecycle. This group is also responsible for vendor contracts and other administrative operations within the project management process, including managing the internal QA/QC process for internal controls.[94] The project management processes are all defined in the Company's "Project Management Procedures," with which all projects must comply. There are 21 procedures in total including:[95]

- **PMP-01 Project Execution Plan (PEP):** Procedure for creating a detailed plan that contains the project's charter, scope management and control plan, and project management plan.
- **PMP-02 Scope Management Plan:** Details the process for developing, managing, and controlling the scope of a project.
- **PMP-03 Project Estimating:** Describes the development and approval process for project estimates. Estimate accuracy improves as each project matures through their lifecycle as detailed below:

[93] Interview of Esam Khadr, Senior Director Electric Delivery Planning, on September 20, 2021.
[94] Interview of Emman Eboise, Director Project Management Office, on September 21, 2021.
[95] Response to OC-0105 (Confidential).

  - Office Level: 15-40% level of confidence is at the feasibility / turnover phase, the earliest in the project lifecycle.
  - Study Level: 50% level of confidence indicates that details are developing with more accuracy than at the office level.
  - Conceptual Level: 70% level of confidence is where project details begin to solidify.
  - Definitive Level: 90% level of confidence is when the estimate is locked in for budget management purposes.

- **PMP-04 Project Schedule:** Describes the process for developing and the approvals necessary for schedules, including the consideration of schedule risk.
- **PMP-05 Project authorization:** Describes the approval steps for each project including the required approval for each budget level.
  - Less than $20M: Utility board review (URB) with PSE&G President and VP of Finance.
  - $20M to $50M: Capital Review Committee (CRC) with the PSE&G president and CFO.
  - $50 to $100M: Approval of the CEO and CFO.
  - $100M and above: Approval with the Board of directors.
  - All projects over $20 million undergo an estimating challenge session to ensure that estimates are based on sound practices and considerations. Estimates over $90 million require Senior Leadership participation. Projects must achieve all approvals as defined by their budget (for example a $70M project must achieve approvals of the URB, CRC and Approval of the CEO and CFO).
- **PMP-06 Invoice Management:** Details the process for the review, approval and payment of invoices and the applicable controls.
- **PMP-07 Quality Assurance Control:** Details the QA/QC process for projects to ensure construction meets Company construction standards, regulations, industry standards and equipment specifications.
- **PMP-08 Project and Contractor Safety:** Describes the process for developing a health and safety plan that aligns to Company safety standards.
- **PMP-09 Contract Administration:** The procedure and “strategy” for sourcing, awarding, administering (during execution) and closing out materials and labor contracts.
- **PMP-10 Construction Oversight:** Is an exhaustive procedure for the oversight of Safety, contractor schedules and workplans, quality of workmanship, appropriateness of vendor supplied materials, management of change order requests, and invoicing contract closeout.
- **PMP-11 Project Risk Management:** Details how to identify, assess, document and mitigate project risk on a project specific basis.
- **PMP-12 Materials Management:** Details the process of material/equipment receiving, identification, handling, storage, maintenance, inspection, the management of project materials and the controls in place for the process.

- **PMP-14 Status Reporting:** Details the reporting requirements for projects including at the Portfolio, Project Level and through P6 (the Company's portfolio management tool).
- **PMP-15 Inside Plant Commissioning:** Defines the policies and practices for commissioning new equipment. The Company also maintains detailed checklists to ensure that all steps are achieved prior to energizing any equipment.[96]
- **PMP-16 Environmental Management Plan:** Details the requirements necessary for the development of project specific environmental plans. Details the appending policies and practices that are to be applied to this plan.
- **PMP-17 Site Remediation Management Plan:** Is an extension to PMP-16 which details the policies and practices for establishing site management plans.
- **PMP-18 Vegetation Management Plan:** Applies to Transmission projects to determine the necessary approach to vegetation management to enable project execution.
- **PMP-19 Project Documentation Management:** Details the standards, practices and processes for all project documentation.
- **PMP-20 Contingency Planning:** Details the practices and process for designing a plan used for substations projects.
- **PMP-22 Project Closeout:** Details the process for closing out projects including financial close, required documentation, and the project report. It does not however detail the lessons learned collection process.
- **PMP-24 Outreach Process:** Ensures that community engagement is incorporated into the project management process so that concerns can be addressed or mitigated.

Project and Construction (P&C) is responsible for the management of capital projects as they move from the conceptual to planning phase with an average portfolio of $2B in Transmission and Distribution projects.[97] Within this group are the project managers who are responsible for project execution and have the overall responsibility of coordinating the processes, policies and the team(s) that support the successful delivery of projects. More specifically, they manage all capital projects, but with a level of vigor that changes based on the dollar level of each individual project. For example, projects under $5M do not require a more exhaustive PEP but requires a PEP summary template instead.[98] Each project's budget is used to define the level of approvals, oversight and reporting. This group is also responsible for the oversight of all field-based contractors who perform construction activities.

The Construction and Maintenance group is responsible for the field portion of the project work that is performed by internal union employees, in coordination with the P&C Project Managers. This group is

[96] Response to OC-0980.
[97] Interview of Robert Felton, Senior Director Program Areas, on September 22, 2021.
[98] Response to OC-0979.

typically responsible for day-to-day activities such as maintenance and responding to outages but also work on projects.[99]

All field resources, internal and contracted, are resourced through the Company's Centralized Work Planning and Scheduling Group which falls under the responsibility of Transformation and Central services organization. This is an expanding function growing from 2 people to a group that contains two departments, one that focuses on the strategic long term resourcing needs based on known and forecasted projects and programs; the second is an "operational team" that is more tactically involved in the scheduling crews/resources. Currently this group schedules overhead, underground, relay and telecom, resources. They do not, however, currently schedule Operations and Maintenance or Inspection work.[100]

The "Operational team" meets weekly with the Divisions' Construction and Maintenance groups to review completed work vs. planned, then prepare a 4 week look ahead schedule. They then work with each Division's work planner to assign crews to particular work based on the work plan. Overall this team serves as more of a strategic resource planning group that supports the more granular planning with the divisions.[101]

Investment Planning and Major Programs

The initial phases of project development include inputs from investment planning that drives the annual budget development process creating the one-, five- and ten-year capital plan. At the time of the audit, this process is the responsibility of multiple groups and is led by the Investment Planning Business Improvement and Processes organization under Asset Management and Planning. The primary inputs to the process include Transmission Planning, Distribution Planning, and the Asset Strategy Technology & System Groups. The Company follows a defined process that is detailed in their "Establish the Detailed Capital Electric Delivery One-Year Five-Year Work/Cost Plan" document to develop a unified Transmission and Distribution capital plan. The document also establishes the governance and approval process required for the capital plan to ensure that appropriate leadership input and oversight is achieved. This process is iterative and has multiple points of refinement. The capital plans are ultimately approved by the PSEG Board of Directors, which completes the process.[102] The Company also prepares a 10-year plan to provide a long-term view of what's "coming down the line."[103]

To optimize their plans, the Company utilizes a Spend Optimization System (SOS) to help with the prioritization of investments by using input from various stakeholders across the business. They incorporate information such as functional specific spending and high-level resource details to ensure they are not over committing with their investment plan.[104]

[99] Interview of Ronald Shute II, Senior Director Construction and Maintenance, on September 24, 2021.
[100] Interview of Lauren Thomas, Senior Director Transformation & Central Service, on August 12, 2021.
[101] Interview of Lauren Thomas, Senior Director Transformation & Central Service, on August 12, 2021.
[102] Response to OC-1242 (Confidential).
[103] Interview of Michael Schmid, Vice President Asset Management and Planning, on August 10, 2021.
[104] Interview of Michael Schmid, Vice President Asset Management and Planning, on August 10, 2021.

The Company supplied their 10-year capital investment plan as detailed below.[105]
[BEGIN CONFIDENTIAL]

10 Year Electric Capital Spending Plan (prices in millions)															
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Transmission	$1,745	$1,610	$1,216	$1,324	$1,172	[redacted]									
Electric Distribution	$598	$696	$570	$430	$541	[redacted]									
Total	**$2,343**	**$2,306**	**$1,786**	**$1,754**	**$1,713**	[redacted]									
Response to OC-0088.															

[END CONFIDENTIAL]

Overland noted fairly consistent spend level, with increases and decreases through the ten-year horizon. There is significant drop in spending on the Transmission system with a corresponding increase in Distribution spending. This is largely due to completion of larger projects to address NERC reliability criteria, which is heavily Transmission based, the projected start of the proposed IAP, and a focus on addressing substation capacity. Overland believes the Company's Investment Management process is reasonable and considers a wide range of stakeholder input and sources of information. The Company planning horizon considers a range of long-term needs.

Energy Strong

Overland reviewed the Company's ES programs to determine if they followed the established capital project management procedures and practices employed by the Company. Two Directors were interviewed and discovery was reviewed to capture the processes used to determine if any deviations existed.

Interviewed employees noted that ES was largely driven by three major weather events that hit the Company's service territory within an 18 month period; they were also their 3 largest events in history.[106] A Company employee stated that, based on this driver, the Company developed the ES program from their 10 year capital investment plan, which incorporated their normal planning, loading criteria and prioritization processes.[107] Further, the Company prioritized substations that were actually flooded by these events into ES 1 program, then later focused on substations that were within flood zones for ES 2. The Asset Management group coordinated with the Divisions' Operations and Substation teams to determine the best approach at protecting substations. Substation raise was considered the most effective solution since relocating would be cost prohibitive and protecting stations with a flood wall might not work as needed. Each project followed the Company's standardized process for estimating and accuracy review.[108]

[105] Response to OC-0088.
[106] Interview of Edward Gray, Director Transmission & Distribution Engineering, Reporting on November 17, 2021.
[107] Interview of Edward Gray, Director Transmission & Distribution Engineering, Reporting on November 17, 2021.
[108] Interview of Edward Gray, Director Transmission & Distribution Engineering, Reporting on November 17, 2021.

ES's individual projects were divided into specific subprograms, with a project lead assigned to a specific subprogram such as ADMS or contingency reconfiguration. This is in contrast to how the Company normally geographically assigns projects, however, given the complexity of these projects and the coordination efforts required, this appears to be a reasonable deviation. This is also true for the program organization, which is dedicated to ES and is not a typical allocation from within the P&C group.[109]

The Company is also required to send a quarterly report to the BPU, prepared by an independent monitor, which provides an impartial view of the program's delivery. However, the Company also performs its usual internal reporting that includes dashboard reports and weekly reports provided by project managers.[110,111]

Overland's review of the ES program uncovered no major issues regarding compliance to the Company's defined policies and procedures. While there are some differences, including the program's organization and the independent monitor reporting, these deviations all appear to be reasonable and within industry practices known to Overland.

System Design

System design is responsible for turning investment and project plans into engineered designs that can be used by the Construction group to execute on new construction, replacements, upgrades and other infrastructure needs. The Company defines their engineering specialties through three distinct areas which include Inside Plant, Distribution Outside Plant and Transmission Outside Plant. Overland supports the importance of standardizing engineering designs to limit customization and the resulting change orders that can occur with non-standard designs, thus promoting cost containment. Standardized designs also allow for consistent system operations where special considerations for operating assets are minimized or eliminated, which in turn can help limit switching errors. This is addressed in more detail below.[112]

- **Inside Plant:** Primarily consists of substation assets. To ensure standardization across the Company's service territory, it maintains a centralized engineering organization that is responsible for all inside plant design. This group is connected to design standards that are created by the Asset management organization, named the "IP Control Design Standard," "IP Construction Standard," and "Engineering specification." The IP Standards are reviewed in detail on a 5-year basis, and regular meetings are conducted between Asset Management and P&C to address any issues or need for new standards. To drive this concept of design consistency, the Company has implemented a layer of review, called the "Key Drawing Review" (KDR), where all initial designs must undergo a review with applicable construction supervisors prior to

[109] Interview of Harold Nembhard, Senior Project Manager P&C, on November 16, 2021.
[110] Response to OC-0113 (Confidential).
[111] Response to OC-1494 (Confidential).
[112] Response to OC-0121.

proceeding to detailed design. Once detailed design is completed an "Issue for Review" is performed by an expert for a particular discipline of engineering. Once all reviews are complete the design is then "Issued For Construction" (IFR), and once in construction the P&C team ensures design adherence.[113]

- **Distribution Outside Plant:** Typically consists of distribution assets (overhead and underground below 69kV) that are outside of the substation. Similar to Inside Plant, the Company maintains a centralized engineering function under the Asset Management organization. The Company maintains detailed technical manuals, supported by guidance from IEEE and others, which include "Overhead Construction Manual," "Underground Construction Manual," and "Outside Plant Operation Manual." The Engineering and Construction teams also meet regularly to discuss the viability of engineering designs, and supervisors also perform a spot design check to determine compliance to Company standards. The Company also maintains two groups/teams responsible for ensuring the reinforcement of standards and practices called the Occupational Working Group (OWG) and the Electric Distribution and Construction Team (EDECT). Should there be a new standard or design change these groups vet changes and roll out standards to their participants as needed.[114,115]
- **Transmission Outside Plant:** Typically consists of transmission assets (overhead and underground at or above 69kV) that are outside of the substation. The Company maintains a standard transmission design that strives to ensure consistent reliability for overhead designs by "utilizing uniform lighting performance and insulation coordination criteria." For underground assets they focus on consistent cable design and sizing. Transmission design also utilizes standards including "Construction Standards" manuals, "Engineering Specification – Standard Engineering Design Guidelines for Substation and Switching Stations," "Inside Plant Controls Design Standards," "Operations Outside Plant Manual," "Overhead Construction Outside Plant Manual," "Overhead Transmission Construction Manual," "Transmission Live Line Maintenance," "Underground Construction Outside Plant Manual," and "Underground Transmission Construction Manual." These are all developed using applicable local, state and federal codes and industry standards. The standards are reviewed on a regular basis through the Operational Excellence Model group.[116,117] The Transmission Construction and Maintenance group is engaged in ensuring constructability through the initial phases of design.

As-builts

As-built management is a key component of project close out, which ensures that assets are represented in records as they were constructed in the field. Where differences exist between design and construction, as-built information is necessary. As-builts must be accurate to ensure that asset

[113] Response to OC-0122 (Confidential).
[114] Response to OC-0121.
[115] Response to OC-0122 (Confidential).
[116] Response to OC-0121.
[117] Response to OC-0122 (Confidential).

records and GIS is updated appropriately so future maintenance and the operation of installed assets can be correctly applied.

For Inside Plant, construction supervisors are responsible for marking up and submitting as-built prints to the "engineer of record." The engineer incorporates all changes into the design and makes updates as appropriate. The Company provided examples of their as-built tracker which details the areas of updated design and promotes a record of change.

For Distribution Outside Plant, the process appears to be mostly informal with the responsible construction supervisor conducting spot checks to ensure assets are constructed as designed, however, there were no details on how the as-built process is managed.

For Transmission Outside Plant, field engineering has final approval responsibility to ensure assets are installed as designed. They also conduct testing depending on the type of assets installed to ensure they meet design standards including Lidar survey, loading testing, and "fit-up" testing. For underground assets inspections are performed such as professional surveys, where the results are used to update asset records once approved by engineering.

Overland recommends formalized processes for managing as-builts for Distribution Outside Plant should be developed to provide critical asset information can be reflected in Company asset databases.

Load Management

Historically, PSE&G's load growth has been low to flat,[118] averaging less than 1% per year for electric customers.[119] Load management methods have been updated in recent years to accommodate DER and EV forecasts.[120] They also include New Jersey's Energy Master Plan published by the BPU to map out possible strategies for the state to reach its climate goals, which also includes factors that will likely increase demand such as electric vehicle adoption, electrification of heat and population growth. While these factors will increase demand over time, PSE&G manages various programs to strategically reduce demand and resulting strain on the system. As detailed in the fuels management section, the Company's new energy efficiency and future demand response programs are projected to effectively increase available supply by reducing the amount of electricity needed to meet demand.

Fuel Management

PSE&G does not buy or sell electricity in PJM's wholesale markets, but contracts with suppliers to buy energy on these markets to sell to PSE&G's BGS customers.[121] As such, the Company's planning decisions

[118] Response to OC-1054.
[119] Response to OC-0591.
[120] Response to OC-0245.
[121] Note that approximately 10% of PSE&G's residential, and approximately 60% of PSE&G's commercial and industrial load take electricity from a TPS instead of PSE&G's BGS service.

for electric supply are incorporated into the BGS process where Load Serving Entity ("LSE") responsibilities (commitments to purchase energy and capacity, and Renewable Portfolio Standard ("RPS") requirements) are passed onto suppliers.[122] These suppliers purchase energy on PJM's wholesale market, where the real time resource mix is driven by price signals (auction-based prices dispatch the cheapest resources first) and the overall general asset base is determined by the current assets owned by PJM members. The future mix is determined by PJM's interconnection queue (discussed below) and influenced by state and federal regulations such as RPS and tax incentives. Price volatility for PSE&G's electric supply is tied with PJM's market clearing prices and, for residential and small commercial customers, is mitigated by structuring BGS auctions to split procurement over three years.

Sale to Arclight

PSEG Power recently sold its non-nuclear generation, including fossil-fuel and renewable assets, to ArcLight Capital Partners and Quattro Solar INC., respectively. On June 29, 2021, PSEG Power completed the sale of its 467-MW solar portfolio to Quattro Solar for an undisclosed amount.[123] On August 12, 2021, PSEG Power entered into an agreement with two subsidiaries of Arclight Energy Partners to sell its fossil-fuel units, worth 6,750 MW, for a total of $1.92 billion in cash. [124] With the sale processes completed, as of February 23, 2022,[125] PSEG Power owns only nuclear generation and a minority interest in a planned offshore wind project.[126]

Effect of the Sale on PSE&G's Fuel Diversity

Although PSEG has transitioned from a diverse plant portfolio to a mono technology set of assets, the generators in PSE&G's footprint will stay the same, albeit with different ownership. Because the Company is a deregulated utility in PJM and PSEG Power's plants are independent generators selling into PJM, the interaction between the two will not change. As generators in PJM, the strategy behind operating the plants is unlikely to change, it will remain in the best interest of the plants to bid into the market at prices reflective of their costs and receive dispatch instructions from PJM when the wholesale market's clearing price is at or above their bids. This will continue to provide PSE&G's customers with least cost energy, whether from former PSEG Power plants or from other generation sources produced in or imported into PJM as is the current practice. The transaction will not impact PSE&G's customers, operations or tariffs.[127]

[122] Response to OC-1612.

[123] PSEG Press Release, https://investor.pseg.com/investor-news-and-events/financial-news/financial-news-details/2021/PSEG-Completes-Sale-of-Solar-Source-Portfolio-to-Affiliate-of-LS-Power/default.aspx.

[124] Public Service Enterprise Group August 12, 2021 form 8-K, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000788784/4c133aeb-ec9e-47d5-ae51-d5c158a9d64a.pdf.

[125] Public Service Enterprise Group February 24, 2022 form 8-K, https://d18rn0p25nwr6d.cloudfront.net/CIK-0000788784/cdcec352-a553-4cc7-b505-0bc0327e19b6.pdf.

[126] Response to OC-1182.

[127] Response to OC-0591.

BGS Auctions

As explained in Chapter 5: Electric Procurement and Supply, BGS is a market-priced supply service mandated by EDECA's restructuring of New Jersey's energy market.[128,129] PSE&G does not directly buy power, but contracts suppliers in full-requirement contracts using the BGS auctions to pass LSE responsibility onto the suppliers who clear in the auction. This BPU run process results in competition so that the lowest prices are secured for ratepayers. One benefit of the BGS product is the requirement that shifts the price-risk management to the Suppliers who bid into the auction. They take the risk involved in judging what auction-clearing price will cover regarding capacity (in the case of CIEP),[130] energy (in the case of RSCP), and ancillary service (in the case of RSCP) needs of their respective EDC load share. This is compliant with EDECA, which directs the state's energy market to rely on competitive markets.[131]

Because the procurement function is subject to the BGS and Purchased Electric Power ("PEP") tariffs,[132] it is subject to the procurement requirements which ensure fairness and allow all qualifying entities to participate.[133] PSEG Power's marketing subsidiary, ER&T, previously participated in BGS auctions during the audit period, but bid into the auction just as any other Supplier, giving PSEG Power no say in if or how much of their product is awarded to ER&T. ER&T no longer participates and is no longer a bidder in the BGS auction. Because BGS is a highly confidential auction requiring pre-qualification, all participating parties have fair access so it is not possible to give preference to any specific categories of fuel type or company ownership, PSE&G cannot choose PSEG Power over other suppliers, and these suppliers do not choose individual resources but rather buy bulk power from the grid.

PJM's Planning Responsibility

PJM directly impacts resource planning within its footprint by granting interconnection access for new generators and performing the feasibility and system impact studies needed to connect a facility to PJM's interconnected grid. PJM designs and operates a wholesale electric market that allows competitive auctions to support economically optimal generation being dispatched first. The auction-based market allows prices to rise in periods of high demand and compensating generators for providing valuable electricity to the grid when the need is greatest. PJM also organizes its emergency procedures to ensure generators are paid adequately high prices during times of extreme need. Market participants can follow market fluctuations as they happen and make informed decisions rapidly, responding to high prices and bringing supply resources to the region when demand is high. These wholesale prices indicate to developers what potential revenues exist in the market and indirectly influence what generation is

[128] Response to OC-0229.

[129] N.J.S.A. 48:3-57d: Power procured for basic generation service by an electric power Supplier shall be purchased at prices consistent with market conditions (EDECA page 14).

[130] There are two BGS products: CIEP for large commercial and industrial customers, and RSCP for small residential and commercial customers. See Chapter 5: Electric Procurement and Supply for more details.

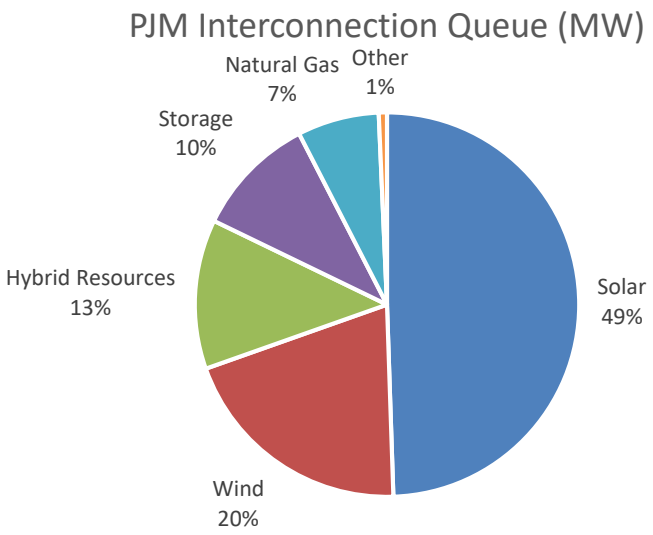
[131] Response to OC-0248 (Confidential).

[132] PSE&G still contracts a small amount of Qualified Facility contacts compliant with the Public Utility Regulatory Policies Act ("PURPA") which are paid under rate schedule PEP and are discussed further in Chapter 5.

[133] Response to OC-0237.

built and enters the interconnection queue. PJM's current interconnection queue, the sum of generation assets in the process of joining the PJM grid, is shown below.

Table 16-25– PJM Interconnection Queue (MW) as of September 2020[134]



Influences on PJM's Interconnection Queue Process

PJM is not a policymaker but does play an important role informing policy decisions. PJM convenes with stakeholders to understand the nuanced and varied interests of the states it covers and reviews its market design and resource adequacy constructs to support state and federal decarbonization goals. PJM also has a State Policy Solutions Group which assists states in their development of energy policy.[135] Each of the 11 states in PJM's territory have clean energy standards or goals, and three have offshore wind targets totaling over 14,250 MW. PJM is currently studying different scenarios with varying offshore wind development to understand the unique system needs that this new buildout will require.

PSE&G's Role in PJM

While PSE&G does not have direct decision making authority over what resources flow electricity into its electric system they can participate as a stakeholder in PJM and influence matters related to new generation entering the market, or how existing generation can participate in the market. PJM's major decisions must be approved by FERC, and the process to make these decisions are presented at FERC, which are the direct result of input from various committees within PJM. As explained in Chapter 2: Affiliate Relationships and Transactions and in Chapter 5: Electric Procurement, PSE&G participates directly in PJM's decision-making by voting as a transmission owner in stakeholder committees. They

[134] PJM 2020 Annual Report, Planning, https://services.pjm.com/annualreport2020/planning.
[135] PJM 2020 Annual Report, Planning, https://services.pjm.com/annualreport2020/planning.

also may share opinions through various presentations during stakeholder sessions. Although PSE&G has multiple affiliates in PJM, their collective vote is cast by PSE&G as a transmission owner.

Planning to Ensure Supply Reliability

PSE&G has limited oversight regarding the planning of its electric supply. As explained in Chapter 2: Affiliate Relationships and Transactions and in Chapter 5: Electric Procurement and Supply, PSE&G's long-term planning strategy is based on maintaining system reliability. PSE&G's planning decisions specific to electric supply are covered by the BGS auction process.[136] PSE&G's planning for the adequate delivery of supply is spearheaded by the PJM Reliability Assurance Agreement, detailed in Chapter 4. Decisions related to PSE&G's distribution delivery system are subject to BPU approval though its rate cases. Decisions concerning the transmission system are partially dictated by PJM and influenced by New Jersey policy and approved through FERC decisions. Planning regarding sales within and outside PJM is housed within PSEG Power and PSE&G does not sell or purchase electricity but sources supply through the BGS auctions, except for a few small PURPA facilities discussed in Chapter 4.

Environmental Regulation in New Jersey

One key factor predicting the resource mix is government policy, especially environmental legislation. New Jersey has ambitious climate change prevention goals. The state set its first RPS in 1999 and mandated compliance with the targets through EDECA.[137] New Jersey state and federal environmental regulation compliance are the responsibility of the BGS auction winning bidders because they assume LSE responsibility, detailed in Chapter 5: Electric Procurement and Supply.[138] The design of BGS procurement is intended to pass the RPS compliance cost onto customers, but the risk of increased Renewable Energy Credit ("REC") prices remains with suppliers. Similar to ancillary service costs, as explained in Chapter 5: Electric Procurement and Supply, RPS obligation cost estimates are provided in the BGS filings, although actual costs incurred by the BGS and TPS Suppliers varies in practice. This translates into short term increases in REC prices being born by suppliers, but long-term changes are eventually factored into the suppliers' bids in future auctions, ultimately impacting rates.

State Commitments and Major Legislative Actions

Over the years, New Jersey's RPS goal has increased to its current target of 50% renewable energy by 2030.[139] Other commitments historically have included:[140]

- Global Warming Response Act: July 2007 N.J.S.A. 26:2C-37 set a commitment to reduce Greenhouse Gas emissions by 80% of 2006 levels by 2050.

[136] Response to OC-0235 (Confidential).
[137] DOCKET NO. EO11 080500 Order 9-21-11-8B, https://www.nj.gov/bpu/pdf/boardorders/2011/20110914/9-21-11-8B.pdf.
[138] Response to OC-1612.
[139] Clean Energy Act: May 2018 P.L.2018, c.17.
[140] https://www.nj.gov/dep/aqes/opea-clean-energy.html.

- Offshore Wind Economic Development Act: signed in August 2010, advises the BPU to establish a program for offshore wind Renewable Energy Certificates ("ORECs"), which recently awarded ORECs to one of PSEG's jointly owned planned offshore wind farms.
- Solar Act: in 2012 P.L. 2012, c.24 mandated that 4.1% of electric sales in the state come from solar by 2028; this was recently increased to 5.1% in the Clean Energy Act.
- Regional Greenhouse Gas Initiative Act (the "RGGI Act"): in January 2018, the state committed to membership of the Northeast's largest carbon trading scheme.
- US Climate Alliance: in February 2018, the State committed to joining a bipartisan state alliance to uphold the UN's Paris Accord.
- Clean Energy Act: in May 2018, P.L.2018, c.17 set a higher RPS standard at 50% from renewables by 2050, codified offshore wind and energy storage mandates and set energy efficiency requirements for EDCs.
- 2019 Energy Master Plan: mapped out a 100% clean energy by 2050 goal.

Most of these actions have or will result in additional generation or infrastructure being built, and likely the retirement of certain carbon-producing assets. This trend is driven not just by government mandates, however, as economic factors are also encouraging growth in renewables and the accelerated retirement of fossil-fuel generation. Because of these push and pull factors, a clear prediction on the influence on prices is not possible. What is clear is that New Jersey continues to honor ratepayer interests in combating climate change.

Energy Master Plan

New Jersey published its first Energy Master Plan in 1991 and has since been periodically revised, most recently in January 2020. The document outlines the state's current expectations on energy use, management and planning to reflect state energy policy although it does not have the force of law. The strategies recommended in the master plan include energy efficiency programs, renewable build out and specific technology capacity targets.[141] The Plan's technology specific requirements include 7,500 MW offshore wind, 12,000 MW solar and 2,000 MW storage by 2030, in addition to the continued operation of 3,5000 MW of nuclear (currently operated by PSEG Power). PSE&G's impact due to the Plan include energy efficiency mandates, which essentially orders PSE&G to encourage lower consumption. The Plan's indirect impact includes the renewable mandates, which may gradually affect PJM's clearing prices and resulting consumer energy prices.

PSE&G's Role in Environmental Regulation

PSE&G complies with all relevant environmental regulation mandated at the state or federal level. As a transmission and distribution business, this mainly relates to reducing electric consumption or supporting the interconnection of renewable generation that is owned by other parties. PSE&G also may participate in policy decisions at the state or federal level and vote in PJM stakeholder processes that relate to environmental policy which may impact the PJM's market. One key example is the Company's

[141] Response to OC-0255.

participation in discussions concerning the implementation of the Zero Emission Credit ("ZEC") program in New Jersey which could lead to subsidies for PSEG Power's nuclear generation, as discussed in Chapter 2: Affiliate Relationships and Transactions. PSE&G's primary operational actions to support environmental regulation are explained below.

Energy Efficiency Programs

Energy efficiency in New Jersey dates back to EDECA in 1999, when the Landmark Act established that New Jersey state policies include improved energy efficiency and load management practices.[142] Energy efficiency was further augmented through the 2008 RGGI Act, which promoted gas and electric EDCs to provide and invest in energy efficiency programs on a regulated basis, with decoupling and special ratemaking provisions.[143] The most recent Energy Master Plan includes statewide energy efficiency programs. A key strength of New Jersey's deregulated market is that, unlike traditional cost of service regulation for vertically-integrated utilities, there are no perverse incentives for utilities which might otherwise encourage higher consumption.

PSE&G specifically, has offered various energy efficiency programs since 2008.[144] The Company recently launched their latest program, Clean Energy Future Energy Efficiency (CEF-EE), which is part of the Company's "Powering Progress" vision.[145] It was filed for approval with the BPU in October 2018 and approved in September 2020. The centerpiece of this program is a $1 billion investment in energy efficiency. The program is designed to target all residential and business customer segments and provides incentives for the purchase of energy efficiency equipment, investments in building retrofits, behavioral change and other actions to save energy. PSE&G has additional energy efficiency programs targeted at specific customer groups, such as a low income energy efficiency program called Comfort Partners.[146]

The Energy Services group is responsible for the CEF-EE's programs and Overland evaluated how they interact with the Company's System Planning group to support the modeling of the load reduction associated with the program. However, since the program was recently deployed, there is no historical load reduction data, making it difficult to understand how adoption rates and utilization may translate into load savings.[147] For forecasting purposes, the Energy Services group stated that they collaborate with the Planning department to understand the impact of EE, then couples PJM data to complete the load profile. However, they had not applied program specific information into these discussions but indicated this is part of a longer-term evolution of the program.[148] Overland believes that the current state of the program and their near-term goal to focus on forecasting is in line with expectations.

[142] Response to OC-0642.
[143] Response to OC-0197.
[144] Response to OC-0117.
[145] Interview of Susanna Chiu, Director Energy Services, on July 27, 2021.
[146] Response to OC-1614.
[147] Response to OC-0117.
[148] Interview of Susanna Chiu, Director Energy Services, on July 27, 2021.

Demand Response

Like energy efficiency, demand response (DR) encourages a reduction in energy use, but specifically during times of high demand, and compensates those consumers who voluntarily reduce their usage. A reduction in demand is comparable to an increase in available supply, and because during peak times the additional supply would often be fossil-fuel based, therefore a reduction in demand better aligns with climate change goals. DR offers reliability benefits by reducing the risk of supply exceeding demand which typically requires voltage reduction, forced outages or other unvoluntary means of load relief. PSE&G stated they do not currently have an active DR program. Their previous program stopped accepting new customers in 2014 and was discontinued in 2018 due to "changes in the PJM capacity market rules that were inconsistent with program rules."[149] However, the BPU did issue and Order in June 2020 "Directing the utilities to establish energy efficiency and peak demand deduction programs" by fiscal year 2024/2025.[150] While the details of the Company's plans are not available, Overland would expect the Company to incorporate peak load reduction into their System Planning process.

Advanced Metering Infrastructure

Energy efficiency and the demand response programs will be improved through PSE&G's smart meter deployment, which will allow more granular communication of electric consumption.[151] In January 2021, the BPU approved PSE&G's Clean Energy Future Energy Cloud ("AMI Initiative") filing, allowing $700 million to be spent to provide 2.3 million electric customers with smart meters over a four-year period. All of the capital and operating costs incurred for this program, and stranded costs from replaced meters, are recovered in rate base.[152]

Renewable Portfolio Standard

RPS compliance primarily sits with the winning BGS auction suppliers and TPS. PSE&G's role in RPS compliance is to document and verify that BGS suppliers have purchased enough RECs; which is provided in an annual filing to the BPU. At the conclusion of each energy year, the BPU meets with the EDCs, BGS and TPS to discuss the process needed to comply with the state's RPS requirements. While PSE&G attends and participates, and although they do not have an obligation to purchase RECs, they must provide their BGS electricity delivery sales volumetric data to the BPU's Division of Clean Energy to assist with determining how many RECs must be retired. PSE&G then uses a worksheet provided by the Division of Clean Energy to calculate the quantity of RECs that each BGS supplier is required to transfer into the PSE&G GATS account for retirement. Upon confirming that suppliers have made these transfers into the GATS account, PSE&G then retires these certificates on behalf of these BGS suppliers.[153]

[149] Response to OC-1502.
[150] Response to OC-1502.
[151] Response to OC-1174.
[152] Response to OC-0255.
[153] Response to OC-0650.

PSE&G's Climate Change Policy

Overland has determined that PSE&G has complied with all state and federal energy policies. Their parent company, PSEG, has a general corporate approach to combating climate change summarized as:[154]

- Investing in energy efficiency.
- Investing in renewable energy.
- Investing in clean central station power.
- Taking a leadership position at the State and Federal level in advocating for strong climate change policies and legislation.

PSEG "Powering Progress" vision objectives include helping customers use less energy, striving to make energy cleaner, all while maintaining reliability. For PSE&G, this means increased investments in energy efficiency and deploying smart grid technology since they do not control its resource mix. Demand response offers reliability benefits by reducing the risk of supply exceeding demand and causing outages, which allows PSE&G to improve security even though they have little authority over the source of its electric supply.

Impact of PSEG Planning Decisions

As previously discussed, PSE&G's electric supply and transmission asset planning process is mostly driven by decisions made by PJM and approved by the FERC, the BPU, or local municipalities, and often directly reflect NERC or public policy mandates. In recent PJM planning-related matters, PSEG and PSE&G have advocated for load-serving Transmission Owners' rights in voting on planning decisions that focus on long-term cost savings over short-term cost cutting. They have also emphasized the strengths of incumbent transmission owners who have existing expertise in the geographic area and since they are LSEs with embedded concern for reliability and resilience with a long-term outlook.[155,156,157]

As discussed in Chapter 5: Electric Procurement and Supply, PSE&G's transmission and distribution costs have risen in the past few years. While the delivery portion of the bill is a much smaller component than the electricity supply itself, this still has a measurable impact on ratepayers directly through increased bills. Transmission enhancements have increased customer prices as evidenced in the BGS prices charged to customers, but only after approval from either the BPU (in the case of distribution) or the FERC or PJM (for transmission). There are, however, long-term benefits that are less directly measurable such as reductions in congestion which has the effect of lowering real-time location-specific prices which will eventually be reflected in lower BGS or TPS Supplier charges.[158]

[154] Response to OC-0465.
[155] Response to OC-0613.
[156] Response to OC-0614.
[157] Interview of Jodi Moskotwitz, Deputy General Counsel & RTO Strategy Officer, on July 27, 2021.
[158] Interview of Jodi Moskotwitz, Deputy General Counsel & RTO Strategy Officer, on July 27, 2021.

Impact of Environmental Policy on PSE&G Supply

Environmental regulation exists in many different forms at the New Jersey state and federal level, including RPS goals, tax incentives for certain technologies (i.e., solar, wind, nuclear), carbon reduction goals, among many others that can increase or decrease the overall cost of electricity. The clean energy transition will continue to grow renewables' share of the resource mix and drive the retirement of fossil-fuel plants, a trend also driven by economic factors that will result in unknown impacts on electricity costs and if not carefully coordinated could result in certain supply constraints.[159]

Pooling, Interchange and Economic Dispatch

PJM offers open access transmission service to all PJM members regardless of ownership, and PSE&G is a transmission owner in PJM. PSE&G does not buy or sell electricity in PJM's wholesale markets, but contracts suppliers to buy energy on the market to sell to PSE&G's BGS customers. Since PSEG Power does bid power into PJM's wholesale markets, which only include state subsidized nuclear plants, their impact on PSE&G's transmission system is like any other non-PSEG power asset within PSE&G's footprint. indicates that prior to the sale in February 2022, PSEG Power's plants represented a minority of the generators within PSE&G's service territory, but after the sale now completely fall outside of their territory while still remaining within PJM.

[159] https://www.wsj.com/articles/california-blackouts-a-warning-for-states-ramping-up-green-power-11597706934.

[BEGIN CONFIDENTIAL]

Table 16-26 - Comparison Map of PSE&G Electric Territory and Transmission System, PSEG Power's Generating Assets, and All Other NJ

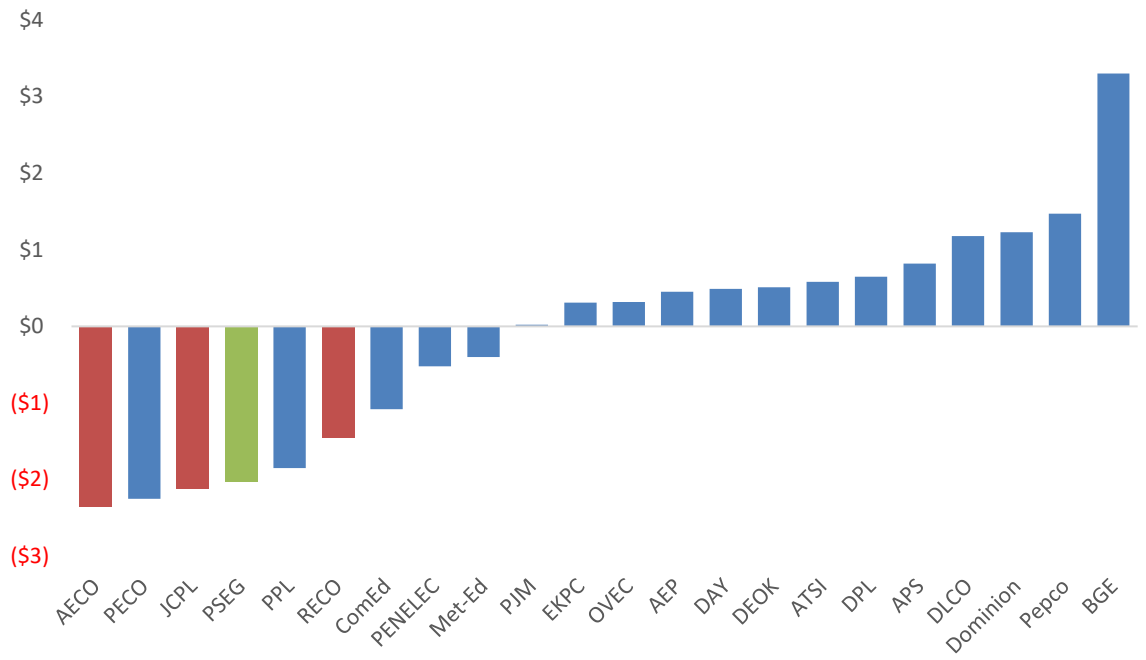
[END CONFIDENTIAL]

Congestion Costs

LMPs in PJM have three cost components: the cost of the energy itself, the cost of congestion in the system, and the cost of energy lost during transmission. High congestion tends to indicate that there is not enough supply in a certain area and there is not adequate transmission capacity to bring in more supply. PJM tracks congestion in its footprint to identify where the imbalance of supply and demand drives up electricity prices. This is done by comparing the LMP between nodes because if there were no congestion then the only difference in LMPs between locations would be the cost of energy itself and losses on the system.

Table 16-28th compares the congestion component of LMP in different PJM zones. The four New Jersey EDCs are denoted by a lighter blue, showing that congestion is much lower in New Jersey than in other regions of PJM. Among the EDCs, PSE&G has the second lowest congestion component.

Table 16-27– 2020 zonal real-time, load-weighted, average congestion components ($/MWh)[160]



PJM does not publish congestion costs at the general facility level, but instead at the transmission line level.[161] PJM's data does not make clear the location or ownership of the line, so comparison cannot be made from PSE&G's territory to the rest of New Jersey.

Energy Price Bids

PSEG Power sells its electric generation plants into the wholesale market through confidential bids that, if at or below auction clearing prices, result in PJM sending dispatch instructions to the plants and compensates them at auction-clearing prices.

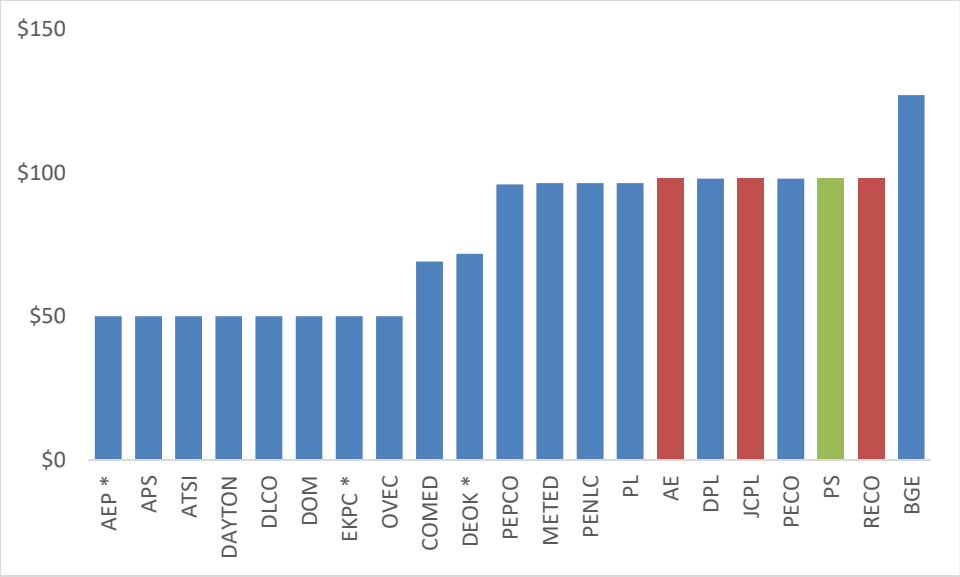
Effects on Capacity Markets

The impact of PSEG Power's generation assets on capacity markets is evidenced through their bids into PJM's capacity auction, called the Base Residual Auction or BRA. These bids are confidential and do not include identifiable information indicating the bidders.[162] Like PJM's energy markets, the auction clears

[160] 2020 SOM, page 537.
[161] Response to OC-1628.
[162] PJM Operating Agreement, Rate Schedule FERC No. 24, effective 7/14/2011, Section 17.17.1 Confidentiality: Party Access.

where bids meet offers and the market clearing price is dictated by the highest accepted bid. The auction clears at the PJM zone level, resulting in a separate price for each of New Jersey's four EDCs, as shown below in the table below. Unlike congestion, capacity prices tend to be higher in New Jersey than in other states in PJM.

Table 16-28– PJM-Cleared Capacity Prices for the 2022-2023 Delivery Year ($/MW-Day)[163]



** Obligation affected by FRR quantities.*

There have been recent changes to PJM's BRA construct with the implementation of, and later modification/removal of the Minimum Offer Price Rule ("MOPR"), which was discussed in the capacity section of Chapter 5: Electric Procurement and Supply. While FERC's decision ultimately indicated that state-subsidized resources did not distort the market in a way that required minimum price floors, which would have limited the ability of PSEG Power's solar and nuclear assets to receive capacity revenues, intervenors in the FERC case made arguments that these types of resources had a negative effect on capacity markets by depressing prices. As referenced in Chapter 5, the PSEG companies generally opposed MOPR because it countered New Jersey's climate change goals by financially harming low carbon resources. Regardless of arguments made during the MOPR discussions, most of PSEG Power's plants have been sold off and the remaining owned nuclear generation continues to provide tangible environmental and economic benefits to New Jersey.

Impact on overall PJM pricing for the region

The impact of PSEG Power's generating assets on the transmission system are no different than the impacts of generation owned by outside parties, and most of PSEG Power's assets are now owned by outside parties. As discussed in Chapter 5: Electric Procurement and Supply, PSE&G's transmission rates

[163] PJM RPM BRA Results, https://www.pjm.com/-/media/committees-groups/committees/mic/2021/20210609/20210609-item-10-2022-2023-base-residual-auction-results.ashx, 22/23 BRA Results settlement excel file.

as included in the BGS auctions have increased substantially in the past decade. Transmission costs are unlikely to reduce in the future as PSE&G continues to improve its asset base.[164] This asset base is mainly comprised of transmission and distribution with improvements centered on improving reliability for customers and upgrades or extensions implemented as needed by new generation coming in through the PJM interconnection queue. These cost increases are attributable to many different factors, including new transmission lines and reliability upgrades, which are not necessarily related to PSEG Power's former or current generation assets.

Smart Grid Development and Deployment

Organization

Smart Grid is a way of collectively describing the deployment of technology on to the Electric and Gas system to provide more insight and flexibility for grid operations, among others. Smart grid deployment is usually under the umbrella of utility of the future efforts and part of a larger evolving strategic effort. The PSE&G's efforts around smart grid technology are generally managed through a decentralized organizational model, with solution development and delivery centered around the groups where the technology is deployed. However, recently these efforts are coordinated through a single department, called Utility of the Future, which reports to the Senior Director of Asset Strategy, Technology and Systems.[165]

Smart Grid Strategy and Development

The Company noted that their smart grid strategy is developed to align to state and federal policies and programs such as NJ BPUs Infrastructure Investment program and Energy Master Plan and FERC 2222. The Utility of the Future group is responsible for the Company's smart grid strategy and stated they work with senior leadership to ensure that smart grid plans are aligned to Corporate Strategy, which itself is aligned to applicable state and federal policies.[166,167]

Some of the Company's earlier efforts toward smart grid development are encapsulated in their ES program deployment. The plans for ES were focused on driving reliability and resiliency which was accomplished in part by deploying smart grid assets and the necessary communication infrastructure to support them. Since ES 1 has been completed, the Company has noted improved operating flexibility with the increased data telemetry provided by substations and the ability to shift load by utilizing pole top line reclosers rather than manually operated devices.[168] ES 2 continues the deployment of smart grid assets with similar expected benefits over a wider-scale deployment.

[164] Annual Final Report On The 2020 BGS RSCP And CIEP Auctions Presented to: The New Jersey Board Of Public Utilities Prepared By Bates White, LLC.

[165] Response to OC-0398.

[166] Interview of Raymond Alvarez, Senior Director Asset Strategy, Technology and Systems, on September 20, 2021.

[167] Interview of Ahmed Mousa, Manager Technical Support, on November 3, 2021.

[168] Interview of Albert P. Nicol, Senior Director Electric T&D Operations, on November 4, 2021.

Expanding beyond ES programs, the Company is planning the next phase of their smart grid program by developing an Integrated Distribution Plan (IDP) that addresses the BPU's Energy Master Plan to drive toward a 100 percent clean energy future. The plan features include the following features:[169]

- Supporting the penetration of DER including renewable generation, storage, microgrids.
- Supporting transactive energy where utilities maintain a system as a service (SaaS).
- Pending further BPU orders, incorporate a rollout of AMI, and Non-Wires Solutions.
- The modeling, prioritization, and proposal of physical and operational changes necessary to support DER, Bi-directional flow of power, AMI, transactive energy and Non-wires solution.

The Company's IDP was at a framework level during this audit with only headers for the content. Overland reviewed the framework provided in the IDP which appears to consider the range of current industry concerns along with aligning to the needs outlined in the Energy Master Plan including considerations such as workforce preparation, and the skills needed to prepare for future developments. Since this program is in the earliest phases of development, Overland is unable to evaluate project selection, benefits tracking and the methods used for equipment selection.

However, one area that Overland explored was the consideration for cybersecurity for newly planned smart grid assets given the significant implications to system operations and potential access to Personally Identifiable information. The Manager of the Utility of the Future stated that the "Cybersecurity" group is engaged in the IDP development and is regularly consulted with to ensure that choices consider cybersecurity. Upcoming policies and the cyber implications with them are also discussed on an on-going basis.[170]

Given the small size of the utility of the future group, Overland is concerned that the IDP is a large program that needs to have a robust program management office (PMO) to manage and coordinate all efforts. The Manager of the Utility of the Future noted that he would take on a project manager responsibility. However, Overland believes that the Company should expand this to include a PMO with governance, reporting, project tracking and risk management to ensure that an appropriate level of rigor is applied to a long-duration multidiscipline program. Overland's opinion is based on other smart grid/utility of the future programs which apply this level of rigor.[171]

To ensure the proper oversight and management of the Company's Smart Grid strategy and implementation, including deploying their Integrated Distribution Plan (IDP), they should implement a PMO and associated program management frameworks.

[169] Response to OC-1447 (Confidential).
[170] Interview of Ahmed Mousa, Manager Technical Support, on November 3, 2021.
[171] Interview of Ahmed Mousa, Manager Technical Support, on November 3, 2021.

IT Systems

The Company maintains a number of IT systems to design, operate and maintain the electric system. All systems are in various stages of their lifecycle with all older applications except for SAP to be replaced within the next couple of years. Other more recently deployed applications have upgrade plans in place. This all indicates that Company is staying ahead of the curve regarding the lifecycle maintenance of applications to ensure that they maintain current applications that are stable and usable for now and into the future. The only application that deviates from this practice is SAP which was deployed in 1999 and is used for time reporting. The table below provides specific details about each application utilized by the Electric Operations group during the audit period.[172]

[BEGIN CONFIDENTIAL]

Table 16-29 – IT Applications Used by Electric Operations and Their Planned Replacement

Acronym	Program	Details	In-service Date	Planned Replacement
[redacted]				

[END CONFIDENTIAL]

[172] Response to OC-1503

17. CYBERSECURITY

Introduction and Overview

This Chapter addresses the Company's Cybersecurity efforts including a review of the Organization responsible for the development and implementation of Cybersecurity polices, controls, monitoring, compliance, incident readiness and response, and continued improvement. This Chapter also addresses the Company's oversight of Cybersecurity through the use of governance, performance reporting, and compliance.

Summary of Findings

1. The Company's Cybersecurity organization and capability continues to mature and evolve with recent hires, several open positions, and a number of initiatives underway.
2. The group responsible for cybersecurity, Cyber Security Risk and Compliance (CSRC), is organized outside of the IT organization which is an industry best practice.
3. Cybersecurity Excellence Oversight Board (CEOB) reports to the President and COO and maintains 2 representatives who are from outside of the Company for a level of independent thought leadership.
4. The Company had a third party, KPMG, audit their cybersecurity practices using the National Institute of Standards and Technology Framework (NIST) cybersecurity framework which provided insights into the maturity of the Company's capabilities as well as opportunities to improve.
5. To close findings from the NIST audit, the CSRC is in the process of more than doubling the size of the organization, which will increase the overall headcount to over 50 dedicated employees.
6. There are several policies and monitoring systems in place to protect Personally Identifiable Information (PII) and Critical Infrastructure or Operational Technology (OT).
7. The Company is encouraged to sustain their existing practice of continuous cybersecurity education given the ever evolving cyber threat landscape.
8. The Company's most recent NERC-CIP audit resulted in no adverse findings.
9. The Company has affirmed their compliance to the BPU Cybersecurity Requirements order in 2017, 2018, 2019 and 2020. They have also, as of June 1, 2016, joined the New Jersey Cybersecurity and Communications Integration Cell and are reporting as required in the order.
10. The Company maintains a comprehensive Cyber Incident Response plan and cross functional Team to support the response to incidents.

Our Recommendations

17.1 The Company should develop a customized template to drive a consistent approach to reporting for all levels of governance. Content and metrics should be generally similar including, but not

be limited to, Progress on Actions from last month, Emergent Topics or issues, latest intelligence, Key Risks, any escalations from other meetings and metrics.

17.2 The Company should have robust meeting minutes, decision, and action tracking logs for all cybersecurity governance meetings. This will ensure that all decisions and actions are trackable and accountability is clear for appropriate follow through.

17.3 The Company should report key staffing risks to leadership through the governance process and highlight actions taken to close these risk areas.

17.4 The Company should prioritize the creation of and implementation of an internally visible schedule of third party cybersecurity compliance audits for medium and high risk vendors and suppliers.

17.5 The incorporation of cybersecurity checkpoints into the SDLC should be a mandatory requirement and not optional, the rationale for not implementing should be detailed and vetted through appropriate leadership.

17.6 While Overland recognizes that the Company is moving forward with implementing a customized program management framework for cybersecurity programs, the effort is still developing and many questions remain. Therefore, Overland recommends that the Company provides regular reporting to the BPU on progress and scope of this effort to ensure it incorporates best practices and is timely.

17.7 The CSRC Incident Response Plan should include process maps where appropriate to assist with plan use. Additionally, where applicable decision trees should also be included to help with more complex decision making processes.

17.8 The Company should implement a more robust After Action Review tracking approach by implementing a project management centric (including progress to date, delivery date, dependencies, key issues, etc.) and reporting approach, which assigns a clear owner for delivery.

Cybersecurity Organization

Organizational Structure and Reporting

PSEG maintains a dedicated Cybersecurity organization, the Cyber Security Risk and Compliance group (CSRC), reporting directly to the Chief Operating Officer who in turn reports directly to the Board of Directors (Board). The head of the CSRC is a Senior Director who serves as the Chief Information Security Officer.[1] This organizational alignment results in the CISO reporting outside of the IT organization, which is preferable given certain compliance issues that requires independence from the IT organization. Additionally, best practices also indicate that the CISO should be as close as possible to the Board so the direct communication of risk and management of threats can be delivered, which Overland believes the Company achieves.

Under the CSIO are 6 direct reports, 5 managers and an analyst, who are responsible for specific verticals of cybersecurity including Threat Management and Incident Response, Risk and Compliance,

[1] Response to OC-0125 (Restricted).

Security Services, Operational Technology (OT) Security, Security Architecture, and PSEG-LI Security.[2] PSEG-LI has a dedicated security manager who is aligned to all the practices, policies and tools used by the group as a whole. The managers responsible for this organization stated that they remain naturally coordinated by organizational design and share best practices through regular meetings both formally and on an ad hoc basis.[3]

The CSRC is structured functionally which allows the managers to focus and respond to concerns within their specific area of responsibility, while the flat design of the organization ensures the coordination needed to respond to the dynamic and interwoven nature of cyber risk identification, threat management, compliance and reporting, and incident management.

Governance

Deploying a well-designed Cybersecurity organization and coupling it with a robust governance structure promotes the oversight of actions and drives performance. At PSEG, the top layer of cybersecurity governance is the Board who is ultimately responsible for monitoring the performance of the Company's cybersecurity capability and has the authority to make course corrections where needed.[4] The next layer below is the Cybersecurity Excellence Oversight Board (CEOB) which reports to the President and COO and maintains 1 Chairperson, 1 PSEG representative, and 2 representatives who are from outside of the Company to maintain a level of independent thought leadership.[5] The CEOB as a whole is responsible for providing independent oversight of the Company's application of cybersecurity practices.

The Cybersecurity Council represents next layer below, is more tactically focused, and includes several stakeholders across the business. The Council is chaired by the CISO and is held bi-monthly to consider the risks related to external, operational, regulatory and legal areas. This forum is where stakeholders across the Company discuss risks and, when deemed necessary, escalate them to the Board of Directors for informational or decision making purposes.[6]

Materials and metrics

At the Board meetings, the presentations used to deliver information are structured to inform and guide the discussion of participants. The materials reviewed includes "Cybersecurity Updates" which are delivered on a monthly basis. For instances where monthly Board meetings are not held, a corresponding report is provided in memo format. Overland noted that the reporting format and content of both were inconsistent. Also metrics in pre-2020 reports were inconsistent in reporting and format, however, later evolved to include a balanced score card measure. Overland also noted very little Cybersecurity information was provided in the monthly memo reports that were provided in lieu of Board meetings. With the volume of memo reports provided, Overland believes this creates a gap in

[2] PSEG Kickoff meeting presentation – May 26th, 2021.
[3] Interview of the Cybersecurity Panel on September 23, 2021.
[4] Response to OC-0130 (Restricted).
[5] Response to OC-1164 (Confidential).
[6] Response to OC-0130 (Restricted).

detailed and timely cybersecurity information to the Board. Overland believes this should be rectified by both providing a consistent format for both regular and memo style reports.[7] While the reports for the Cybersecurity Council and CEOB meetings are more consistent in content and metrics, they should also be revised to ensure that information can cascade between these groups and discussions can be structured in a consistent risk and performance derived manner.[8,9]

Additionally, aside from providing the Board of Director meeting minutes, the Company did not provide any requested meeting minutes for other cybersecurity governance meetings that would include records of discussions or decisions. In their respective responses the Company did not detail whether or not they maintain meeting meetings for their cybersecurity governance meetings, so Overland is left to assume that they do not maintain these records. The Company should develop a customized template to drive a consistent approach to reporting for all levels of governance. Content and metrics should be generally similar including, but not be limited to, Progress on Actions from last month, Emergent Topics or issues, latest intelligence, Key Risks, any escalations from other meetings and metrics.

Staffing

To support the implementation of the policies, practices, compliance, readiness and response to cybersecurity events, the Company indicated that 21 Full-Time employees maintain this responsibility within the CSRC group.[10] Additionally, there are also employees who support the Company's Cybersecurity efforts but have other full-time responsibilities. The number of employees who fall into this category was not provided, as they may span multiple organizations making estimation difficult. The Company also manages several vendors who provide expertise listed in Table 17-1.

[7] Response to OC-0130 (Restricted).
[8] Response to OC-1278 (Restricted).
[9] Response to OC-1164 (Restricted).
[10] Response to OC-0125 (Restricted).

Table 17-1 – Cybersecurity Vendors, spending, resource count and roles

[BEGIN CONFIDENTIAL]

Cybersecurity Vendors			
Vendor	**3 year spend**	**Number of Resources**	**Purpose/Role**
[redacted]	[redacted]	Varies (Range not provided)	Security Architect resources, project management
[redacted]	[redacted]	3	Privileged Account Management resources to onboard High Level Access accounts into CyberArk, ProofPoint email Security administration
[redacted]	[redacted]	1	ServiceNow SecOps enhancement
[redacted]	[redacted]	Varies (Range not provided)	Project management resources
[redacted]	[redacted]	1	Contractor for end point tools
[redacted]	[redacted]	Varies (Range not provided)	NIST Cyber Security Framework remediation, Creation and updating instruction sets/practice documentation, security audit
[redacted]	[redacted]	Varies (Range not provided)	Management of Intrusion Prevention Appliances (Fortinet), Security Architect
[redacted]	[redacted]	Varies (Range not provided)	Sailpoint IQ (Identity and Access Management software) implementation
[redacted]	[redacted]	1	Network Intrusion Detection System (NIDS) assessment, Implementing Industrial Defender
[redacted]	[redacted]	Varies (Range not provided)	Security Operations Service
[redacted]	[redacted]	1	SIEM assessment

Source: Response to OC-1604.

[END CONFIDENTIAL]

The CSRC group is currently working to increase staffing by 30 employees, largely driven by recommendations stemming from a National Institute of Standards and Technology (NIST) Cybersecurity Framework (CSF) audit conducted by KPMG in May 2020.[11] The Company noted that KPMG's recommendations also drove the development of a playbook called "Loading" which is a comprehensive resource management plan for the immediate and long-term resource needs and the accompanying skill set required. When asked about their current status regarding "Loading" all managers stated they had open requisitions, with the areas with the biggest staffing gaps detailed in Table 17-2.

[11] Response to OC-0842 (Confidential).

Table 17-2 – Number of Open Full-Time Positions by functional area

Cybersecurity Group Open Positions		
Functional Area	**Existing Number of Employees**	**Number of Open Positions**
Threat Management and Incident Response	7	4
NERC-CIP and SOX Compliance	6 (FTE) 3 Contractors	10
Oversight and Governance	1	4
Source: Interview Cybersecurity panel conducted September 23, 2021.		

Overland notes that historically, staffing a cybersecurity organization can be challenging due to competition for resources with other industries, the lack of experienced (vs. lesser experienced) cybersecurity professionals, and general turnover. This specifically points to a key risk within the Company' Cybersecurity organization, with the organization working to build their capability while having challenges due to staffing. The Company is actively working to close gaps in their resourcing, but the large number of current open positions will take substantial time and effort to close. It was not apparent to Overland if the Company has recently reprioritized these open positions to ensure that key risk areas are prioritized and lower priority areas are mitigated through resource sharing/cross training, contractor use or through other methods. The Company should report key staffing risks to leadership through the cybersecurity governance and highlight the actions taken to close these risk areas. They should also provide the specific risk that not filling these roles poses.

Cybersecurity Compliance

Compliance to standards and policies

To ensure oversight and a consistent application of cybersecurity standards the Company must either comply, adhere, or be responsive to NERC Critical Infrastructure Protection, NIST CSF, New Jersey Board of Public Utilities (BPU) Cybersecurity Requirements (Requirements), participation in New Jersey Cybersecurity & Communications Integration Cell (NJCCIC), and other industry groups.

For compliance purposes the Company undergoes NERC-CIP audits on a 3-year cycle which cover both cyber and physical security elements. The Company's last audit was conducted in 2020 with no findings.[12] They are also required to comply with New Jersey's BPU Cybersecurity Program requirements under BPU Docket No. A016030196 which include the following five key requirements:

[12] Interview of the Aaron Ford, Vice President / Chief Security Officer, on August 31, 2021.

- **Cyber Risk Management:** Requirements to Identify, Analyze, Control, Monitor and Measure risk regarding cybersecurity.
- **Situational Awareness:** Requirement for maintaining a level of situational awareness so any risk to critical systems is managed.
- **Incident Reporting:** Requirement for defining a robust set of reporting requirements for cyber events, activities and breeches.
- **Response and Recovery:** Defines the requirement for an Incident response plan and required bi-annual testing of the plan.
- **Security Awareness and Training:** Defines general and defined training requirements for employees.

Additionally the Company, along with other utilities in New Jersey, are required to participate in the NJCCIC which provides each Company consolidated resources for information sharing, threat analysis and incident reporting so the government and utilities have the most current and consistent information regarding cybersecurity. The Company confirmed that by June 1, 2016, they joined the NJCCIC and are reporting as required by the order.[13] The Company has affirmed their continued compliance to the BPU order in 2017, 2018, 2019 and 2020.

For review purposes, Overland leveraged the BPU's five requirements as a general framework to organize the remainder of this Chapter. The following sections analyze Company supplied documentation and interviews with employees to determine their compliance and effectiveness of their approaches to protect PII and OT.

Cyber Security Risk Management

Approaches for the proper management of cyber risks to PII and OT exists through deploying multiple layers of protection. The rationale behind this model is that no one layer is perfect, however, if multiple layers are organized so they close critical gaps, the likelihood of an event occurring is significantly reduced. Once established, efforts then are directed to identifying and minimizing gaps in each layer and to continuously monitor and control them to drive effectiveness as high as possible. This approach is often used for other purposes including the development of health and safety programs for a variety of industries, including for gas and electric utility construction, maintenance and operations.

As discussed in other sections, Overland also recognizes governance, cybersecurity policies, training and drilling, competent cybersecurity employees, metrics and reporting as all necessary elements to reinforce these layers of protection.

To support the development and management of these layers of protection, cybersecurity risk management is a crucial entry point to identify, mitigate, and monitor cybersecurity risk. This will help

[13] Response to OC-0126 (Confidential).

inform about key gaps in each layer and will ultimately support the development of a robust cybersecurity framework that can adapt to the ever-changing cybersecurity risk landscape. Annually, the Company leverages its Corporate Enterprise Risk Management (ERM) process to escalate major cybersecurity risk, so all ERM policies and procedures used throughout the Company apply to escalated cybersecurity risk as well. This process is used to identify, score, prioritize, mitigate and manage cybersecurity risk until it is no longer deemed a threat.[14]

For emergent risks outside of the annual ERM process the CISO is responsible for identifying and reporting risk through the cybersecurity governance including the Cybersecurity Council up to the Board. The Cybersecurity Council is responsible for the more tactical management of risk, and the Board is responsible for overseeing the proper response until mitigation. The methods used to identify emergent risks include sourcing information from "Information Technology, Cyber Security Risk and Compliance, Legal" areas and external groups such as "regulatory agencies, applicable intelligence/information sharing organization and news media."[15]

Further, the Company's CSRC managers tactically manage known and emergent risks by identifying threats and implementing the appropriate response as detailed below:[16]

- **Vendor Risk Management:** Specifically for the management of vendors and their potential risk exposure. They also maintain a "risk acceptance" process for vendors who do not meet certain criteria but with whom the Company still needs to conduct business.
- **Cybersecurity Monitoring activities and Incident response:** Defines the technical and tactical means of monitoring risk and threat vectors. This includes Indicators of Compromise, Defense In Depth analysis, monitoring of endpoints and the network, identification of threat trends and attack vectors, web (dark web) searches of PSEG information, analyzing government intelligence, and incident response.
- **Vulnerability Assessments:** Focused on software vulnerability risk through unauthorized access using a variety of vectors.
- **Cybersecurity Training and Phishing exercises:** Designed to train and test all employees to minimize cybersecurity risk due to human factors, which is currently the most significant cybersecurity risk to Companies.
- **Governance and reporting:** Provide leadership oversight for the performance of and current risk of the cybersecurity function, as previously discussed.

[14] Response to OC-0839 (Confidential).
[15] Response to OC-1608.
[16] Response to OC-0839 (Confidential).

Policies and Controls for the Protection of IT OT

The direct protection of PII, Information Technology (IT) and OT is managed through the use of governing policies which include the following:[17,18]

- Instruction 282-6-1 Vendor Access to [PII]
- Practice 160-3 Management and Protection Info Assets
- Practice 160-4 IS System and Control level
- Practice 282-1 Acceptable Use of Computer Info Resources
- Practice 282-4 Understanding Information Security
- Practice 282-5 IS classification Labeling and Handling
- Practice 282-6 PSEG Personal Information Management
- Practice 282-7 Computer Protection and Responsibility

Additionally, the Company protects PII and OT by leveraging policies and practices listed below.[19,20]

- Role based assess for systems/applications (PII and OT)
- Entitlement reviews for job function requirements (PII and OT)
- Network Firewalls and Intrusion Detection Systems (PII and OT)
- Periodic vulnerability assessment (PII and OT)
- Periodic risk assessment (PII only)
- Data Leak Prevention monitoring (PII only)
- Data classification, labeling and encryption (PII only)
- Training and awareness (PII and OT)
- Certain Customer PII elements removed from SAP systems (PII only)
- PII Masking (PII only)
- Bitlocker encryption (PII only)
- Vendor Risk Assessments (PII and OT)
- Periodic Internal audits of PII data (PII only)
- Reporting & Metrics (PII and OT)
- Cybersecurity Governance (PII and OT)
- Incident Response Plans (PII and OT)

These polices and controls are designed to cover the range of risks and threat vectors that exists for PII and IT/OT. In certain circumstances, these are interlocking layers of protection where, for example, acceptable use polices compliment PII management, or by limiting employee access to a specific PII data

[17] Response to OC-0127 (Confidential).
[18] Response to OC-0128 (Confidential).
[19] Response to OC-1336.
[20] Response to OC-1337.

based on role requirements and removing access when not necessary all further augment the Company's PII management.

Overland observed that the policies and controls are reasonably structured and cover the necessary subject areas without any obvious gaps. All documentation and references to additional policies were reviewed and appeared to be generally well structured with clear responsibilities, owners and good document revision control. The breath of documented content for each policy appeared to cover an appropriate range of topics and concerns as it relates to PII and IT/OT, and where appropriate policies would link to other supporting policies or controls. There is an adequate detail of the procedures for access controls, account management, vendor access management. The acceptable use of IT/IS resources is clear and should be usable by all computer network users at the Company.

Policy Application Monitoring and Metrics

Policies and documentation alone are only effective if they are monitored and enforced. The Company accomplishes this by producing metrics to monitor a variety of functions and capabilities that are "reflective of performance in a broad range of security practices such as encryption, patching, vulnerability management, external cyber weaknesses, phishing, and privileged account management."[21] The list of metrics monitored includes:

- A number of criteria for % servers and workstations patched
- % of workstations and mobile data terminals with Endpoint protection enabled
- % of Servers with Endpoint protections enabled
- # of External Infrastructure vulnerabilities open
- Average number of days to close external vulnerabilities open
- % phishing test failures
- % of critical security incidents reviewed within 4 hours

The list of metrics provided appear to offer a generally complete approach to monitoring the effectiveness of policies and controls. However, one metric that Overland believes is missing is vendor and third party adherence to the Company's policies governing cybersecurity. This would be populated by conducting regular assessments or audits of their third party vendors, which currently occur when an issue arises. The Company did note that they intend to close this gap by implementing regular third-party audits, however, when employees were asked for particulars, they stated that did not have any details on how this was conducted, or if any changes were planned.[22,23]

The Company clarified that when these audits do occur, they review the vendor's policies, procedures, operating activities, and technical control for a variety of areas.[24] However, Overland recommends that

[21] Response to OC-0132.
[22] Response to OC-1279.
[23] Interview of the Cybersecurity panel on September 23, 2021.
[24] Response to OC-1279.

the Company consistently audit certain medium and all high risk vendors on a rotation as part of doing business with them. This will provide assurance that vendors are adhering to the Company's polices and assures good security hygiene. Additionally, the Company should then implement a metric and KPI that provides insight into audit performance to senior leadership.

Recommendation The Company should prioritize the creation of and implementation of an internally visible schedule of third party cybersecurity compliance audits for certain medium and all high risk vendors and suppliers. Applicable metrics should be developed to track the performance of third-party audits.

Vulnerability Assessments

Assurance of the Company's policies and controls is achieved through the implementation of Vulnerability Management processes that consider the spectrum of vulnerabilities both internally and externally. Depending on what is being tested, these scans can occur anywhere from weekly to annually. For example, discovery and internal scans occur twice weekly and external scans occur three times a week. The Company's efforts are supported by leveraging third party vendors and is double checked by additional firms when needed. The Company also leverages a third party vendor to conduct an annual vulnerability assessment and then provides a report with recommended actions.[25] Weekly vulnerability scan results are reported to the CISO on a weekly basis along with recommended actions and their associated owners. The CISO reports these results to the Cybersecurity Council and the Board on an as-needed basis ensuring that leadership is aware of results and actions to close gaps.[26]

Overland had no concerns with the process, policies and reporting the Company presented. Overland observed that the Company is heavily reliant on third party support in-part due to the on-going efforts to support current cybersecurity needs while growing the capability of their in-house cybersecurity team. However, some level of vendor support will always be necessary for specialized areas and for independent third-party audits.

Cybersecurity in new systems and applications

New applications and hardware must be designed to be cyber resilient and limit the intrusion/vulnerability risk. This consideration needs to occur at the earliest phase of application development or hardware selection in order to be effective and must occur for every new project so a consistent review of risks and vulnerabilities is applied.

Overland focused first on the application development process to identify the controls in place to ensure the participation of cybersecurity professionals early in the development process. Best practice includes placing stage gate requirements within the software development framework, called Software Development Lifecycle (SDLC), which requires cybersecurity participation and sign off prior to proceeding to successive steps in the SDLC. The framework should also provide guidelines for ensuring

[25] Response to OC-0116 (Confidential).
[26] Response to OC-0116 (Confidential).

that best practices are applied to each application's development lifecycle and controls are implemented to manage framework conformance.

The Company noted during an interview that a cybersecurity policy for the SDLC was initially under development and later provided details to their fully implemented policy as of September 2021.[27,28] Overland's review of this policy noted that best practices were applied, however, the policy leaves a certain level of discretion for the application of the guidance. While Overland generally agrees that no policy should be one size fits all, it appears for instances where an exception to the policy is warranted, associated documentation for the exception is optional. Overland recommends that any exception to the policy must be well documented and approved by the appropriate leadership. This should not be a discretionary step. Rationale for not adhering to the policy for a covered exception should be detailed, vetted through appropriate leadership, documented and included in project documentation.

The Company also maintains a robust practice of managing how new hardware connects to the network. Their approach is multilayered and "covered" by Network Access Control which sets into place certain requirements that must be achieved in order to connect to the network. This practice covers many devices such as computers and field hardware. They also implement further security protocols that, for example, encrypt storage. Where they are unable to install these protocols due to the closed end nature of software/firmware, the Company implements certain controls to close unneeded ports, maintain access and logging controls. Also network devices that cannot have third party security protocols implemented undergo peer review prior to being allowed onto Company networks. To further enhance security for devices such as field based smart grid hardware, the Company maintains a private network that is not accessible to the internet.

Investments in Cybersecurity

Overland investigated the Company current cybersecurity program investments to evaluate how they support current and growing needs for cybersecurity management, and to understand how they continue to develop their maturity. The Company stated that their investment approach began by leveraging the findings from the KPMG's NIST audit to serve as their basis for several of their programs. The Company then identified additional projects that were necessary for compliance purposes. Finally, they identified the investments that were necessary for maintaining operations through third-party vendors, applications and other services. A total of 62 of these programs/projects/investments were detailed by the Company all in various stages of completion as shown in Table 17-3.

[27] Interview of the Cybersecurity panel on September 23, 2021.
[28] Response to OC-1276 (Restricted).

Table 17-3 – The Volume and Status of Cybersecurity Programs/Projects/Investments

Volume and Status of Cybersecurity Programs/Projects/Investments	
Functional Area	**Count**
Projects in "To be initiated" status	1
Projects in On-going Status	25
Projects in "In-progress" Status	12
Projects in "Completed" Status	24
Total Active (On-going and In progress)	***37***
Source: Response to OC-0129.	

To manage these investments, the Company designates a Project Manager who is responsible for the delivery of each. Their responsibilities include the management of each investment's constraints: scope, cost and schedule. Transparency into these constraints is assured by utilizing the cybersecurity governance with the Project Manager reporting to key team members, including the CISO and the Project Owners. The CISO then reports to the Cybersecurity Council to ensure that projects and programs are aligned to current strategic business needs.[29]

It was observed that the Company does not track investments at the line level but rather in aggregate at the business level.[30] The Company stated that as of August of 2021 (after the start of the audit) that they are working with the IT organization to ensure that investments are aligned to the IT program management methodology, with appropriate customizations made that consider the unique nature of Cybersecurity programs. Since the Company is actively moving forward with aligning Cybersecurity program management to their IT program management framework, Overland recommends the Company provide regular updates to the BPU regarding their progress and final implementation.

Conducting regular audits of the Company's cybersecurity capabilities validates that proper controls are working and challenges how cybersecurity is managed. As previously noted, the Company had a third party, KPMG, audit their cybersecurity practices using the NIST cybersecurity framework. The outcome of this audit resulted in insights into maturity of the cybersecurity function as well as opportunities to improve. These audits are helpful since they follow a comprehensive framework that reviews a number of critical areas that focus on the strategic and tactical means of cybersecurity management. This also provides an independent and objective viewpoint that is free from biases. There were a number of recommendations that resulted from this audit and the Company appears to be making strides in implementing all recommendations, as evidenced by the provided implementation plans.[31]

[29] Response to OC-0746 (Confidential).
[30] Response to OC-0129 (Confidential).
[31] Response to OC-0841 (Restricted).

The Company's Internal Audit Services (IAS) group has also performed an audit of the Company's Cyber Threat Management with a report released in April of 2020 that focused on four key areas: governance, risk assessment, risk management, and anomalies and events. The IAS is also reviewing the implementation of the KPMG recommendations and has, in conjunction with the Cyber Threat Management findings, released two interim memos that monitor the work performed to date.[32] Overland believes there has been reasonable recent review, both internally and through third-parties of the Company's controls and policies. Overland encourages the Company to continue the practice of regular audits.

Situational Awareness

Cybersecurity situational awareness occurs at strategic and tactical levels, where the strategic level requires leadership to be engaged by driving the development and implementation of policies, empowering experts in their respective areas to make timely decisions, participate in governance, and monitor performance. Tactically, the Company needs to be aware of all vulnerabilities and the risk they face so they can effectively monitor for any potential intrusions. They also need to be aware of any existing or new threats by leveraging internal and external sources available. Finally, the Company needs to be aware of any identified software vulnerabilities and mitigate them through patches and new software revisions as necessary.

The Company approaches this oversight process by maintaining their cybersecurity logs and alerts through a centralized Security Information and Event Management (SIEM) resource. They track the results of any applicable investigation or system changes, and the governance is notified through weekly reports provided by Cybersecurity leadership. Incident data is reported to the Board on a quarterly basis.[33]

Threats are actively monitored by leveraging intelligence feeds from external groups which are coordinated through the Company's Managed Security Service Provider (MSSP) and the Department of Energy's Cybersecurity Risk Information Sharing Program to identify potential threats so that appropriate action may be deployed. Any threats from the inside are monitored through the Company's robust monitoring clients which are also coordinated through the Company's SIEM and MSSP.[34] This coordinates a wholistic viewpoint of the Company's internal and external threats and provides the datapoints that are used to identify certain threat patterns that could be a leading indicator to a potential incident.

Physical and Cybersecurity connection

Situational awareness is further enhanced through the coordination between cyber and physical security. Physical security intrusions can lead to cybersecurity incidents, for example, by not timely disabling building access to a terminated employee allowing them unauthorized access to systems, or a

[32] Response to OC-1623 (Restricted).
[33] Response to OC-1607.
[34] Response to OC-1607.

trespassing incident at a substation with the intent to gain access to the station's industrial control systems (ICS). By sharing information between these groups, potential threats can be wholistically evaluated and mitigated.

Overland interviewed the Company's physical and cyber security senior leadership, the Chief Security Officer (CSO) and CISO, to evaluate how they coordinate their efforts. They stated that they began by linking physical and cyber security control centers to share threat information. The CSO also stated that he monitors all physical and cyber threats to the Company through a range of government and law enforcement sources.[35] Both the CSO and CISO regularly communicate potential threats and incidents through formal and informal means.[36] Formally, they remain coordinated through the cybersecurity governance including the Cybersecurity Council, Cybersecurity Incident Response team, and Cyber Excellence and Oversight Board (CEOB).[37,38,39] These forums have common attendance and purpose, and serve to ensure the integrated management of risk and response.

Overland believes that based on data reviewed and interviews, the Company is taking appropriate steps to ensure the alignment between cyber and physical security. While these two leaders do not work for each other directly, they are aligned under the same leader and both appear to have a clarity of purpose. The information shared between these groups appears to be appropriate and support a comprehensive range of situational awareness. This supports Overland's analysis that the Company's cybersecurity governance is well designed and structured around regular communications and information sharing between the groups.

Incident Reporting, Response and Recovery

Incident Reporting

Should an actual incident occur, and it meets certain parameters, the Company is bound by the BPU's Cybersecurity Program to provide applicable reporting to both the NJCCIC and BPU. This activity is the responsibility of the Company's CISO who prepares a draft report that is reviewed by the Managing Counsel Labor and Employment who is responsible for distribution. The Company stated that they have not had an incident that has met the reporting requirement criteria, so Overland is unable to review the details of an incident report for compliance, however, the responsibility of the reporting appears to be appropriate.[40]

[35] Interview of Aaron Ford, Vice President / Chief Security Officer, on August 31, 2021.

[36] Interview of Aaron Ford, Vice President / Chief Security Officer, on August 31, 2021, and Interview of Sr. Director Chief Information Security Officer on July 28, 2021.

[37] Response to OC- 0843 (Restricted).

[38] Response to OC-1162 (Confidential).

[39] Response to OC-1164 (Restricted).

[40] Response to OC-1606.

Incident Response Plan

The importance of a clear, detailed and easy to follow Cybersecurity Incident response plan cannot be overly stressed. Employees who are responsible for incident response must have a deep connection to this plan to help eliminate missteps with regard to notifications, standing up response teams and working through solutions until incident closure. These plans should be regularly trained and drilled upon so that teams are ready, and plan improvements can be made as lessons are learned.

The Company currently manages a specific Incident Response Plan titled "CSRC Incident Response Plan." This plan is structured in 5 sections that provides details through the following framework:[41]

- Assembling a Team and Determining Incident Severity
- Handling an Incident
- Post-Incident
- Planning for Future Incidents
- Appendices

Overland observed that the plan follows a natural progression of an incident with clear delineations between phases and serves as more of a quick reference guide. All non-critical but still useful information is placed in the appendix. It also maintains contact lists for a variety of needs and concerns. The response plan also does a good job of ensuring that proper authorities are notified pursuant to the BPU's "Requirements."

Understanding that Incident response is dynamic, Overland believes an area of opportunity for the current plan includes the supplying of process maps to help assist with plan usability. Currently the plan is very text heavy and is formatted in a bulleted style format which can lead to confusion should a user be new in a role or in a high-pressure scenario when attempting to determine the necessary steps. The plan does contain one example of a properly executed process map within the communication section, which should be considered a best practice for the other chapters and sections.

There is an additional opportunity to include decision trees to help create a standardized response structure for any incident regardless of type and/or severity level. This would be especially useful for determining the actions required for specific severity levels since this determines who is included in the response and what actions are necessary for a Low vs High Impact Category. The CSRC Incident Response Plan should include process maps where appropriate to assist with plan use.

Incident Response Team and Drills

Execution of the CSRC Incident Response Plan is the responsibility of the Cybersecurity Incident Response team. They are activated to respond to cybersecurity incidents that reach a certain threshold, or severity. The Company's documentation highlights the specific threshold for events such as suspicious

[41] Response to OCI-0125 (Restricted).

or unauthorized cyber activity by a PSEG employee, a cyber event that involves unauthorized access to the account of officers, director or systems administrators, impacts to PII, etc. Overland requested meeting minutes to evaluate the documentation and content generated from these discussions. However, the Company stated these documents are protected under attorney client privilege so we are unable to evaluate this team's response.[42]

The Company conducts regular drills to ensure incident readiness by testing various functions and capability through the use of scenario based injects. Specifically, the Company participates in the bi-annual GridEx hosted by NERC, which is a large US and Canada based exercise that hosts hundreds of Companies to test their capabilities through a series of injects that simulate real world scenarios.[43] The outcome of these exercises can lead to a set of actions to drive improvements to the Company's incident response.

In 2020, the Company also hired a third-party firm **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** to conduct a tabletop exercise to further test their response through realistic injects.[44]

The Company has also conducted a Critical system loss drill which tested how the Company would perform should they, during a major weather event, lose a critical system used for a weather event response such as OMS.[45]

All drills appeared to be well designed and included an appropriate cross section of employees and departments. They occur more than bi-annually which is required. Each of these drills also incorporate some style of After-Action reviews where key lessons learned are captured and actions are developed. In the case of the tabletop drill conducted by the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, the vendor provided a detailed report that included suggested actions for improvement.[46,47]

Overland, however, observed that the Company does not use robust methods to assign owners to these actions nor do they utilize any sort of project management methods to track these actions to ensure they are executed and that progress is reported to leadership. This need is crucial since it will drive accountability that promotes completing actions expeditiously. Overland recommends that the Company implement more robust After Action Review tracking by implementing a more project management centric (including progress to date, delivery date, dependencies, key issues, etc.) and reporting approach, that also assigns a clear owner for delivery.

[42] Response to OC-1162 (Confidential).
[43] Response to OC-0884 (Restricted).
[44] Response to OC-0884 (Restricted).
[45] Response to OC-0884 (Restricted).
[46] Response to OC-0844 (Restricted).
[47] Response to OC-1280.

Security Awareness and Training

An IBM report noted that 60 percent of all cybersecurity attacks are perpetrated by someone inside of a Company. Of that number one-quarter were due to inadvertent access by an employee, or 15 percent of all cybersecurity attacks.[48] As noted earlier, network and physical access controls coupled with good hygiene regarding access reviews, among others, are methods used to reduce the risk to intentional internal threats. Training and awareness are then necessary to manage inadvertent internal threats.

Cybersecurity awareness must start with the Board, so they understand their role, the Company's key cyber risks, the importance of strong policies, and the need to make appropriate investment in cybersecurity programs. The Company deploys Board specific training and communications that are targeted to their level of responsibility through materials created internally and by third party vendors. The Company demonstrated this by providing Overland the materials distributed to the Board, which were determined to be appropriate by providing the proper level of insight into their responsibility and transparency into initiatives to support decision making. [49]

For all other employees (including internal and contractors), the Company designates "Required training" materials as "Staying Cyber Safe" and "Privilege User" which are both required to be completed annually. "Staying Cyber Safe" covers a range of areas including responsibilities, threats, guidelines, practices and policies, and it wraps up with a knowledge check. The "Privilege User" online course focuses more on access controls, the policies supporting them and a knowledge check.[50] The Company stated that these materials are refreshed regularly to employ the latest threat vectors to ensure relevancy.[51] Employees are required to complete these courses within 90 days of their assignment date and any failure to do so results in the Company removing employees' network access.

Phishing Testing

Since phishing a critical risk area that can lead to account compromise, installation of malicious software, unauthorized payments and others, Companies must ensure that employees are not only aware of how these attacks are designed but understand the latest method of attacks. This instills a layer of front line protection by having employees remain vigilant and skeptical to unusual requests for information and access to company resources.

The Company maintains a phishing awareness program by sending simulated Phishing emails to network access holders to test their ability to detect and properly manage the simulated attacks. Should any employee fail this phishing attack, they are required to complete "Phishing Exercise Handout" and "Phishing Fundamentals" training within 2 weeks in order to maintain network access. Should an

[48] https://hbr.org/2016/09/the-biggest-cybersecurity-threats-are-inside-your-company.
[49] Response to OC-0130 (Restricted).
[50] Response to OC-0130 (Restricted).
[51] Interview of the Cybersecurity panel on September 23, 2021.

employee or contractor fail multiple simulated Phishing attacks they will receive escalating levels of discipline up to termination.[52]

The Company noted other optional training can be delivered including Social Engineering, Executive specific training, and an interactive cybersecurity game. This is deployed on an as needed basis or when there is a specific need for remedial training.

Other Cybersecurity Awareness Campaigns

Lastly, the Company maintains an on-going communication link to employees through cybersecurity awareness emails and their cybersecurity awareness campaign which occurs during Cybersecurity awareness month in October. This includes 9-10 presentations that were scheduled throughout the month.[53] Additionally if there is a new threat the Company broadly communicates through a pushed message to ensure information is delivered in a timely manner.[54] Overland reviewed an example of this messaging and noted the relevance of the topic and ease of understanding for a wide audience.

Overland requested scorecard metrics that monitor their cybersecurity awareness and training, however, the only scorecard metrics currently maintained outside of internal reporting is the "% of Phishing Test Failures."[55] The Company does not report on training metrics, however, states that compliance is controlled through disabling of access until successful completion.[56] Overland believes current controls are sufficient.

[52] Interview of the Cybersecurity panel on September 23, 2021.
[53] Interview of the Cybersecurity panel on September 23, 2021.
[54] Interview of the Cybersecurity panel on September 23, 2021.
[55] Response to OC-0846.
[56] Response to OC-1627.

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18. GAS DELIVERY

Introduction and Overview

This chapter covers PSE&G's Gas Delivery function and includes discussion and analysis of the following areas: the Asset Management & Planning and Gas Operations organizations that comprise the Gas Delivery function and the emergent best practices they employ, an assessment as to how well these two organizations have performed from a variety of measures, the existing gas distribution system including the various risk mitigation initiatives the Company has undertaken to safeguard its aging assets as well as the relatively high number of open leaks, distribution system planning requirements, methodology and related projects, the potential impact of the New Jersey Energy Master Plan, capital investments needed to incorporate the Gas System Modernization Program and other asset replacement programs, ongoing operations and maintenance activities, and an overview of essential information technology, records management and other concerns. This chapter concludes with a review of the implementation actions initiated by the Company as a result of recommendations identified in the last Management and Affiliate Transactions Audit of Gas Delivery.

Summary of Findings

Asset Management & Planning and Gas Operations Organizations

1. PSE&G's vision is to be a recognized leader for providing safe, reliable, economic and green energy. To support this vision for the Gas Delivery function, Gas Operations organization mission is to provide "world-class gas distribution and appliance services," while Asset Management & Planning department does not have a written mission statement, but states, the "department has established and ensured all actions align with the corporate vision."
2. The gas procurement and delivery functions are spread over two major entities: the Asset Management & Planning and the Gas Operations departments, with Asset Management & Planning primarily doing the planning, and Gas Operations principally responsible for the execution.
3. Within Asset Management & Planning, Gas Transmission and Distribution Engineering is dedicated to gas related activities, while two other sections Energy Supply Acquisition and Operations and Investment Planning, Business Improvement and Processes have split responsibilities between electric and gas interests.
4. Disciplines and work activities within Gas Operations are all gas related, except for electric cable markouts, which are managed for the Electric department by Gas Operations.
5. Major activities within Gas Operations are Field Operations, North & South Gas Construction, Dispatch & Operational Efficiency, Regulatory Operations, Policies & Procedures, Business Development & Operational Support, Centralized Appliance Services & HVAC Gas Operations, Gas Project Management and Appliance Service.

6. In 2020 an Employee Engagement Survey disclosed less than half of the employees surveyed believe there is effective collaboration across departments, and in the ensuing Utility Culture Action Plan Rollout effective collaboration across departments was identified as a least favorable takeaway.
7. Gas Delivery function staffing levels are relatively flat except for an approximate 200 employee increase in Gas Operations between 2016 and 2017, when the Company geared up to support the Gas System Modernization Program (GSMP) work.
8. To be successful in operating and maintaining its gas distribution system, PSE&G supports a skilled and well-trained workforce through technical and management training, as well as encourages employees to participate in industry committees and certifications.
9. The large number of best practices employed by the Gas Delivery function indicates they seek out leading industry practices and are anxious to employ them to improve workplace efficiency and effectiveness.

Performance

1. The Gas Delivery function participates in several benchmark studies comparing its performance to other utilities and has generally performed well in the metrics compared.
2. The Company focuses on a broad number of key performance indicators (KPI's) to help drive safety, customer perception, operational, and financial results, and based on the type of work performed by each group that supports the Gas Delivery function, we conclude that the KPIs selected are meaningful and that collectively the supporting entities performed well in meeting those KPIs.
3. Utilities are required to submit incident reports to PHMSA (Pipeline and Hazardous Materials Safety Administration) within 30 days of a pipeline incident or accident. From 2011 through 2021, PSE&G experienced 12 DOT (Department of Transportation) reportable incidents, two of which were subject to stipulations for corrective action with the BPU. As a result of these incidents, extensive corrective actions have been taken by PSE&G to prevent a similar recurrence.
4. Internal audits are routinely conducted to analyze and assess the risks and controls of organizational processes and controls. Five such internal audits of the Gas Delivery function were reviewed and were found to be concise, direct, and complete; providing a necessary check and analysis to help ensure the Gas Delivery function operates as intended.
5. The Gas Delivery function receives a number of BPU (New Jersey Board of Public Utilities) complaints and executive complaints regarding its services. There does not appear to be any discernible trends in the historical data, other than complaints consistently occur with some year-to-year variation.
6. A recently initiated phone customer satisfaction survey revealed for Gas Operations, an overall customer satisfaction of 9.0, with 8.8 for Gas Distribution, 9.0 for Appliance Service Repair and a 9.3 for Appliance Service Emergency. These results compare favorably to PSE&G's other lines of business, Customer Operations and Electric Delivery.

Existing Transmission and Distribution System

1. At the end of 2020, almost 3,120 miles or approximately 17 percent of the Company's main was cast iron, representing approximately 9 percent of the total gas distribution system. This amount of cast iron nevertheless exists despite the successful removal of 1320 miles of cast iron since 2007 through the Energy Strong, Gas System Modernization Program (GSMP) and other facility replacement programs. There is no other US utility with more cast iron/ductile iron miles of main in their system than PSE&G.
2. A significant portion, 438 miles of the total 3,120 miles or 14 percent of the cast iron main in PSE&G's distribution system, operates at a pressure above utilization pressure, presenting an ongoing risk of a significant gas escape with a potentially resulting incident.
3. To help reduce the risk associated with cast iron pipe operating at elevated pressures, the Company has targeted the replacement of 10-inch, 12-inch, and more recently 16-inch elevated pressure cast iron mains.
4. Another problematic pipe material is bare and unprotected steel. The metallic pipe in the Company's main system is approximately 35.5 percent cast iron, 10 percent bare and unprotected steel and 54.5 percent protected steel, while metallic services consist of 29.6 percent bare and unprotected steel, 9.2 percent copper and 61.2 percent protected steel.
5. Through programs like GSMP, Energy Strong, and DIMP the Company is making good progress in removing both cast iron and bare and unprotected steel pipe materials from its distribution system, but still has a long way to go. Based on the current rate of replacement, the Utility estimates it will have eliminated all utilization pressure cast iron, bare, and unprotected steel pipe from its system by approximately 2039 at an estimated cost of $5.58 billion in 2021 dollars.
6. PSE&G uses the metrics of gas leak reports per mile of main and service, gas damages per 1000 locate requests, leak response rate, and open leaks to define the reliability of their distribution system.
7. PSE&G's distribution system leak repair rates are significantly lower (better), when compared to other gas utilities with large amounts of legacy pipe. For the year 2020, PSE&G's gas main distribution system experienced .16 leak repairs per mile and .33 leak repairs per 100 services compared to .21 leak repairs per mile for mains and .39 leak repairs per 100 services for the comparable utilities.
8. The total number of needed main leak repairs and service leak repairs are trending downward even though there is more pipe in PSE&G's gas distribution system each year.
9. Ninety-seven smaller diameter short sections of cast iron main operating at elevated pressures represent a significant risk to the safety and integrity of PSE&G's gas distribution system; and are currently targeted for replacement through the GSMP.
10. The causes of main and service leaks are used to perform several distribution system related studies including active corrosion investigation, hazard analysis, and the BPU service evaluation, which then provide the basis for determining which mains and services get replaced. Leak cause data, which is gathered from the field workforce, needs to be corrected before the evaluation and ranking of system risks can occur.

Between 2011 and 2020, the end of year leak backlog averaged 1,643 leaks to be repaired. During the same timeframe, PSE&G's distribution system incurred on average 8,098 leaks per year. Thus, at the end of any given year, approximately 20 percent of the known open leaks, which include both prior year and current year unrepaired leaks, are in the inventory for repair.

11. The reported end of year open leak count does not provide an accurate view of the average number of open leaks in any given year. For the last five years, the number of leaks open in any given month averaged 1,693 or 31 percent higher than average 1,289 at the end of the year open leak count.
12. PSE&G has not conducted a cost-benefit study to show potential savings related to reduced leak backlogs as some other gas companies have done.
13. PSE&G has previously made reduced open leak commitments to the BPU stating, it is motivated for making a reduction to "improve gas distribution system safety, integrity and reliability; reduce methane emissions and associated gas loss;" and the Company has demonstrated it is able reduce its open leak backlog, when required.

Gas System Planning

1. System planning encompasses analysis of loads and forecasts, and capital investment planning based on sound criteria and economic analysis to make sure adequate capacity will be provided to reliably supply the demand of present and future gas customers.
2. Gas System Planning performs numerous studies consistent with what other utility system planning groups complete, including: system flow at various temperatures, asset requirements, non-firm customer interruptions, Metering & Regulating (M&R) Station failures, system growth and reinforcement, and focused studies to address specific concerns.
3. Gas System Planning uses SynerGi Gas hydraulic modeling software, the de facto standard for the gas industry; and updates its hydraulic flow analysis models with projected system loads and distribution system changes, annually.
4. The design peak-day criteria assume a weekday with an average temperature of 5°F, a temperature of 0°F at 8 AM, and an average wind speed of 15 mph at Newark Airport. A 2019 study of daily temperatures at Newark Airport from 1955 through 2019 indicated an average temperature 5°F or below occurs once every 16 years; and PSE&G has been using an average temperature of 5°F for several decades.
5. The amount of system reinforcement performed on an emergency basis raises a concern with regard to the design day network model. System Planning addressed this concern in a study titled Gas Supply and Design Criteria Review, dated February 11, 2020.
6. To gain additional margin against over pressurization and potential customer outages, in 2020, PSE&G determined that it needed make changes in its minimum system design pressure by lowering its M&R station and pounds to pounds regulators set points; and is currently in the process of implementing this new regulator setpoint operating criteria.
7. The hydraulic network analysis model accuracy is verified by comparing the forecasted pressure to actual pressure through a combination of 70 SCADA (Supervisory Control and Data

Acquisition) control points and 695 remote pressure monitoring points on the coldest day of the year.

8. Gas System Planning recently conducted and presented several significant studies covering such important areas as: Physical Gas Supply Interruption, Risk Gas Supply and Design Criteria Review, and the Gas Strategy Plan-2020 Strategic Utility Initiative.
9. As described in the Company's Operational Excellence Model (OEM), PSE&G identifies and justifies projects such as: replacement facility identification and prioritization, capacity planning, design gas system, and construct new business.
10. When a new load results in exceeding a pipeline's capacity or the need to exceed MAOP, Gas System Planning will determine if system reinforcement is required, selecting the most appropriate system reinforcement project based on cost, constructability, environmental concerns, etc. Solutions may include system reinforcement, system uprate, supply adjustments, mobile LNG, compressed natural gas, etc., and while non-pipeline alternatives are considered during this process, there is no written policy and process addressing when and how potential non-pipeline alternatives to traditional long-term system reinforcement projects should be evaluated.
11. By including the annual energy efficiency and conservation targets from the Energy Master Plan and Clean Air Act, regulatory and legislative policy initiatives impacting the use of natural gas are incorporated into the gas sales forecast model by PSE&G's Electric and Gas Sales Forecasting group.

Capital Program

1. Strategy for maintaining major distribution assets starts with the Gas Delivery function embracing the Distribution Integrity Management program (DIMP). DIMP emphasizes awareness of identifying risks to distribution pipelines where an incident could result in a serious consequence and requires focused priority attention in those areas.
2. Evaluating and ranking risks is accomplished through use of PSE&G's Leak Hazard Assessment model. This predictive model, considers both the pipe facility's leak history and a series of environmental factors, resulting in a relative Leak Hazard Index ranking.
3. Excavation damage to plastic services, natural force damage for cast iron pre-1946 joints, natural force damage to cast iron pipe whether pre-1946 or post-1946, and vintage corrosion in unprotected steel services have been identified as the highest risks to the integrity of the gas delivery system. To help maintain focus on potential incident causes, PSE&G prepares a balanced scorecard which highlights selected metrics concerning Gas Leak Reports per Mile, Leak Response Rate, Open Leaks, and Damages per 1,000 Locate Requests, all of which are in an improving trend.
4. Since its development, the Transmission Integrity Management Plan (TIMP) has been reviewed either by internal audit staff or independent third-party auditors on five occasions. The most recent outside audit was complementary towards documenting HCA's (high consequence areas) and for having a comprehensive ILI (in-line inspection) program, but also noted several deficiencies: Threat Identification and Risk Assessment – missing applicable data, Assessments –

documentation not consistent, Preventive and Mitigative Measures – not thoroughly documented measures taken to address active threats, and Mega Rule Impact – certain documents need to be updated. All deficiencies had been addressed by the end of calendar year 2021.

5. By conducting an annual analysis of system leakage and breakage, PSE&G evaluates replacement program priorities and determines future year replacements. Targeted replacement programs have included: Cast Iron Main – to eliminate the potentially most hazardous cast iron smaller diameter and higher pressure mains, Unprotected Steel Service Replacement – targeting bare and cathodically coated but unprotected steel services, Unprotected Bare Steel Main Replacement – to enhance the level of unprotected bare steel main replacement, Energy Strong I and II – to accelerate the replacement of utilization pressure cast iron (UPCI) mains and raise M&R station and plant facilities in flood prone areas, and GSMP I and II – to accelerate the replacement of UPCI main, unprotected steel mains and services, abandon district regulators, and relocate inside meters.
6. To help assess the effectiveness of the GSMP at a high level, PSE&G prepared a grid hazard analysis prior to the GSMP I Filing in 2015 and prior to the GSMP II Filing in 2017, and has indicated it will prepare another grid hazard analysis prior to filing an extension of GSMP.
7. Based on the Company's GMSP experience to date, PSE&G anticipates being able to demonstrate enhanced efficiency and effectiveness in its replacement/rehabilitation of cast iron and unprotected steel through leveraging the American Gas Association (AGA) for continuous improvement and its continued working with methodologies of the Project Management Institute.
8. Capital expenditures are categorized by New Business, Facilities Replacements, System Reinforcements, Environmental/Regulatory, Facilities Support, Energy Strong I, Energy Strong II, GSMP I, GSMP I Stipulated Base, GSMP II, and GSMP II Stipulated Base; and overall capital investments are expected to grow between 2022 and 2027.

Operations and Maintenance

1. PSE&G maintains an active asset repair process to support the reliability and safety of its distribution system, and the overall projected growth rate for O&M expenditures is expected to stay below the rate of inflation.
2. The accelerated infrastructure replacement programs, Energy Strong I and GSMP I, and GSMP II, are expected to reduce main and service O&M costs by approximately $900,000 in 2021.
3. Consistent with federal or state code, twenty-eight inspection and maintenance programs are carried out by the Company to help maintain a safe and reliable distribution system.
4. There are programs performed that exceed regulatory requirements including: Non-Business Area Main Leak Survey – code requires survey to be conducted every three years for cathodically unprotected mains and every five years for the overall system, while PSE&G completes the survey annually; Winter Patrol Survey – not required by code but is performed in select areas during cold weather; Public Building Inspections – not required by code but is done every three years through adoption of this schedule in the Company's tariff; House Heater

Periodic Inspection – not required by code but is conducted every five years; Transmission Inspection Patrol – state requires monthly and federal requires quarterly, while PSE&G conducts the patrol two times per month; Transmission Leak Survey – required annually, while the Company surveys twice a year.

5. The Company performs inspections and related maintenance work on various assets including: Corrosion Structure Surveys, Various Leaks Surveys, Regulator Inspections, Exposed Pipe Inspections, Inside and Outside Meter Set Inspections, Line Valves Inspections, and Meter and Regulating Stations Inspections. In general, inspections are completed on time or there was a minimal acceptable year-end backlog.
6. An exception to inspections being completed on time or with a minimal acceptable backlog is Inside and Outside Meter Set inspections, where the Company has had consistent difficulties in completing these three-year cycle atmospheric corrosion and leakage inspections. Despite initiating a focused program utilizing 36 dedicated employees to perform inside and outside meter set inspections, access to inside meters remains difficult. In 2020, 138,416 outside meter inspections were due and 126,895 or 91.7 percent inspections were completed and for inside meter inspections 297,669 inspections due in 2020 and only 90,895 or 30.5 percent of the required inspections completed.

Support Functions and Other Concerns

1. PSE&G identified 18 IT (information technology) systems it uses to support the Gas Delivery function, and currently has many significant replacements and or enhancements contemplated for improved future functionality. One particularly impactful replacement/upgrade is to the Deliver Work Management System which enables the dispatching of work to mobile data terminals and includes functions such as timesheets, facility as-builds, trouble reporting and job status. This system was scheduled to be replaced in 2021 by Mobile Work Management Solution (MWMS). MWMS will provide a simplified interface on mobile devices such as iPhones and iPads, with features such as Talk to Text and attaching pictures of equipment damages. Potentially this system should improve work scheduling, dispatching and completion recording.
2. The Company plans to enhance the GIS Gas Asset Register through the Gas Asset Register Enrichment Initiative (GAREI). Originally, the GIS Gas Asset Register was populated with asset information from the wall map as well as SAP data, and digital gas service data was added from scanned service cards. Consequently, the GIS Gas Asset Register was never complete. In addition to the ongoing use of LocusView, the GAREI project will rescan all of PSE&G's paper main and service asset records.
3. The Gas Delivery function participates in various hydrogen research and development initiatives at the local and national level, including Evaluate the Impact of Hydrogen Gas Blends on LDC Infrastructure Integrity, Odor Detection Study to Determine the Effects of Hydrogen Blends on Odorizing Natural Gas, and the HyBlend Project. The HyBlend Project is a national study managed under a Cooperative Research and Development Agreement.
4. To lessen dependence on fossil fuels and reduce emissions, the state of New Jersey has advanced its diversified clean energy portfolio, referred to as the Energy Master Plan. In

response, PSE&G filed with the BPU a plan to achieve a .75 percent gas energy efficiency goal and a 2 percent electric energy efficiency goal. As an interim target, the BPU determined the energy efficiency programs should achieve at least a .34 percent reduction by June 2023 in gas consumption, and PSE&G reported that through November 2021, their energy efficiency programs have already achieved a reduction of 942,730 MMBTUs.

Review of Prior Management and Affiliate Transaction Audit of Gas Delivery

The previous Management and Affiliate Transactions Audit of PSE&G, Chapter 20: Gas Delivery and Operations Management, dated January 2012, had numerous findings and three recommendations. All three audit recommendations were accepted by PSE&G, and as a result the Company initiated several supportive actions.

Summary of Recommendations

18.1 To support increased collaboration between Asset Management & Planning and Gas Operations departments, PSE&G should pursue the collaboration initiatives cited in the Utility Culture Action Plan Rollout, dated February 2021, with the goal of creating a shared vision, mutual respect, and in-depth understanding of each other's role in achieving excellent business outcomes and outstanding customer service. To confirm the two departments are making progress, a focused employee engagement survey should be periodically conducted, and based on survey results the collaboration initiatives employed adjusted.

18.2 Develop a program that prioritizes the replacement of all short sections (less than 50 feet) of smaller diameter (8-inch and smaller) of cast iron pipe operating above utilization pressure in low priority GSMP grids. The program should have a definitive start and end date consistent with prudent distribution system risk management.

18.3 Augment current Gas Distribution Standards training by stressing the need for correct entries with respect to leak cause. Training should emphasize the importance of this information as it provides the basis for determining which mains and services get replaced.

18.4 Perform an open leak cost-benefit study, similar to what other gas utilities have conducted, to determine if there is a potential cost savings as well as reduced methane emissions associated with fixing leaks sooner.

18.5 If conclusions from the open leak cost-benefit study support reducing the number of open leaks, the Company should develop and commit to a plan of significantly reducing the number of open leaks from end of year 2020 levels.

18.6 Future GSMP filings will recommend continued replacement of cast iron and bare steel in PSE&G's gas distribution system. By continuing to remove these leak prone facilities and assuming normal winter conditions, the Company should experience less leaks per mile in the remaining facilities. Consequently, the Company should continue to commit to the BPU that it will achieve a reduced end of year open leak backlog in concert with any future GSMP filings.

18.7 Develop a written policy and process addressing when and how potential non-pipeline alternatives to traditional long-term system reinforcement projects should be evaluated.

18.8 To demonstrate GSMP success in reducing the Leak Hazard Index per mile of main that remains in its system, PSE&G should develop and annually report to the BPU a suitable metric that emphasizes the inventory of prioritized utilization pressure cast iron main remaining in its system based on the Hazard Index per mile of main per map grid.

Background

Established in 1903, PSE&G is one of the nation's oldest natural gas utilities. Consequently, its gas distribution system also has some of the oldest and largest amounts cast iron pipe. The existing gas distribution system is currently being modernized through an aggressive replacement and upgrade program called Gas System Modernization Program (GSMP). Initiated in 2017, the GSMP was extended in 2019 and upon completion of GSMP II, the Company will have invested $2.8 billion to change approximately 1450 miles of cast iron and unprotected steel to more modern materials.[1]

To manage the GSMP, the Gas Operations department initiated a standardized project management approach, which included forecasting, project schedules, risk registers, lessons learned, project reviews, meeting minutes, Project Management Professional certification training and a Project Management Office (PMO) SharePoint Site. The Gas Construction PMO is addressed in Chapter 19 – Contractor Performance.

To continue to reduce risk associated with its gas distribution system PSE&G plans to file for future GSMP programs as well as maintain its Distribution Integrity Management Program (DIMP) for the replacement and/or rehabilitation of its gas system. These capital programs along with prudent operations and maintenance of Gas Delivery's major assets support the Utility's asset management strategy.

Critical to assessing PSE&G's performance are benchmark performance comparisons, established key performance indicator targets and results, DOT Reportable Incidents, the Company's own internal audit reports, BPU and executive complaints, and customer satisfaction survey results.

Analyzing the system planning function entails a review of the key elements of system planning, system planning flow studies, software utilized, Peak Day forecasting, types of projects initiated, and actions related to new load requests and system reinforcement.

As a highly computerized utility, the Company has numerous IT (information technology) systems in place to aid in the optimization of its operations and response capabilities. A key assessment in this area

[1] Response to OC-0175.

is as new technology evolves is it successfully being introduced into existing IT systems and established work practices.

The balance of this section describes the relative size of the Utility's gas operations, the ranking of its gas system statistics, and the assets that make up the distribution system.

Size of PSE&G's Gas Operations

PSE&G serves almost three quarters of New Jersey's population in a relatively compact area, consisting of 2,600 square miles diagonally across the state from Bergen to Gloucester counties.[2] The Company's territory contains approximately 70 percent of the state's population, the largest six New Jersey cities, and approximately 300 suburban and rural towns and communities. Consequently, PSE&G's gas operations are comparatively large with respect to number of customers supplied and operating revenue. If PSE&G were a stand-alone gas utility, it would rank 12th nationwide based on the number of customers and sixth based on revenues. The below table shows the number of gas customers and respective gas operating revenues for PSE&G and the other largest gas companies.[3]

[2] 2021 PSEG Investor Factbook, page 14.
[3] Response to OC-0139.

Table 18-1 - 2020 Largest Gas Distribution Companies based on Number of Customers

Top 16 Largest Gas Distribution Companies per # of Customers			
Rank	Institution Name	Natural Gas Distribution Customers 2020Y	Regulated Gas Revenue, as Reported 2020Y
1	Sempra Energy	6,967,320	$5,500,000
2	PG&E Corporation	5,498,044	$4,611,000
3	CenterPoint Energy, Inc.	4,678,332	NA
4	The Southern Company	4,308,000	NA
5	Dominion Energy, Inc.	3,419,000	$1,828,000
6	Atmos Energy Corporation	3,333,181	$2,626,993
7	NiSource Inc.	3,212,633	NA
8	WEC Energy Group, Inc.	2,952,900	$1,195,600
9	ONE Gas, Inc.	2,217,000	$1,503,300
10	Southwest Gas Holdings, Inc.	2,123,000	$1,350,585
11	Xcel Energy Inc.	2,093,094	$1,636,000
12	Public Service Enterprise Group Incorporated	1,864,691	$1,717,000
13	CMS Energy Corporation	1,804,000	$1,817,000
14	Spire Inc.	1,713,173	$1,751,800
15	AltaGas Ltd.	1,700,000	NA
16	Duke Energy Corporation	1,658,606	$1,642,000
Response to OC-0139.			

Approximately 10 years ago when a similar comparison of the largest gas distribution companies by number of customers was made, PSE&G ranked 11th. During the last decade, PSE&G's customer count increased by 7.1 percent from 1,740,00 to 1,864,000, but some industry participants have grown faster through a combination of organic growth and/or utility industry mergers and acquisitions, accounting for the somewhat reduced ranking of PSE&G's size.

Gas Assets and System Statistics

PSE&G's gas system contains a total of approximately 35,521 miles of pipe of which 18,144 miles are designated as main system pipe, 17,323 miles identified as service pipe and 54.1 miles of pipe defined as transmission system pipe. Pipe sizes vary from a minimum of 0.5-inch diameter to a maximum of 42-inch diameter, while pressure can range from a minimum of 4 inches water column utilization pressure to a maximum of 722 PSIG (pounds per square inch gauge).[4] PSE&G's transmission system operates at a minimum pressure of 250 PSIG, while delivering gas to the distribution piping system at a variety of pressures including: 0.25 PSIG, 15 PSIG, 60 PSIG, 120 PSIG and greater than 120 PSIG. The reduction in pressure is accomplished using 102 pounds to pounds regulators and/or 1081 pounds to inches regulators.[5] In addition, the Company has approximately 1.8 million meters in service, of which 33 percent are located inside the house or commercial building.[6]

[4] https://energyeducation.ca/encyclopedia. PSIG stands for pounds per square inch gauge. Gauge pressure is pressure relative to atmospheric pressure.

[5] Asset Management & Planning Kickoff Presentation, slide 38.

[6] Response to OC-0146.

The Company is served by four interstate transmission pipeline system suppliers: Transco (The Williams Companies), Enbridge (Enbridge, Inc.), Tennessee (Kinder Morgan, Inc.) and Columbia (TC Energy Corp.). Gas enters PSE&G's system at one of their 58 meter and regulating stations, where it is then dispersed throughout the Company's transmission and distribution system. The Utility's supply portfolio is supported by three liquid propane air peak shaving plants, one liquid propane gas storage facility and one liquefied natural gas peak shaving facility.

PSE&G operates and maintains a large network of main and service pipe to distribute gas to its approximate 1.8 million customers. Since the Company's service territory is densely populated, it has a high number of customers per mile of main and ranks 13th nationwide in system density. These statistics, along with additional distribution system assets and related statistics, are shown and ranked nationally in the following table.

Table 18-2 - 2019 Relative Ranking of PSE&G Gas System Statistics

Public Service Electric and Gas Company Corporate Comparison Data		
Metric	**Value**	**Rank**
Total Customers	1,864,691	12
Total Deliveries to End-Users (Mcf)	371,262,306	9
Residential Share of Total Deliveries	37.74%	97
Total Sales Deliveries (Mcf)	195,386,260	7
Transportation Share of Total Deliveries	47.37%	84
Residential Sales Revenue ($/Mcf)	$8.48	169
Commercial Sales Revenue ($/Mcf)	$8.30	114
Use Per Customer (Mcf/Yr)	199.9	100
Use Per Residential Customer (Mcf/Yr)	86.0	77
Use Per Commercial Customer (Mcf/Yr)	368.1	139
Total Miles of Main	18,144	17
Miles of Main - Cast Iron Share	17.20%	6
Miles of Main - Plastic Share	51.36%	114
Average Length of Service (Feet)	73	68
System Density (Cust/Mile of Main)	70.0	13
Percent Unaccounted for Gas	1	64
Source: Response to OC-0139 and AGA Statistics Database.		

Asset Management & Planning and Gas Operations Organizations

Vision and Mission

PSE&G's corporate vision is to be a recognized leader for "people providing safe, reliable, economic and green energy." To support this vision for the Gas Delivery function, PSE&G has advanced two major organizational entities, Asset Management & Planning and Gas Operations. The Asset Management &

Planning department does not have a written mission statement, but states, the "department has established and ensured all actions align with the corporate vision,"[7] while Gas Operations organization mission is to provide its customers with "world-class gas distribution and appliance services."[8]

Organization

PSE&G's gas procurement and delivery function is spread over two major entities: the Asset Management & Planning department and the Gas Operations department, with Asset Management & Planning primarily doing the planning, and Gas Operations principally responsible for the execution. For sound strategy implementation it is essential that both entities work closely together assure efficient gas supply and effective delivery systems.

Asset Management & Planning Department

The Asset Management & Planning department consists of the following groups:[9]

- Electric Delivery Planning
- Energy Supply Acquisition and Operations
- Electric Asset Strategy Tech & Systems
- Investment Planning, Business Improvements and Processes
- Gas Transmission & Distribution Engineering

The last group listed, Gas Transmission and Distribution Engineering is dedicated to gas related activities, while two other sections Energy Supply Acquisition and Operations and Investment Planning, Business Improvement and Processes have split responsibilities between electric and gas interests. The PSE&G gas supply organization, PSEG Energy Resources & Trade, is fully discussed in Chapter 6 - Gas Procurement and Supply.

Gas Transmission and Distribution Engineering

Within Gas Transmission and Distribution Engineering the following essential gas utility undertakings are covered: System Reliability, Gas Systems Operations Center, Operation & Maintenance of Meter & Regulating Stations and Gas Plants, Gas Asset Strategy, Gas Asset Management, Transmission and Distribution Integrity Management, Transmission Pipeline Maintenance, Operating Standards & Procedures, Material Evaluation & Specification, and Research & Development Program.[10]

Investment Planning, Business Improvement and Processes

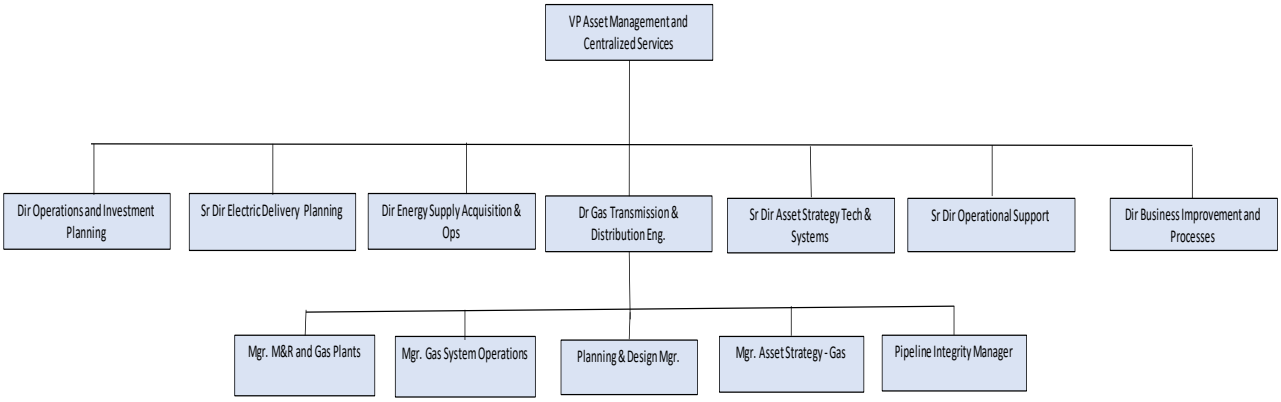
Investment Planning, Business Improvement and Processes provides the following services: Investment Planning, Business Operations Support, Capital 10 Year Planning, Governance and Oversight of Fixed

[7] Response to OC-1073.
[8] Response to OC-0134.
[9] Response to OC-0750.
[10] Opening Remarks & Company Overview Kickoff Presentation, pages 18, 30, and 54.

Assets, Governance and Oversight of Utility Business Processes, Utility Wide Business Processes and Practices, and Operational Compliance.

The chart below describes the organization for Asset Management & Planning with the supporting Gas Transmission and Distribution Engineering organization detailed.

Table 18-3 - Asset Management & Planning Department Organization Chart with Supporting Gas Organizations (June,2021)



Response to OC-0148 (Confidential).

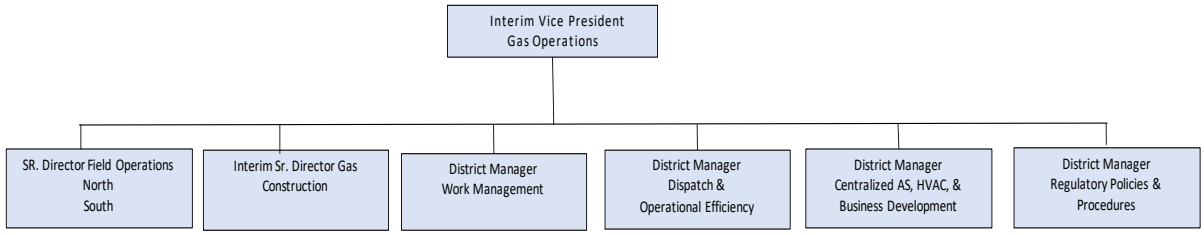
Gas Operations Department

The major disciplines and work activities within Gas Operations department are all-natural gas related, with the lone exception being underground electric cable markouts, which are managed for the Electric department by Gas Operations. Major endeavors within Gas Operations consist of Field Operations, North & South Gas Construction, Dispatch & Operational Efficiency, Regulatory Operations, Policies & Procedures, Business Development & Operational Support, Centralized Appliance Services & HVAC Gas Operations, Gas Project Management and Appliance Service.[11]

These functions, along with the position current titles, are shown in the following organization chart.

[11] Response to OC-0138.

Table 18-4 –- Gas Operations Organization Chart



Response to OC-0148 (Confidential).

In addition to a general office staff, the Gas Operations organization is geographically located in two operating divisions: Northern and Southern. Within these divisions are 12 gas distribution headquarters, four regional field construction operations and numerous satellite office facilities.[12]

PSE&G's gas organization at one time was consolidated in a Gas Business Unit with gas supply and delivery responsibilities in a single organization. However, in 2003, to maximize synergies and minimize duplication, the asset management and supply functions were separated from gas operations; and gas asset management and supply were combined with Electric Asset Management. This reorganization allowed Gas Operations to concentrate on field operations and construction and Asset Management to focus on supply, engineering, system design and financial budgets. The Company believes that the present structure brings significant benefits in the form of increased efficiencies, as compared to the previous organization structure.[13]

However, no organization structure is perfect and there may be some shortcomings with the gas function being spread over multiple departments. In 2020, an Employee Engagement Survey disclosed only 43.7 percent of the employees surveyed believed "There is effective collaboration across departments at PSEG." The respective scores for Asset Management & Planning and Gas Operations were similar to the PSEG's corporate average at 47 percent and 43.6 percent, respectively.[14] As a follow-up to the survey results, PSE&G initiated a Utility Culture Action Plan Rollout, dated February 2021.[15] The plan highlights effective collaboration across departments as a least favorable takeaway and contains several initiatives to support improved collaboration.

In view of this finding, Overland asked how effective communications and information sharing are maintained between the two departments and to provide several examples that support this conclusion. In response PSE&G stated "at the leadership level, the VPs report to the same President... and at the

[12] Response to OC-0146.
[13] Response to OC-0751 (Confidential).
[14] Response to OC-0781.
[15] Response to OC0-554 (Confidential).

management and department levels, both departments participate in monthly/regular meetings…" In addition, the following examples were provided:[16]

- "Partnering on gas emergency response to help protect the gas system.
- Coordination on gas leak reduction strategy.
- Coordination of gas system pressure settings and monitoring.
- Participation in monthly financial debrief meetings to review financial planning, results, forecasts, and initiatives.
- Joint participation in an Engineer Committee."

Overland believes that collaboration between Gas Operations and Asset Management & Planning is critical if PSE&G is to meet its vision of providing safe, reliable, and economic natural gas; and strongly supports the collaboration initiatives cited on page 9 in the Utility Culture Action Plan Rollout.

To support increased collaboration between Asset Management & Planning and Gas Operations departments, PSE&G should pursue the collaboration initiatives cited in the Utility Culture Action Plan Rollout, dated February 2021, with the goal of creating a shared vision, mutual respect, and in-depth understanding of each other's role in achieving excellent business outcomes and outstanding customer service. To confirm the two departments are making progress, a focused employee engagement survey should be periodically conducted, and based on survey results the collaboration initiatives employed adjusted.

Gas Delivery Staffing

To deliver natural gas effectively and efficiently to its customers, PSE&G needs appropriately staffed disciplines and activities found in Gas Operations and Asset Management & Planning's Gas Transmission and Distribution Engineering group, which includes Gas System Operations Center (GSOC), Meter and Regulating (M&R) stations, and the Gas Peaking Plants. Consequently, the following table consolidates staffing found in these various entities into one table, called the Gas Delivery Function Staffing. The table also describes the total number of employee full-time equivalents (FTE's) from 2016 through 2020. As can be seen, staffing levels are relatively flat except for an employee FTE increase in Gas Operations between 2016 and 2017, when the Company geared up to support the Gas System Modernization Program (GSMP) work. The GSMP work resulted in an increase in both Management (MAST) and Bargaining Unit (BU) employees.[17]

[16] Response to OC-0751 (Confidential).
[17] Response to OC-0138.

Table 18-5 – Gas Delivery Function Staffing

Public Service Electric and Gas Gas Operations and Gas T&D Engineering FTEs					
Function	**2016**	**2017**	**2018**	**2019**	**2020**
Field Delivery, Regulatory, & VP	1,112	993	997	967	963
Appliance Service, White Goods, Business Development & Dispatch	1,089	1,064	1,040	1,021	1,136
Gas Construction	-	356	404	423	328
Gas Transmission and Distribution Engineering	87	90	93	95	99
Total	2,288	2,503	2,534	2,506	2,526
Responses to OC-0138 and OC-0750.					

Gas Delivery Function Training

A skilled and well-trained workforce is essential to PSE&G if it is to be successful in operating and maintaining its gas distribution system. For the year 2020 the Gas Operations Technical Training team provided technical training sessions on apprentice training in two different sessions I and II, backhoe training, welding training and operator qualification. These courses vary in number of students attending and length of training. For example, backhoe training involved 37 students trained for total of seven weeks.[18]

In addition to technical training there is management and professional training offered to MAST employees, covering such topics as, social media, political compliance, the FERC, workplace harassment, cybersecurity, standards of conduct, etc. MAST employees are also eligible for additional annual training utilizing the Empower HR system addressing such areas as: damage assessments, parts 1 and 2 policy and procedures, and hiring manager training.

To supplement its training programs, the Company encourages employees to participate in numerous gas industry committees. Industry committees provide an excellent forum to exchange experiences and supplement the participant's knowledge in a given area of Gas Delivery. Forty-seven PSE&G employees participate in the American Gas Association and forty- three participate in the Northeastern Gas Association, in either a member or correspondence member role.[19]

PSE&G also encourages employees for industry certifications and/or licenses. Licenses vary from professional engineers in New Jersey to Lean Six Sigma –Green Belt.[20]

[18] Response to OC-0142.
[19] Response to OC-0149.
[20] Response to OC-0202.

Asset Management & Planning Department

In this next section, we present a brief description of the work performed and best practices in the two Asset Management & Planning groups with natural gas responsibilities, Gas Transmission and Distribution Engineering and Investment Planning, Business Improvement and Processes.

Best practices, when identified and embraced, can help a company run more efficiently and effectively by streamlining operations in an organization, allowing the organization to achieve its goals and objectives.

Gas Transmission and Distribution Engineering

Subsections within Gas Transmission and Distribution Engineering are Gas Asset Strategy and Management, Planning and Design, Transmission Integrity Management, Gas System Operations Center, Meter & Regulating Stations and Gas Plants.[21] In addition, the group has responsibilities for operating standards and procedures, material evaluation and specification, and research and development programs.

Gas Asset Strategy and Management

The Gas Asset Strategy and Management section is responsible for the reliability of the gas distribution system, managing the Distribution Integrity Management Program (DIMP), developing capital planning requirements to ensure reliability strategies, and submission of various regulatory reports.[22]

Best Practices
In the gas asset function, PSE&G employs a variety of best practices including:[23]

- **Documented gas assets** – The overall strategy for maintaining major gas assets is documented and updated annually, coupled with processes identifying and prioritizing specific gas assets for replacement.
- **Replacement policy** – Publishes a main and service replacement policy to guide replacement of failure prone legacy pipe.
- **Failure prone equipment policy** – Documented policy to address known failure prone equipment in the distribution system.
- **Leak analysis** – Conducts a monthly leak analysis providing reports to senior leadership.
- **DIMP** – Annually updates the DIMP and distributes DIMP alert bulletins.

[21] Response to OC-0779.
[22] Response to OC-0815.
[23] Response to OC-0822.

- **Risk modeling software** – Anticipates implementation of a probabilistic risk modeling software analysis tool in mid-2022.

Planning and Design

The Planning and Design group performs the gas system planning function and is responsible for providing adequate and proper service based on PSE&G design standards, performing distribution system modeling, providing guidance for system pressure settings, offering non-firm customer interruption guidance, identifying system reinforcement needs and additional supply, and maintaining the Metering & Regulating Station Failure Manual.[24]

Best Practices

In the gas system planning function, PSE&G utilizes various industry best practices including:[25]

- **Network analysis software** – Utilization of state-of-the-art Synergi hydraulic network analysis software.
- **Network accuracy** – Verification of network accuracy through "cold day" models.
- **Pressure monitors** – System contains numerous pressure monitors equipped with electronic pressure recorders for improved reliability and model verification.
- **Temporary system outages** – Maintains a list of temporary system outages to improve real-time system analysis and outage planning.
- **Growth areas** – Incorporates potential areas of growth to improve accuracy of annual load growth modeling.

Transmission Integrity Management

The Transmission Integrity Management group is responsible for overseeing all work associated with PSE&G's gas transmission system and high-pressure distribution pipelines operating over 120 PSIG in accordance with regulatory requirements. The group oversees compliance with the Company's Transmission Integrity Management Program (TIMP) including in-line inspection, direct assessments, high and medium consequence area reviews, and other system studies.[26]

Best Practices

Leading industry practices utilized by the Transmission Integrity Management group include:[27]

[24] Response to OC-0200.
[25] Response to OC-0207.
[26] Response to OC-1075.
[27] Response to OC-1101 (Restricted and Confidential).

- **Manage Gas Transmission Integrity –** Successfully developed and applies TIMP principles of assessment, remediation, and continuous evaluation of threats to ensure transmission pipeline integrity.
- **Use of In-line Inspection Tool (ILI)**– Has continually modified various transmission lines to allow passage of an ILI robotic tool. The most recent modification occurred to transmission line B3 in 2020.
- **Frequent audits** – Since 2011 the Company's TIMP has been reviewed either by PSE&G's internal audit staff or independent third-party auditors on five occasions.

Gas System Operations Center

The Gas System Operations Center (GSOC) is charged with two major responsibilities, first to ensure a steady and economic supply from the four interstate pipelines serving PSE&G's territory and second, to monitor and control distribution system pressures, gas quality and emergency response.[28] A forecast based on historical usage, weather forecasts and a statistical load curve is used to predict daily load. The GSOC is currently upgrading the Gas Management and Control System (GMACS) program to improve its functionality, reliability, and cybersecurity. In addition to improve third-party supplier communications, reporting and nominating, the gas electronic bulletin board (EBB) is being replaced with an enhanced vendor solution.

Best Practices

In the GSOC, incorporates various best practices in its gas control center including:[29]

- **Control room operations** – Adopted a number of control room operations practices as advocated by AGA's Gas Control committee including backup control room, shift schedules, fatigue management, alarm management, and workload schedules.
- **Regulatory protocols** – Implemented Transportation Security Administration (TSA) Pipeline Security Guidelines/National Institute of Standards and Technology (NIST)protocols including cyber asset inventory, change and configuration, information sharing and communications, annual cybersecurity risk assessments, vulnerability testing, situational awareness and training, and NIST Cyber Security Framework.
- **Critical infrastructure protection** – Initiated North American Electric Reliability Corporation (NERC) Standards Critical Infrastructure Protection (CIP) protecting GSOC including multifactor authentication, 24/7 security monitoring, seven year and network firewalls.

[28] Response to OC-0226.
[29] Response to OC-0228.

Meter & Regulating Stations and Gas Plants

The Meter & Regulating and Gas Plant group is responsible for the maintenance and operation of the meter and regulating stations, remote controls for pounds-to-pounds regulators and control points, and certain measurement and regulation facilities. In addition, the group operates and maintains the facilities used to augment gas distribution natural gas supplies during peak load conditions including the propane air, LNG peak shaving and LPG storage facilities. Also, the group is responsible for the chemical analysis of gas supplies.[30]

Best Practices

In the Meter & Regulating and Gas Plant function, PSE&G has developed and uses the following industry best practices:[31]

- **Detailed procedures** – Detailed operations and maintenance procedures for the various task required to be performed in Meter & Regulating stations and Gas Plants.
- **Redundant equipment** – Utilizes redundant equipment where feasible to minimize the possibility of disrupting normal operations.
- **Modernized and hardened facilities** – As a result of the Energy Strong Program was able to modernize equipment, as well as harden facilities against flooding.
- **Reduced fuel usage** – In order to reduce fuel usage developed control schemes for heating equipment.

Investment Planning, Business Improvement and Processes

The Investment Planning, Business Improvement and Processes group gas related activities include a variety of budget related activities including preparation and monitoring of capital and operations and maintenance (O&M) budgets, variance analysis, and future year resource planning for Gas Operations.

Best Practices

The Investment Planning, Business Improvement and Processes group has developed and utilizes the following industry best practices in its activities:[32]

- **Performance reporting** – Extensive and complete performance reporting on capital, O&M and related activities.
- **Resource planning** – Utilizes a distribution resource planning tool annually to project required future year full-time equivalents and overtime requirements.

[30] Response to OC-0779.
[31] Response to OC-0877.
[32] Response to OC-1074 (Confidential).

- **Daily tracker** – Between end of the month budget reports, utilizes a daily tracker to monitor actual O&M performance.

Gas Operations Department

To carry out the Gas Operations department's mission of providing world-class gas distribution and appliance services, we will review gas headquarter facilities locations, describe aspects of the work performed by distribution crews, briefly discuss the Gas Construction group formed in 2017 and the continued use of contractors to work on gas infrastructure, as well as the best practices the Department employs. For an in-depth discussion on the formation and work of the Gas Construction group and the continued use of contractors, please refer to Chapter 19 – Contractor Performance.

Headquarter Facility Locations

Given the compactness of PSE&G'S gas service territory and the general traffic congestion that exists within state of New Jersey, it is essential that the Company's field offices be appropriately located to properly serve its customer base. Well located facilities help to ensure timely emergency response and minimize travel time in connection with construction and maintenance activities. PSE&G's Gas Operations field staff is geographically dispersed to 12 district offices, two division offices, four regional construction offices and numerous satellite locations. The field distribution headquarters are in Oakland, Oradell, Clifton, Orange, Harrison, Jersey City, Summit, Plainfield, New Brunswick, Trenton, Burlington, and Audubon.[33] In addition, the Company has a centralized training facility in Edison and a general office in Newark.

Distribution Crew Work Characteristics

Typically, gas distribution crews report to one of the 12 district headquarters at the start and end of their workday. When assigned to special projects, crews may report to a non-district location or directly to a construction site, enabling reduced travel time and expanded worksite time.

The Gas Operations department can field approximately 135 crews each day. The typical distribution crew size varies from 3 to 4 individuals, and all planned work is regularly scheduled from 7 AM to 3:30 PM. Crews are led by bargaining unit personnel enabling Gas Operations to maintain a supervisory span of control of 12 to 1 or greater.[34] PSE&G's workforce performs a variety of gas distribution capital and maintenance work and exclusively completes main tie-ins and abandonments, system uprates, and leak investigations.

To help manage the work, Gas Operations department currently utilizes a work management system called Deliver Work Management System (DWMS). The system enables work dispatching, job completion recording, and bargaining unit timesheet entry to update the various linked systems.

[33] Responses to OC-0138 and 0750.
[34] Response to OC-0137.

However, the Company is transitioning to a new work management system called Mobile Work Management Solution (MWMS), which was expected to be implemented in the fourth quarter of 2021. This new system should improve functionality and work efficiency by providing a consistent and enhanced mobile experience for field workers and by eliminating processes patterned after paper methods no longer in use. In addition, the new system will simplify processes on mobile devices such as iPhones and iPads,[35] streamlining equipment updates and reducing downtime associated with operating system updates.[36]

Typically, distribution crews will work on capital related projects, i.e., installing new mains, new services, replacing existing mains, renewing existing services, etc. or maintenance work primarily locating and repairing gas leaks. Gas Operations department estimates that approximately 70 percent of the work performed by distribution crews is capital work and the remaining 30 percent is maintenance work.[37] Since the formation of the Gas Construction group, the capital hours worked by PSE&G's internal gas workforce has steadily increased.[38]

Gas Construction Group

In 2017, PSE&G established the Gas Construction group to efficiently address the replacement of cast-iron and unprotected steel main and related service renewal workload associated with the Gas System Modernization Program (GSMP). GSMP operates by replacing the identified distribution facilities in defined map "grids" requiring a high level of coordination with municipalities and increased customer communications. Staffing for this new organization was filled from existing distribution employees as well as external hires.

Contractors

Qualified contractors provide significant support for PSE&G's capital programs. Most of the work performed by contractors consists of replacement mains and services associated with the GSMPs. This support is needed to achieve the GSMP replacement goals. In addition, contractor's complete large diameter steel pipe installations (12-inch or greater), horizontal directional drilling, valve repairs, bell joint encapsulations, permitting, and to a far lesser extent, other distribution activities.[39]

Best Practices

Similar to the Asset Management & Planning department, the Gas Operations department has sought out and employs numerous best practices. Gas Operations reported the best practices the department believes it incorporates into its work, as follows:[40]

[35] Response to OC-0191.
[36] Response to OC-0697.
[37] Response to OC-0137.
[38] Response to OC-0143.
[39] Responses to OC-0143 and 0699.
[40] Responses to OC-0136 and 0696.

- **Controlling the Flow of Gas and Double Block and Bleed** – A double block and bleed configuration is like having three valves in one and is used to manage flow control activities ensuring a safe work area.
- **Safety Commitment Statement and Culture** – Each employee is encouraged to recognize they are responsible for their own safety and the safety of others by understanding it is their obligation and right to question any unsafe act or procedure.
- **Quality Assurance/Quality Control** – Promotes a quality base structure by staffing its organization with QA/QC specialist assigned to complete site audits at Company and contractor work sites.
- **Standards and Design** – Planning group completes electronic job layout with written procedures for critical operations. Also, this group tests and introduces new materials and equipment to field.
- **Robust Locating Program** – Reduced facility damage rates have occurred as a result of using a 3rd party company for ticket clearing and scheduling.
- **Public Awareness Training Outreach Program –** For excavators and outside emergency response groups to help build an understanding of gas safety initiatives.
- **Incident Command Center Structure –** Assists response management by establishing a more structured emergency response with clearly defined clear roles and responsibilities.
- **Barcode Facility Identification** – Using LocusView, to enable GIS location of newly installed facilities, including pipe valves and fittings, which will be helpful in the future facility locates.
- **Specialized Construction Group** – Created to perform GSMP work efficiently and cost-effectively, ultimately reducing gas facility leak rates.
- **Laser Gas Detector –** Allows for detection of leaks in areas that are difficult to inspect, for example searching for leak through a window in a locked building helping to ensure the buildings safety.

Based on Overland's extensive industry knowledge, we believe the best practices employed by the various units within PSE&G's Gas Delivery function indicates that they willingly seek out leading industry practices and are anxious to employ them in the work environment. Since best practices involve improved efficiency and effectiveness in the workplace by streamlining external and internal operations, we should expect an improvement in performance. In this next section will look at the performance of the Gas Delivery function.

Performance

To assess the performance of PSE&G's Gas Delivery function, Overland reviewed Company benchmark performance comparisons with other gas or combination gas and electric utilities, assessed established

key performance indicator targets and results, reviewed DOT (Department of Transportation) Reportable Incidents where the Company might be at fault, looked over internal audit reports to provide insight regarding audited risks and controls, reviewed BPU complaints and executive complaints in regards to expressed customer concerns, and looked at the recently initiated Transaction Satisfaction Survey, which samples customer reactions to service provided. In Chapter 19 – Contractor Performance we examined the Construction Efficiency report established in 2019 to monitor the newly formed in-house construction operation.

Benchmark Comparisons

Consistent with its vision, PSE&G participates in several benchmark studies comparing its performance to other gas or combination gas and electric utilities in the United States. **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. In developing its benchmark comparisons, PSE&G used the following data sources:

[BEGIN CONFIDENTIAL]

- [redacted]
- [redacted]
- [redacted]

[END CONFIDENTIAL]

In general, the Company has performed well in comparison to other utilities included in the benchmark studies. As shown in the table below, where a low number in the metric comparisons is desirable, PSE&G results are either 1st decile, first quartile, or second quartile. And where a high number is desirable, the Utility's results are either third quartile or fourth quartile. While these comparisons yield positive results, Overland believes there is room for improvement in Open Leaks with the year-end backlog of 965 in 2020 and Gas Damages Locate Requests at a rate 1.81 damages per 1000 locates.[41] We will provide a detailed discussion regarding open leaks later in this chapter and gas damages in Chapter 19 – Contractor Performance.

[41] Responses to OC-0206 and 0709 Update.

Table 18-6 - 2019 Data Year Benchmark Result

Public Service Electric and Gas Gas Operations and Asset Management & Planning Benchmark Summary 2020 Data Year Results						
	*	PSE&G	Top Decile	1st Quartile	2nd Quartile	3rd Quartile
OSHA Recordable Incidence Rate	L	1.26	1.12	1.72	2.58	3.44
OSHA Days Away Rate (Severity)	L	17.10	13.48	18.84	25.02	41.47
Motor Vehicle Accident Rate	L	7.14	4.23	6.71	7.91	10.33
Gas Leak Reports per Mile	L	0.200	0.166	0.191	0.292	0.450
Open Leaks	L	965	1,270	1,446	2,611	8,008
Leak Response Rate	H	99.9%	99.9%	99.6%	98.0%	96.8%
Average Leak Response Time	L	26.0	18.9	21.6	25.6	30.3
Total Damages / 1,000 Locate Requests	L	1.07	1.03	1.14	1.30	1.72
Gas Damages / 1,000 Locate Requests	L	1.81	1.17	1.46	2.20	2.82
Appointments Kept (competitive service..	H	93.2%	100.0%	100.0%	98.8%	97.9%
Gas Construction Cost / Dth	H	$1.44	$2.70	$2.42	$1.78	$0.66
Gas Construction Cost / Customer	H	$259.82	$374.18	$325.68	$234.39	$165.60
Gas Distribution O&M per Customer	L	$52.81	$53.00	$61.48	$77.89	$119.69
Gas Distribution O&M per Dth	L	$0.29	$0.36	$0.67	$0.85	$1.02
Response to OC-0709.						
* Indicates if higher or lower is better						

Key Performance Indicators

The Company focuses on a broad number of key performance indicators (KPI's) to help drive safety, customer perception, operational, and financial results. KPIs are measurable values that PSE&G uses to determine how effectively an individual, a group or an organization is achieving identified business objectives.

Asset Management & Planning Department

Each group within the Asset Management & Planning organization has some shared KPIs and where appropriate their own specific KPIs. For each group, Overland requested a definition for each KPI, the reason why the KPI was selected, and a discussion of how the performance goal or target for each KPI was set. In general, targets are established based on the previous year's performance or a need of the business; and targets are reviewed annually and adjusted based on performance or business needs. As can be seen for most KPIs, the various Asset Management and Planning department groups have been able to meet target expectations and minimize significant gaps in performance.

Gas Transmission and Distribution Engineering

Gas Asset Strategy and Management

The table below contains for Gas Asset Strategy and Management the target and actual performance for each KPI from 2016 through 2020, as well as the targets established for 2021. A brief explanation of selected KPIs used by Gas Asset Strategy and Management follows the table.[42]

[42] Responses to OC-0819 and 1587.

Table 18-7 - KPI Results for Gas Asset Strategy and Management

KPI Results Gas Asset Strategy Group											
	2016		2017		2018		2019		2020		2021
METRIC	Target	Score	Target	Score	Target	Score	Target	Score	Target	Score	Target
Open Leaks	1710	1649	1563	1481	1,466	1,230	1,218	1,123	1,112	965	955
Gas Leak Reports per Mile	0.234	0.242	0.234	0.229	0.234	0.247	0.245	0.219	0.229	0.200	0.210
Regulatory Notice of Violations	N/A	N/A	0	0	0	1	0	0	0	0	0
Regulatory Reporting	N/A	N/A	100%	96%	100%	96%	100%	100%	100%	100%	100%
New Regulation Action Items	N/A	N/A	75%	95%	N/A	N/A	75%	75%	75%	100%	75%
Technical Manual Updates	N/A	N/A	95%	93%	95%	100%	95%	92%	95%	100%	95%
Response to OC-0819 and OC-1587.											

- Open Leaks - Number of open main and service gas leaks.
- Gas Leak Reports per Mile – Number of leak reports per mile of main and service piping.
- Regulatory Notice of Violations – Number of regulatory violations received from: BPU, PHMSA, NJDEP, or NJEPA citing violations accountable to Gas T&D Engineering.
- Regulatory Reporting – Calculation of the timely submission regulatory reports.
- New Regulation Action Items – Encompasses action plan items completed on schedule and on scope in comparison to new regulations issued.
- Technical Manual Updates – Completion of timely updates to various manual.

Planning and Design

The table below contains for Planning and Design the target and actual performance for each KPI from 2016 through 2020, as well as the targets established for 2021. These KPIs are important to assure proper distribution system operations. A brief explanation of certain KPIs used by Planning and Design follows the table:[43]

Table 18-8 –- KPI Results for Planning and Design

KPI Results Gas Planning and Design Group											
	2016 (when available)		2017		2018		2019		2020		2021
METRIC	Target	Score	Target	Score	Target	Score	Target	Score	Target	Score	Target
Gas System Planning											
Overpressure Excursions	N/A	N/A	110	91	99	9	89	5	35	3	20
Winter Prep Activities	N/A	N/A	100%	96%	100%	100%	100%	100%	100%	92%	100%
Unplanned Pressures Below Design Minimum	N/A	N/A	1	0	1	0	0	0	0	0	0
Gas Planning & Design											
Appliance Service Technical Support Turnaround (Days)	N/A	N/A	3.0	1.1	2.5	1.0	2.5	1.0	2.0	1.0	2.0
Gas Operations Project Support	N/A	N/A	85%	98%	90%	100%	90%	100%	95%	100%	95%
Design Review Turnaround (Days)	N/A	N/A	2.5	1.6	2.5	0.8	2.5	0.7	2.0	0.5	2.0
Material Failure Investigation Turnaround (Days)	N/A	N/A	10.0	6.4	9.0	4.5	9.0	3.9	9.0	5.0	9.0
Response to OC-1426.											

- Winter Prep Activities – Completion of activities in advance of the winter season to ensure adequate preparedness.

[43] Response to OC-0204.

- Unplanned Pressures Below Design Minimum - The number of localized areas experiencing below design minimum pressures (15, 60 and 120 PSIG systems only) on days at or below 20-degree day avg.
- Overpressure Excursions – Related to system safety and qualifies the number of times actual system pressure exceeds the maximum allowable operating system pressure (excludes utilization pressure).

Transmission Integrity Management

The table below contains for Transmission Integrity Management the target and actual performance for each KPI from 2016 through 2020, as well as the targets established for 2021.[44] These KPIs are important to assure proper transmission system operations. A brief explanation of select KPIs used follows the table.

Table 18-9 –- KPI Results for Transmission Integrity Management

KPI Results Gas Transmission Management											
	2016		2017		2018		2019		2020		2021
METRIC	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Regulatory Notice of Violations	N/A	N/A	0	0	0	1	0	0	0	0	0
Regulatory Reporting	N/A	N/A	100%	96%	100%	96%	100%	100%	100%	100%	100%
New Regulation Action Items	N/A	N/A	75%	95%	N/A	N/A	75%	75%	75%	100%	75%
Technical Manual Updates	N/A	N/A	95%	93%	95%	100%	95%	92%	95%	100%	95%
Winter Prep Activities	N/A	N/A	100%	96%	100%	100%	100%	100%	100%	92%	100%
Overpressure Excursions	N/A	N/A	110	91	99	9	89	5	35	3	20
Integrity Management Assessments	N/A	N/A	N/A	N/A	100%	100%	100%	100%	100%	100%	N/A
Response to OC-1425.											
Note – There is no 2021 target for Integrity Management Assessments because no assessments are scheduled in 2021.											

- Integrity Management Assessments - Completed IMP assessments (on schedule and on scope) versus the total scheduled for the year.

Gas System Operations Center

The table below contains for the Gas System Operations Center (GSOC) the target and actual performance for each KPI from 2016 through 2020, as well as the targets established for 2021.[45] The Company notes that the 2 percent measurement report, cybersecurity and overpressure excursions were challenging to establish and took time to understand what level of influence could be exerted in these areas. Thus, while the metrics were initially set at higher levels, they are now in 2021 being set more consistently with prior year results. A brief explanation of several of the KPIs used by GSOC follows the table.

[44] Response to OC-1425.
[45] Responses to OC-0227 and 1427.

Table 18-10 – KPI Results for Gas System Operations Center

KPI Results Gas System Operations Center									
Year	2017		2018		2019		2020		2021
KPI	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Availability	98.50%	99.30%	98.70%	98.50%	98.40%	99.40%	98.50%	96.60%	N/A
2% Measurement Report (Sox Control):	1.50%	0.90%	1.00%	0.15%	1.00%	0.08%	0.15%	0.05%	0.15%
Forecast Measurement	6.00%	1.32%	5.00%	1.57%	4.50%	1.47%	1.57%	4.93%	2.66%
Regulatory Reporting	100%	100%	100%	96%	100%	100%	100%	100%	100%
Compliance Programs	100%	100%	100%	100%	100%	100%	100%	100%	100%
Cybersecurity	2	2	0.46	0.56	0.77	1.00	0.74	0.67	91%
Overpressure Excursions	110	91	99	9	89	5	35	3	20
Unplanned Station / Plant Outages	1	1	1	1	1	0	1	1	1
Unplanned Pressures Below Design Minimum	1	0	1	0	0	0	0	0	0
Response to OC-0227 and OC-1427.									

- 2 Percent Measurement Report – The variance between interstate pipeline vendor billing and gas delivered as measure by PSE&G.
- Cybersecurity – An index based on a broad range measure of best cybersecurity practices.
- Unplanned Station/Plant Outages – Removal of a station from active service due to PSE&G equipment failure or operator error.
- Unplanned Pressures Below Design Minimum – Occurs when areas of the system are experiencing below design minimum pressure (excludes utilization pressure).

Meter and Regulating and Gas Plants

The table below contains for the Meter & Regulating and Gas Plant group the target and actual performance for each KPI from 2016 through 2020, as well as the targets established for 2021.[46] An important KPI for the Meter & Regulating and Gas Plant group is overpressure excursions. Reviewing the KPI data for this metric indicates that the target initially was set extremely high as compared to actual results, as the Company was continuing to develop this metric, and the target 2021 is becoming more realistic based on results from previous years. A brief explanation of several of the KPIs used by Meter & Regulating and Gas Plants group follows the table.

[46] Responses to OC-0874 and 1428.

Table 18-11 – KPI Results for Meter & Regulating and Gas Plants

KPI Results Gas Meter & Regulating											
Measure	2016		2017		2018		2019		2020		2021
	Results	Target	Results	Target	Results	Target	Results	Target	Results	Target	Target
Overpressure Excursions	n/a	n/a	91	110	9	99	5	89	3	35	20
Regulatory Reporting	n/a	n/a	100%	100%	100%	100%	100%	100%	100%	100%	100%
Unplanned Station / Plant Outages	n/a	n/a	1	1	1	1	0	1	1	1	1
2% Measure Report	n/a	n/a	0.09%	1.50%	0.15%	1.00%	0.08%	1%	0.05%	0.15%	0.15%
Jobsite Time	n/a	n/a	65.90%	70%	84%	70%	85.30%	70%	77.10%	70%	70%
Fix It Right	94%	93%	96.60%	92%	97.40%	93%	n/a	n/a	n/a	n/a	n/a
Call Out Instances	195	120	141	170	100	153	118	138	73	120	108
Station Calibrations	n/a	n/a	n/a	n/a	n/a	n/a	98.30%	100%	95.30%	98%	0.99
Compliance Programs	n/a	n/a	100%	100%	100%	100%	100%	100%	100%	100%	100%
Responses to OC-0874 and OC-1428.											

- Overpressure exertions – Occurs when actual system pressure exceeds the maximum allowable operating pressure by more than 0.5 PSIG or up to 0.5 PSIG more than 10 minutes. Causes of overpressure excursions once determined result in the establishment of corrective action and/or preventive measures.
- 2 Percent measurement report – Results from a comparison of the transmission vendor billing flow as compared to the GSOC gas flow information.
- Station calibration (replaced Fix it right) – Indicates the number of documented and witnessed M&R station meter calibrations required. This metric replaced fix it right which measured completed meter station results of corrective maintenance work by identifying specific equipment, which does not require multiple visits within 30 days.
- Compliance programs – Demonstrates that the various compliance programs are completed within scope and schedule.

Investment Planning, Business Improvement and Processes

KPIs established for this group are all budget related and are based on a comparison of an annual estimated target to actual expenditures. In the capital budget area, the following activities/programs have an estimated target to actual target comparison: New Business, Base, GSMP I, GSMP II, Stipulated Base I, Stipulated Base II, and Energy Strong. For operations and maintenance expenditures an estimated target to actual comparison is made for O&M spend, appliance service work-tariff and appliance service-competitive services.[47]

Gas Operations Department

Each section within the Gas Operations organization has its own set of KPIs. In general, targets are established based on the previous year's performance or a need of the business; and targets are reviewed annually and adjusted based on performance or business needs. For each KPI selected, Overland reviewed the KPIs definition, the reason why selected, the performance levels achieved and where significant performance gaps were encountered, we requested a brief explanation.

[47] Response to OC-1074.

The chart below contains for Gas Operations the target and actual performance for each KPI from 2016 through 2020 and the target established for 2021.[48] As can be seen for most KPIs, the various Gas Operations subgroups collectively have been able to meet target expectations and in minimize significant gaps in performance. In certain instances, for example, Gas Meter Replacement Required there are no targets listed for the earlier years, reflecting how PSE&G uses KPIs to meet a current business need.

Table 18-12 – KPI Results for Gas Operations

KPI Results Gas Operations												
Year		2016		2017		2018		2019		2020		2021
KPI	*	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Accountability O&M Tariff	L		142.0	140.8	136.0	140.0	147.3	131.3	137.9	137.6	149.9	136.5
BPU Inquiries - Non-collections	L	105	92	91	112	111	150	112	103	102	91	90.0
CGI Rate	L	5.1%	5.3%	5.2%	5.5%		5.5%	4.9%	4.0%	3.9%	2.2%	No Target
Cost/Unit Bell Joints	L								8116.3	8000.0	7470.4	8241.0
Damages Per 1,000 Locate Requests	L	1.40	1.34	1.33	1.36	1.33	1.10	1.36	1.11	1.22	1.07	1.11
Gas Emergency Response Rate	H	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
Gas Leak Reports Per Mile	L	0.234	0.242	0.234	0.229	0.234	0.247	0.245	0.219	0.229	0.200	0.210
Hours Per New Service	L								27.89	24.84	26.17	26.17
Hours per Service Replacement	L						26.9	24.0	21.4	21.1	19.1	19.1
JD Power Gas Business Quartile	H	1	3	1	1	1	4	1	2	1	2	1
JD Power Gas Residential Quartile	H	1	2	1	1	1	1	1	2	1	1	1
Key Project Milestones GSMP	H							100.0%	100.0%	100.0%	100.0%	94.4%
Medical Emergency Response Rate GO	H								99.8%	99.8%	99.3%	99.0%
Motor Vehicle Accident Rate	L	3.78	6.98	4.05	7.06	5.02	8.60	7.11	7.68	6.18	7.14	6.24
Open Leaks	L	1710	1649	1563	1481	1466	1230	1218	1123	1112	965	955
OSHA Days Away Rate (Severity)	L	11.80	5.58	14.29	1.71	10.11	24.97	12.33	12.13	12.39	17.10	13.51
OSHA Recordable Incidence Rate	L	1.09	1.04	1.16	0.97	1.10	1.37	1.08	1.41	1.31	1.26	1.21
Overtime	L	25.1%	31.7%	27.2%	29.6%	29.0%	29.3%	24.0%	23.0%		22.2%	No Target
Gas Meter Replacement Required	H										89364	170000
Total Base Cap Ex ($M)	R								218.6		202.3	247.9
% GD Non-Productive	L								19%		20%	No Target
Transaction Satisfaction Survey	H										9.0	9.0
Response to OC-0695.												
* Indicates if higher or lower is better												

A review of the variety of KPI categories employed reflects the diversity of activities and business needs within Gas Operations. Several of the KPIs Gas Operations utilizes are directly related to the safety and reliability of the gas distribution system. These metrics are gas leak reports per mile, gas damages per 1000 locate requests, leak response rate and open leaks. Others KPIs are more customer focused include such categories as BPU Inquiries - Non-collections, CGI (can get in) Rate, Gas Emergency Response Rate, JD Power Gas Business Quartile, JD Power Gas Residential Quartile, and Transaction Satisfaction Survey. While other KPIs focus more on cost and productivity and include categories like Cost/Unit Bell Joints, Hours Per New Service, Hours per Service Replacement, Overtime, and percent GD Non-Productive. In addition, several KPIs strictly focus on variety of employee safety indexes including Motor Vehicle Accident Rate, OSHA Days Away Rate (Severity), and OSHA Recordable Incidence Rate.

Based on the type of work performed by each group that supports Asset Management & Planning and Gas Operations, we conclude that the KPIs selected are generally meaningful and that collectively the entities supporting PSE&G's Gas Delivery function performed well in meeting those KPIs.

[48] Responses to OC-0135 and 0695.

DOT Reportable Incidents

Title 49 of the Code of Federal Regulations (49 CFR parts 191, 195) requires companies to submit to PHMSA (Pipeline and Hazardous Materials Safety Administration) incident reports within 30 days of a pipeline incident or accident. Specific information included in a DOT (Department of Transportation) report includes time and location of the incident, number of injuries and/or fatalities, commodity spillage/gas released, causes of failure and incident procedures. As such, they provide additional insight into the safety performance of a gas utility. Consequently, Overland asked for and reviewed the PSE&G's DOT reportable incidents. From 2011 through 2021, PSE&G experienced 12 DOT reportable incidents.[49]

As a result of our review of these reportable incidents, we asked the Company to identify any corrective actions or changes in procedures that PSE&G may have initiated. In response, we were made aware that two of the incidents were subject to stipulations for corrective action with the BPU.[50] The two incidents in question were:

64 Rutgers Place, Clifton (April 9, 2010) – PSE&G received a call from a contractor of a damage service and gas leak. A service technician arrived at the scene within 25 minutes and began searching for the leak. Approximately 60 minutes after the call was received the structure at 64 Rutgers Pl. exploded. It was later found that the gas leak resulted from a separation in the service line near the foundation wall. As a result of this incident numerous corrective actions have been taken by PSE&G to prevent recurrence. These actions range from dispatching both a service technician and distribution crew when leaking gas from a damaged main or service facility is reported by the initial notifier, to recognizing increased construction inspection surveillance may be necessary at projects deemed high risk.

28 Crockett Lane, Ewing (March 4, 2014) – PSE&G received a call from a contractor that they had damaged a gas facility. The Company dispatched personnel, who arrived within 25 minutes of the notification. Upon arrival they began to hand dig to locate the damage. Approximately one hour and 13 minutes after the notification call, an explosion occurred killing the resident and damaging number of neighboring dwellings. In addition, several employees of PSE&G and the contractor suffered non-life-threatening injuries.

As a result of this incident extensive corrective actions have been taken by PSE&G to prevent a similar recurrence. These actions included modifying five procedural and training manuals to better define roles and responsibilities, implementing quality control and quality assurance procedures targeted at evaluating gas leak emergencies, requiring appropriate communications with supervisory personnel, revising horizontal directional drilling procedures, if needed, and requiring construction inspection follow-up to confirm proper horizontal directional drilling procedures are being followed.

[49] Response to OC-0150.
[50] Response to OC-0703.

Internal Audits

PSE&G conducts numerous internal audits of its utility operations. The Company's internal auditors seek to provide insight regarding the risks and controls of a business function by analyzing organizational risk and controls, ultimately acting as a catalyst for positive change in processes and controls. As such, these internal audits, provide Overland with an opportunity for an in-depth look into certain gas distribution and operations management processes. Accordingly, we requested to see all internal audits reports which took place in the last five years that reviewed any aspect of the Gas Delivery function.[51]

Table 18-13 – 2016 - 2021 Summary of Internal Audits briefly summarizes five internal audits by identifying the audit objectives, auditors' opinion, and the degree of improvement required rating. The auditor's opinion is basically a high-level synopsis of the results of the audit but does not state the specific recommendations. Subsequent pages in each respective audit report detail the recommendations. Four out of the five audits were rated "well-controlled" or "some improvement required" and the fifth audit conducted in 2016 concerning Gas Infrastructure Maintenance rated "major improvement required" had several auditor's opinions based on repeat observations.

The 2016 Gas Infrastructure Maintenance audit report indicated in the cause section of the report the reason for the repeat observations. The reason given for the first three auditor opinions being repeat observations was "Management informed IAS that the reason for not implementing the action plan by the due date was because the Director and Manager assigned to implement the action plan had retired and the action plan was not executed. It was noted by IAS that the Director originally assigned to implement the action item had in fact retired in July 2013 at which time the action plan was due to have been completed. At the time of the retirement of the Director, he had indicated that all open items in his area of responsibility had been addressed." The reason for the fourth auditor opinion being a repeat observation was "Inadequate corrective actions. Gas Districts were not adequately monitoring and working on past due work orders due to additional workload."

With respect to controls over auditor issued recommendations, Overland asked "In connection with these audit reports what is meant by Due Date and what assurance does senior management have that the stated management actions and due date have been met?" In response PSE&G provided the following: "All High, Repeat and Moderate internal audit observations require attestation of completion. In addition, all High and Repeat observations require written status to Executive Vice President and Chief Financial Officer every 90 days until completion. Internal Audit Services maintains a database of all High, Repeat and Moderate observations and proactively communicates to Vice Presidents or Action Plan Owners regarding action plans that require status reports or email confirmation of completion. An action plan not completed by its due date and for which no extension has been requested/agreed is reported to the Audit Committee of the Board. Please see PSEG Instruction 610-1-1 for further details of these requirements and process. The Instruction is attached in the file named 'Instruction 610-1-1 CONFIDENTIAL.'"

[51] Responses to OC-0154 (Confidential), 0190 (Confidential), and 0704 (Confidential).

Instruction 610 -1-1 is dated October 29, 2020, and was first revised in November 13, 2015, to include the following change: “IAS implemented a process whereby management is required to inform IAS once a management action plan is implemented.” So, the IAS action plan follow-up was initiated just prior to the Gas Infrastructure Maintenance July 6, 2016, audit report.

Table 18-13– 2016 - 2021 Summary of Internal Audits

2016-2021 Summary of Internal Audits			
Department and Date	**Audit Objective**	**Auditors Opinion**	**Degree of Improvement Required**
Gas System Operations Center June 22, 2016	Evaluate the adequacy and effectiveness of GSOC measures, controls and processes. Also evaluate operational, regulatory compliance and adherence to Information Technology best practices.	Processes to assure system security need formalization and improvement. Written change management procedures have not been consistently applied for GSOC IT systems.	Some Improvement Required
Gas Infrastructure Maintenance July 6, 2016	To evaluate the implementation of management action plans related to the audit report on Gas Infrastructure Maintenance issued on August 9, 2011	Failure to fully implement management action plan to assess pipeline casings as required by an internal audit report on Gas Infrastructure Maintenance (Repeat Observation) Gas Transmission has not fully optimized the record keeping function of the Geographical Information System (Repeat Observation) Transmission Work Management has failed to fully utilize the Delivery Work Management System (DWMS) to automate its activities and documentation. (Repeat Observation) Corrective actions identified by meter set inspections are not consistently completed within the required time period. (Repeat Observation)	Major Improvement Required
Gas System Modernization Program July 21, 2017	Adequate project management controls surrounding obtaining permits, overseeing contractor performance & payment, and risk identification & mitigation. Timely completion of projects and within budget. Goods and or services are verified through a QA/QC process. Invoices are properly paid and or accrued per accounting standards.	Controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.	Well Controlled
Gas Infrastructure Maintenance January 5, 2018	Evaluate the adequacy and effectiveness of Gas operations by ensuring: Compliance with Federal and State regulatory guidelines Management’s monitoring of Gas pipelines in the Geographical Information System Maintenance is conducted in a timely manner Maintenance is reviewed through a QA/QC process	Controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met.	Well Controlled
Gas System Modernization Program II March 27, 2020	Adequate project management controls surrounding obtaining permits, overseeing contractor performance & payment, and risk identification & mitigation. Timely completion of projects and within budget. Goods and or services are verified through a QA/QC process. Invoices are properly paid and or accrued per accounting standards.	Generally, controls evaluated are adequate, appropriate, and effective to provide reasonable assurance that risks are being managed and objectives should be met. Two moderate risk observations were noted, with no major impact on the overall system of internal controls.	Some Improvement Required
Response to OC-0154 (Confidential).			

Overall, the internal audit reports were found to be concise, direct, and complete. Each report clearly states the objective of the audit, the auditor’s opinion, evaluates the degree of improvement required on a scale of 1 to 4, makes recommendations, states management’s action plan, identifies who is accountable to oversee implementation of the action plan and specifies the date by which the

recommendations will be accomplished. In Overland's opinion the Company's internal auditing approach is a well-intentioned necessary check and provides an insightful analysis that is periodically required to ensure the Gas Delivery function operates as intended.

In addition to the above internal audits Environmental, Health and Safety (EHS) also audit aspects of Gas Distribution Operations. EHS audit reports are confidential documents subject to the self-evaluation privilege and, as such, were not provided to Overland.

BPU and Executive Customer Complaints

PSE&G receives a number of BPU complaints and executive complaints regarding its services. The next chart describes the number of Gas Delivery complaints, listing executive complaints and BPU complaints subdivided by categories for each of the last 5 years.[52]

Table 18-14 – BPU and Executive Complaints

BPU Complaints					
	2016	**2017**	**2018**	**2019**	**2020**
Gas Delivery	**92**	**112**	**150**	**103**	**91**
Distribution	39	43	74	39	22
Appliance Service	49	52	49	34	37
Centralized - WG, HVAC, AWH	6	6	6	16	14
Construction (GSMP)		11	21	14	14
PSE&G Executive Complaints					
Gas	**37**	**28**	**42**	**41**	**42**
Response to OC-1056.					

There does not appear to be any discernible trends in the historical data, other than complaints consistently occur with some year-to-year variation. In 2017 a new sub-category called Gas Construction (GSMP), was introduced for BPU related complaints. Since GSMP involves an intense amount of utility construction taking place in a relatively small 1 square mile GSMP grid, it seems reasonable to expect that some customers would express concerns.

The Company reports that it evaluates the root cause of each complaint and where appropriate initiates improvements.

Transaction Satisfaction Survey

The Utility recently initiated a phone customer satisfaction survey for each line of business sampling customer reactions to the service provided. For the Gas Delivery function the survey seeks to measure customer satisfaction with the Gas Distribution, Appliance Service Repair and Appliance Service Emergency processes and determine opportunities for improvement. In reviewing the January 2021

[52] Response to OC-1056.

report PSE&G Gas Operations Transaction Satisfaction Survey - December Results, Gas Operations overall satisfaction stood at 9.0 with 8.8 for Gas Distribution, 9.0 for Appliance Service Repair and a 9.3 for Appliance Service Emergency. The results for the Gas Delivery function, compares favorably to PSE&G's other lines of business, Customer Operations and Electric Delivery.[53]

Existing Transmission and Distribution System

As one of the nation's first and oldest natural gas utilities, PSE&G's natural gas distribution system also has some of the oldest and largest amounts cast iron pipe. This section describes the materials that comprise the gas distribution system including large amounts of legacy pipe at various pressure systems, assesses the system's reliability, discusses the causes of leaks, and analyzes the Company's relatively high number of open leaks. There are numerous recommendations in this section, including several advocating that PSE&G should prioritize limiting the number of open leaks.

Pipe Assets

Cast Iron

PSE&G's gas system contains a total of approximately 35,521 miles of pipe made from a variety of materials. A characteristic which makes PSE&G's gas distribution system somewhat unique is that it contains a significant amount of cast iron pipe. At the time of installation this material was considered state-of-the-art, however over time cast iron as proven to be problematic.

As of the end of 2020, almost 3,120 miles or approximately 17 percent of the Company's main was cast iron, representing approximately 9 percent of the total gas distribution system. This amount of cast iron nevertheless exists despite the successful removal of 1318 miles of cast iron since 2007 through Energy Strong, Gas System Modernization Program (GSMP) and other facility replacement programs. In fact, there is still no other US utility with more cast iron/ductile iron miles of main in their system than PSE&G. This can be readily seen from the data in the following table, where 11 utility systems with the largest amounts of cast iron and ductile iron are shown. PSE&G has over 43 percent more cast iron in its distribution system than the next closest utility. Reflecting on the 2007 data, when a similar comparison of the top 11 US utilities with cast iron/ductile iron main was made, PSE&G had just over 38 percent more cast iron in its distribution system compared to the next closest utility. So, despite the accelerated cast iron replacement programs, the Company is losing ground to other utilities in cast iron/ductile iron pipe replacement on a comparison basis.

[53] Response to OC-1057 (Confidential).

Table 18-15 – 2020 Top 11 US Utilities with Cast Iron/Ductile Iron Main

2020 U.S. Utilities with Largest Cast Iron/Ductile Iron Systems					
Name	Total Miles of Main	Miles of Cast Iron Main	Miles of Ductile Iron Main	Total Miles of CI & DI Mains	% of CI & DI Systems of Total Miles of Main
PHILADELPHIA GAS WORKS	3045.4	1271.6	123.3	1394.9	46%
KEYSPAN ENERGY DELIVERY - NY CITY	4182.8	1150.7	0.0	1150.7	28%
PEOPLES GAS LIGHT & COKE CO	4620.3	1072.5	189.4	1261.8	27%
SOUTHERN CONNECTICUT GAS CO	2484.8	590.9	6.5	597.3	24%
NIAGARA MOHAWK POWER CORP	3204.4	667.9	13.5	681.4	21%
CONSOLIDATED EDISON CO OF NEW YORK	4398.0	923.0	0.0	923.0	21%
PUBLIC SERVICE ELECTRIC & GAS CO	18143.8	3120.0	0.0	3120.0	17%
BOSTON GAS CO	11167.6	1777.9	0.0	1777.9	16%
BALTIMORE GAS AND ELECTRIC COMPANY	7481.8	1016.4	0.0	1016.4	14%
DTE GAS COMPANY	20350.8	1693.1	0.0	1693.1	8%
PECO ENERGY CO	6937.4	518.0	41.7	559.7	8%
Response to OC-0140.					

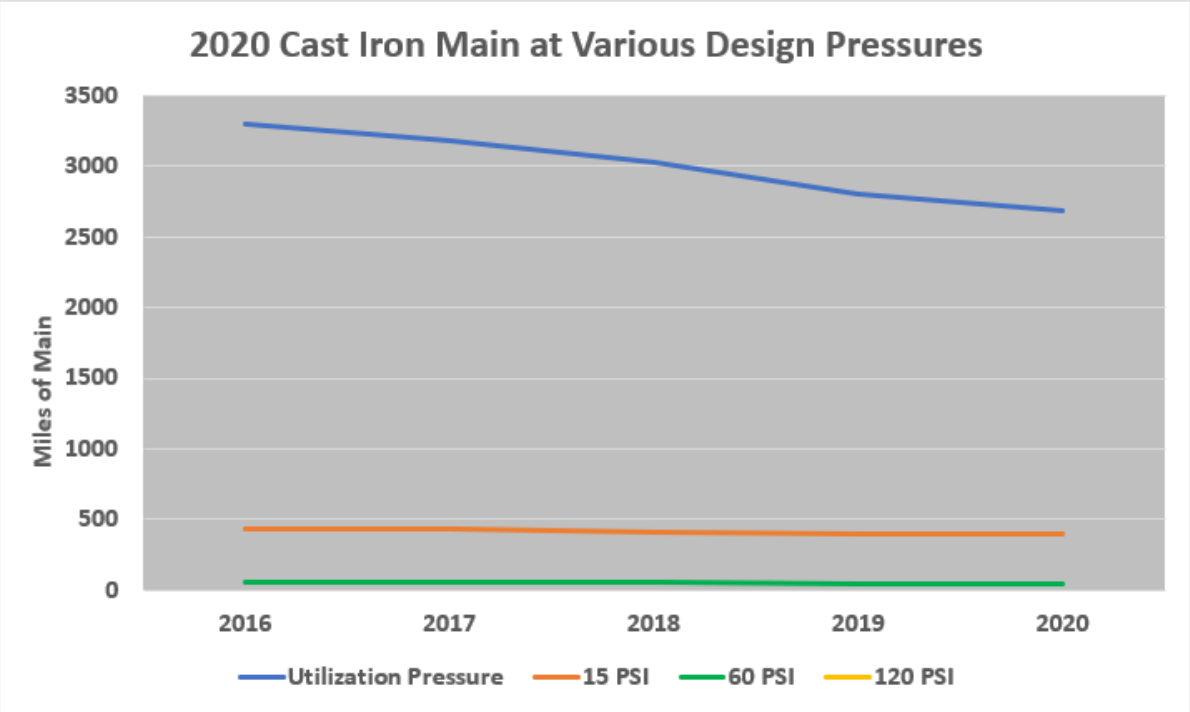
Cast Iron at Elevated Pressures

In addition to the amount of cast iron in PSE&G's system, it is also noteworthy that a significant portion 438 miles of the total 3,120 miles or 14 percent of the cast iron main operates at a pressure above utilization pressure. When a leak or crack develops in cast iron pipe operating at above utilization pressure, it can result in a significant gas escape with a potentially resulting incident. Consequently, based on Overland's experience, many utilities are aggressively replacing or eliminating cast iron operating at elevated pressures from their system.[54]

This next chart trends the amount of cast iron in PSE&G's distribution system operating at utilization pressure, 15 PSI and 60 PSI between 2016 and 2020. The Company does not operate any of its cast iron distribution system in the 120 PSI or greater design system.

[54] Response to OC-0701.

Table 18-16– 2020 Miles of Cast iron Distribution Main Material at Various Design Pressures



Response to OC-0701.

In the last five years, PSE&G has been able to reduce the amount of utilization cast iron in its system by 18.6 percent from 3,249 miles to 2,682 miles, in the 15 PSIG design system by 9.8 percent from 438 miles to 395 miles and in the 60 PSIG system by 24.6 percent from 57 miles to 43 miles.

To help reduce the risk associated with cast iron pipe operating at elevated pressures, PSE&G has targeted the replacement of 10-inch, 12-inch and more recently 16-inch elevated pressure cast iron mains.[55]

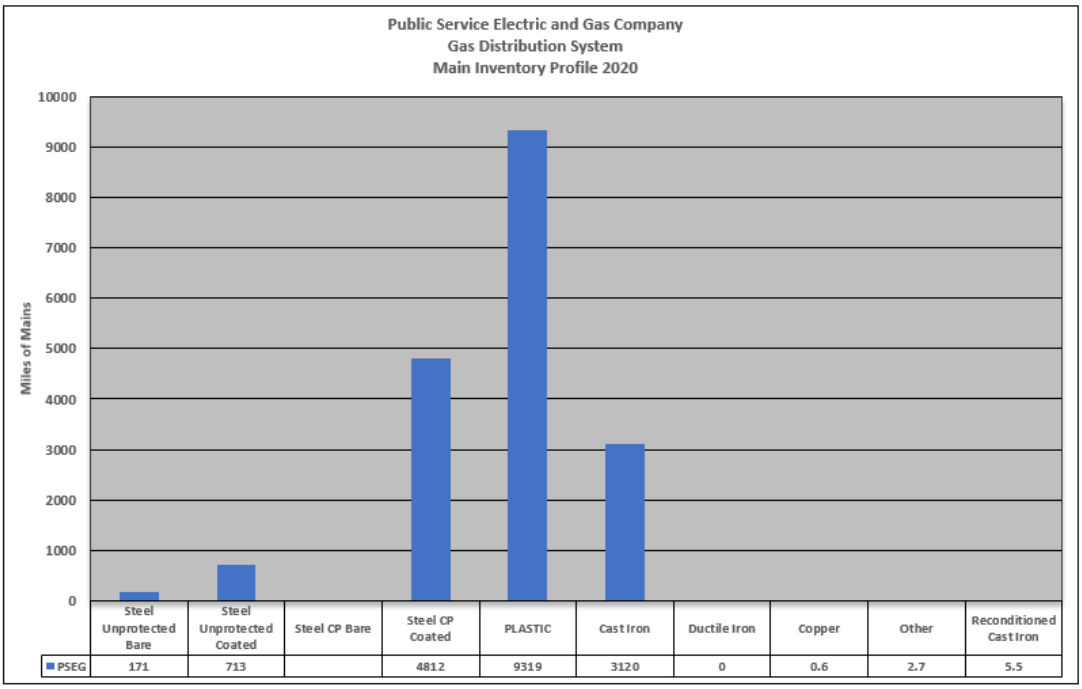
Steel Pipe

In addition to cast iron main, PSE&G's distribution system has other types of pipe materials that have proven to be challenging with respect to gas leaks. The Company's main distribution system is comprised of approximately 48.6 percent metallic pipe. In 1970 the Federal Pipeline Safety Regulations were enacted. Title 49 CFR 192.455 requires gas operators to install externally coated and cathodically protected pipe after July 31, 1971, unless the operator can demonstrate that a corrosive environment does not exist. So, beside the cast iron, the other problematic material is the bare and unprotected steel pipe.

[55] Response to OC-0868.

The metallic pipe in the Company's main system is approximately 35.5 percent cast iron, 10 percent bare and unprotected steel and 54.5 percent protected steel. The following chart shows the main system material inventory profile.

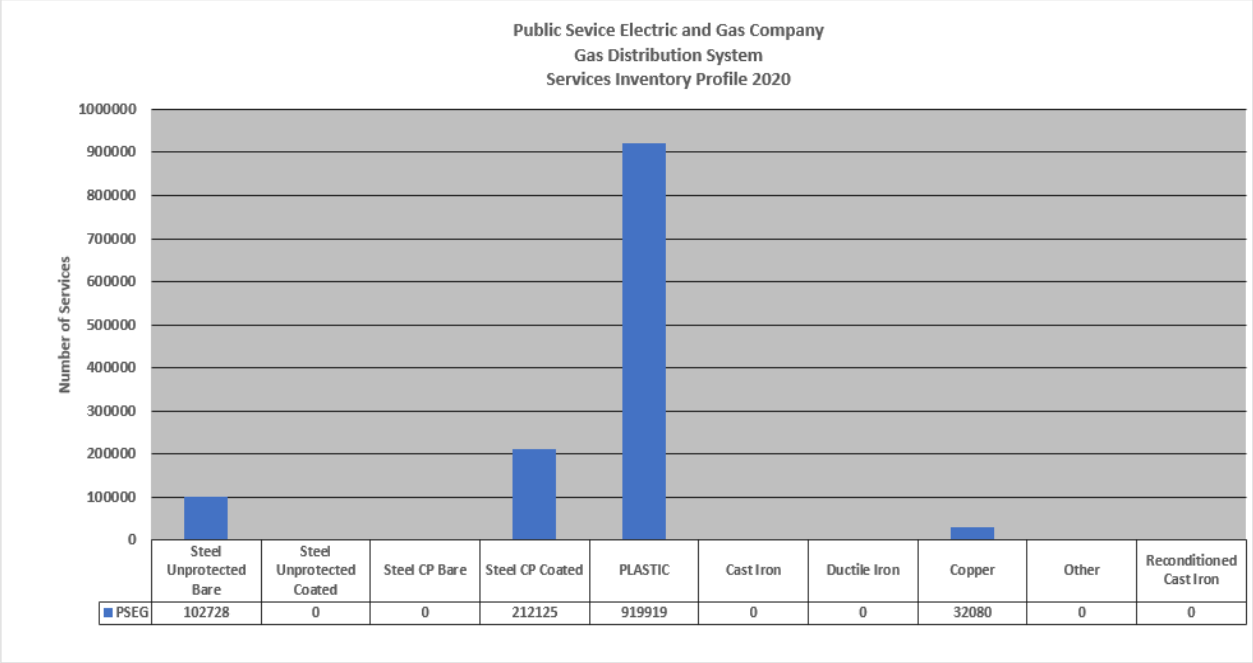
Table 18-17– 2020 Mains Material Inventory Profile



Response to OC-0140.

A similar issue exists for PSE&G's service pipe. The Utility's gas service lines are comprised of approximately 27.4 percent metallic service pipe with the remaining 72.6 percent, plastic. Metallic services consist of 29.6 percent bare and unprotected steel, 9.2 percent copper and 61.2 percent protected steel. PSE&G has eliminated all of its cast iron services years ago. The following chart shows the gas service line material inventory profile in number of services by material.

Table 18-18– 2020 Service Material Inventory Profile



Response to OC-0140.

To assess the progress that PSE&G is making at removing unprotected metallic pipe from its system, the next chart describes the declining amount of cast iron, bare and unprotected steel pipe remaining at the end of each year for the last five years. As would be expected, as these legacy materials are replaced, amount of plastic in the distribution system is rapidly increasing.

Table 18-19– Miles of Unprotected Metallic Pipe, Protected Steel Pipe and Plastic Main

Materials in PSE&G's Gas Distribution System					
Miles of Mains	**2016**	**2017**	**2018**	**2019**	**2020**
Steel Unprotected Bare	254	237	213	188	171
Steel Unprotected Coated	741	740	734	723	713
Steel CP Coated	4,854	4,843	4,851	4,837	4,812
Plastic	8,218	8,409	8,656	9,001	9,319
Cast Iron	3,789	3,666	3,493	3,245	3,120

No. of Services	**2016**	**2017**	**2018**	**2019**	**2020**
Steel Unprotected Bare	166,459	151,342	133,524	116,746	102,728
Steel CP Coated	238,013	235,223	232,123	223,096	212,125
Plastic	819,494	839,186	862,350	891,760	919,919
Copper	32,367	32,274	32,190	32,130	32,080

Response to OC-0155.

Overland concludes that through programs like GSMP, Energy Strong and DIMP, the Company is making good progress in removing both cast iron and bare and unprotected steel pipe materials from its distribution system, but still has a long way to go. Based on the current rate of replacement of legacy materials accomplished in the GSMP I and so far in GSMP II, the Company estimates it will have eliminated all utilization pressure cast iron, bare, and unprotected steel pipe from its system by approximately the year 2039 at an estimated cost of $5.58 billion in 2021 dollars.[56]

System Reliability

PSE&G uses the metrics of gas leak reports per mile of main and service; gas damages per 1000 locate requests, leak response rate, and open leaks to define the reliability of their distribution system.[57] These measures are part of the Company's balance scorecard circulated monthly to senior leadership, providing high visibility within the organization. Interestingly, when asked a similar question in relation to the previous management audit, PSE&G used the same gas leak reports per mile of main and service and only one other measure, cast iron breaks per mile to define the reliability of their distribution system. Overland believes the distribution system reliability metrics currently in use better reflects what the Company should be monitoring today.

Leak Management

To address system integrity PSE&G has developed several policies, procedures, standards, and practices focused on system safety and reliability. Through its current facility replacement programs, the Company is focused on removing cast iron and bare and non-cathodically protected steel from its system. Cast iron systems that experience a leak or break, can be particularly hazardous to people or structures located in close proximity to the leaking gas. This is especially true if the main is large in diameter or operating at an elevated pressure above utilization pressure.

To put PSE&G's main and service leakage into perspective, the next chart shows the leaks per mile of main and leaks per 100 services nationally and for the same utilities listed in Table 18-15– 2020 US Utilities with Highest Amounts of Cast Iron/Ductile Iron Main. The comparison to these same utilities is reasonable because the general makeup of their pipe and service material is similar to PSE&G's. As we have discussed in a previous section, material type is an important distinction when assessing reliability performance.

[56] Response to OC-1077.
[57] Response to OC-0169.

Table 18-20– 2020 Comparison of PSE&G's Distribution System Leak Repairs to Top 10 US Utilities with Cast Iron/Ductile Iron Main

2020 Comparison of PSE&G's Distribution System Leak Repairs to Top 10 US Utilities with Cast Iron/Ductile Iron Main		
Name	Leaks per Mile of Main	Leaks per 100 Services
PUBLIC SERVICE ELECTRIC & GAS CO	**0.16**	**0.33**
BOSTON GAS CO	0.16	0.36
DTE GAS COMPANY	0.09	0.28
PHILADELPHIA GAS WORKS	0.71	0.58
KEYSPAN ENERGY DELIVERY - NY CITY	0.07	0.15
PEOPLES GAS LIGHT & COKE CO	0.09	0.57
BALTIMORE GAS AND ELECTRIC COMPANY	0.41	0.85
CONSOLIDATED EDISON CO OF NEW YORK	0.90	0.76
NIAGARA MOHAWK POWER CORP	0.04	0.23
SOUTHERN CONNECTICUT GAS CO	0.14	0.26
PECO ENERGY CO	0.16	0.10
Selected Utility Group Average	0.21	0.39
Source: PHMSA Gas Distribution Annual Reports – 2020.		

For the year 2020, PSE&G's gas main distribution system experienced .16 leak repairs per mile and .33 leak repairs per 100 services. The average leakage rates for the top 10 US utilities with cast iron/ductile iron main is .21 leak repairs per mile for mains and .39 leak repairs per 100 services. So, PSE&G's distribution system leak repair rates are significantly lower (better), when compared to other gas utilities with large amounts of legacy pipe.

Leak Rate Trends

To gain a better understanding of main and service leak trends, the next table records total main leaks repairs, miles of main in service at the end of each year and leaks repaired per mile of main,[58] as well as total service leak repairs, service count and leaks repaired per 100 services.[59] As can be seen, both the total number of needed main leak repairs and the total number of required service leak repairs are trending downward even though there is more pipe in inventory each year. Consequently, we see a gradual decline in both main and service leak rates.

[58] Response to OC-0160 (Confidential).
[59] Response to OC-0061 (Confidential).

Table 18-21– Main and Service Pipe Leak Repair Trends

Main and Service Pipe Leak Repair Trends					
	2016	2017	2018	2019	2020
Total Main Leak Repairs	3,184	2,622	3,093	2,564	2,207
Main Miles	17,863	17,903	17,955	18,003	18,144
Leaks Repaired per Mile of Main	0.178	0.146	0.172	0.142	0.122
Total Service Leaks Repaired	3,111	2,936	2,654	2,810	2,507
Service Count	1,256,333	1,258,025	1,260,187	1,263,732	1,266,852
Leaks Repaired per 100 Services	0.248	0.233	0.211	0.222	0.198
Responses to OC-0160 and OC-0161.					

Cast Iron Main Breaks

For many years, based on risk analysis, PSE&G has had a segment by segment or a targeted by size and pressure cast iron removal program. More recently, as a result of the Energy Strong Program and the System Modernization Programs, significant amounts of cast iron have been removed from the distribution system. The next table describes for the last five years, cast iron brakes per mile of main by size and pressure, where the Company has experienced breakage.

Table 18-22– Cast iron Main Break Trends

Cast-iron Brakes per Mile of Cast iron Main						
Size	Pressure	2016	2017	2018	2019	2020
4	UP	0.136	0.119	0.207	0.121	0.083
6	UP	0.082	0.079	0.137	0.103	0.072
8	UP	0.104	0.082	0.110	0.078	0.036
8	15 PSI	0.000	0.000	0.000	0.000	3.148
10	UP	0.000	0.000	0.045	0.000	0.000
10	15 PSI	0.274	0.000	0.000	0.000	0.000
12	UP	12.000	0.031	0.038	0.026	0.029
12	15 PSI	0.023	0.040	0.059	0.029	0.054
16	15 PSI	0.000	0.008	0.000	0.000	0.041
16	60 PSI	0.000	0.044	0.000	0.000	0.000
20	15 PSI	0.000	0.013	0.000	0.000	0.000
20	60 PSI	0.000	0.050	0.000	0.000	0.000
Response to OC-0162.						

Based on a review of the data presented, we can conclude the following:[60]

- The highest break rate for cast iron pipe consistently is 4-inch diameter pipe.
- Since pipe with greater diameters are stronger, the break rate goes down as pipe diameters increase.
- As winter temperatures vary, break rates similarly vary, independent of size. Cold winter temperatures can cause frost creating ground movement resulting in brittle cast iron pipe cracking.
- The breakage rate for 8-inch 15-pound cast iron in 2020 was high due to the minimal amount of pipe in that category.[61]
- Since 2016, 24-inch diameter and above (not shown in the chart) cast iron has not experienced a failure.

Short Cast Iron Segments at Elevated Pressures

In conjunction with its Gas System Modernization Program (GSMP), PSE&G is replacing leak prone infrastructure, including cast iron main operating above utilization pressure. When a short segment (less than 50 feet) of smaller diameter (8-inch and smaller) operating above utilization pressure cast iron is encountered in a designated GSMP grid, it is replaced or abandon. It is the Company's intent to continue accelerated cast iron replacement and associated high-pressure cast iron short segments through future GSMP's. Since 2014, PSE&G has replaced 52 short segments but still has 97 similar segments to replace or abandon. Replacing these small segments within a designated GSMP grid may make economic sense, but based on the Company's current approach of only replacing short segments in concert with the GSMP and other replacement programs, it could take another 19 years until all short segments are replaced or abandon.[62] Since these smaller diameter short sections represent a significant risk to the safety and integrity of PSE&G's gas distribution system, Overland recommends a separate program be developed to prioritize replacement of these short sections in low priority GSMP grids, which will not be worked until near the end of the grid modernization program. PSE&G should develop a program that prioritizes the replacement of all short sections (less than 50 feet) of smaller diameter (8-inch and smaller) of cast iron pipe operating above utilization pressure in low priority GSMP grids. The program should have a definitive start and end date consistent with prudent distribution system risk management.

Cause of Main and Service Leaks

Leak causes are subdivided into the following categories: corrosion, equipment failure, excavation damage, incorrect operation, pipe weld or joint failure, natural force damage, outside force damage, and other .[63]

[60] Response to OC-0162.
[61] Response to OC-1078.
[62] Responses to OC-1424 and 1077.
[63] Responses to OC-0165 and 0871.

Understanding the cause of main and service leaks is important as this information is used to perform several distribution system related studies including active corrosion investigation, hazard analysis and BPU service evaluation, which then provide the basis for determining which mains and services get replaced.

- **Active Corrosion Studies** – Cathodic protection is used to maintain protected main and service steel assets for as long as reasonable.
- **Hazard Studies** – Used to prioritize replacement of cast iron and unprotected steel mains. Using PSE&G's Hazard Assessment model, which is used for Evaluation and Ranking of Risk in the DIMP plan.
- **BPU Service Study** – Unprotected steel services are replaced in accordance with the NJAC 14:7-1.20 program.

In addition, when analyzing the cause of plastic main and service leaks, the data is used to provide an understanding of emerging concerns with plastic materials.[64] Damage related causes are used to trend the effectiveness of PSE&G's Damage Prevention program, which is discussed in detail in Chapter 19 – Contractor Performance.

[64] Response to OC-0185.

Table 18-23– Leak Causes

Leak Causes by Type of Material 2020			
Material	**Leak Cause**	**Service**	**Mains**
Cast Iron	Corrosion	10	530
Cast Iron	Equipment Failure	0	95
Cast Iron	Excavation Damage	0	2
Cast Iron	Incorrect Operation	0	8
Cast Iron	Material or Welds	1	87
Cast Iron	Natural Force Damage	2	1,142
Cast Iron	Other	0	1
Cast Iron	Other Outside Force Damage	0	31
Copper	Corrosion	22	3
Copper	Equipment Failure	3	0
Copper	Excavation Damage	0	0
Copper	Incorrect Operation	1	0
Copper	Material or Welds	8	0
Copper	Natural Force Damage	21	1
Copper	Other	0	0
Copper	Other Outside Force Damage	2	0
Plastic	Corrosion	229	7
Plastic	Equipment Failure	88	9
Plastic	Excavation Damage	5	1
Plastic	Incorrect Operation	85	13
Plastic	Material or Welds	91	4
Plastic	Natural Force Damage	288	27
Plastic	Other	3	0
Plastic	Other Outside Force Damage	59	6
Steel	Corrosion	1,648	233
Steel	Equipment Failure	155	77
Steel	Excavation Damage	6	4
Steel	Incorrect Operation	23	13
Steel	Material or Welds	62	52
Steel	Natural Force Damage	311	190
Steel	Other	1	1
Steel	Other Outside Force Damage	26	17
Response to OC-0871.			

Based on a review of the data, we can conclude the following:

Mains

- Cast iron natural force damage (forces from ground movement and flooding) accounts for approximately half of the cast iron leaks.
- Cast iron leak causes of corrosion and other outside force damage (forces other than excavation, such as fire, explosion) when compared to previous years are trending downward.
- Plastic pipe leak causes are overwhelmingly caused by excavation damage and natural force damage. Also, we can incorrectly conclude seven plastic mains experienced corrosion.
- Steel pipe leak causes are overwhelmingly corrosion and natural force damage.

Services

- Although PSE&G's system reports no cast iron services, the data the Company presented incorrectly indicates they experienced 13 leaks in 2020.
- Plastic leak causes are primarily a resulting from excavation damage, incorrectly followed by corrosion (plastic does not corrode), and then natural force damage.
- For steel services the leak cause is overwhelmingly corrosion.

Although the Company states it uses corrected counts in the evaluation and ranking of system risks, it is troublesome that so many field entry errors as to leak cause are occurring. Additional understanding by the field workforce as to the importance of this information and how it is used is needed to ensure the proper recording of leak causes.[65] The Company should augment current Gas Distribution Standards training by stressing the need for correct entries with respect to leak cause. Training should emphasize the importance of this information as it provides the basis for determining which mains and services get replaced.

Open Leaks

Open leaks represent the backlog of natural gas leaks that need to be repaired. This next chart displays the number of open leaks at the end of each year from 2011 through 2020. The number of open leaks at year end varies based on the previous year's backlog of leaks that have not been repaired, the number of leaks received in the current year, and the number of leaks repaired in the current year. In 2014 and 2015 leaks discovered increased because of the severe cold winter weather, which turned out to be the coldest winter between 2011 and 2020. However, the overall trend of open leaks has been decreasing during the period; and at the end of 2020 the backlog of open leaks in came in at 965.[66]

Table 18-24 – Open Leaks

Open Leaks			
YEAR	LEAKS DISCOVERED	LEAKS REPAIRED	OPEN LEAKS
2011	7,167	7,151	2,077
2012	6,508	6,562	1,947
2013	7,704	7,609	1,937
2014	9,134	9,293	1,710
2015	10,075	9,387	2,314
2016	8,488	9,104	1,649
2017	8,022	8,124	1,481
2018	8,660	8,858	1,230
2019	7,691	7,740	1,123
2020	7,041	7,154	965
Response to OC-0163.			

[65] Response to OC-0871.
[66] Response to OC-0163.

Between 2011 and 2020, the end of year leak backlog averaged 1,643 leaks to be repaired. During the same timeframe, PSE&G's distribution system incurred on average 8,098 leaks per year. This means that at the end of any given year, approximately 20 percent of the known open leaks, which include both prior year and current year unrepaired leaks, are in the inventory for repair.

Of concern, beyond the total number of open leaks to be repaired, is the allocation of open leaks between leak categories. The next table subdivides the number of open leaks by leak category. As might be expected, the most hazardous Class 1 (A)[67] leaks constitute the smallest average number of open leaks, less than 3 percent at the end of the year. What is surprising, is the relatively high percentage of Class 2 (B)[68] leaks, which constitute an average of almost 70 percent of the number of open leaks at the end of the year. Class 3 (C)[69] leaks, the least hazardous leak category, make up the balance at approximately 27 percent.

Table 18-25– Open Leaks Inventory by Class Category

Leak Year-End Backlog By Class				
	Class 1	Class 2	Class 3	Total Open
2016	16	1,095	538	1,649
2017	9	1,075	397	1,481
2018	15	885	330	1,230
2019	42	792	289	1,123
2020	27	672	266	965
Response to OC-0188.				

The number of open leaks varies in each month throughout the year, and it is the end of year open leak balance that typically is used for trending and comparison purposes. In Overland's experience, gas distribution companies will emphasize working open leaks towards the end of the year to reduce the open leak inventory. Consequently, the reported end of year open leak count does not provide an accurate view of the average number of open leaks in any given month. For PSE&G, the average monthly number of open leaks for the last five years was 1,693 or 31 percent higher than the end of year average open leak count of 1,289.

This next chart shows the average monthly open leak count for the last five years by leak category and compares it to the end of the year open leak count. For Class 1 leaks the average number of open leaks is 41 or 95 percent greater than year-end total, for Class 2 leaks the average number of open leaks is

[67] A Class 1 leak is a leak that represents an existing or probable hazard to persons or property and requiring prompt action, immediate repair, or continuous action until the conditions are no longer hazardous.

[68] A Class 2 leak is a leak that is recognized as being not hazardous at the time of detection, but justifies scheduled repair based on the potential for creating a future hazard. Generally, Class 2 leaks must be repaired within fifteen months from the date the leak is reported. Class 2 leaks must be reevaluated periodically until cleared. Class 2 leaks become potentially more serious due to ground frost.

[69] A Class 3 leak is non-hazardous at the time of detection and can reasonably be expected to remain non-hazardous. These leaks are monitored to ensure that they do not get worse or become hazardous.

1135 or 25 percent greater than year-end total and for Class 3 leaks the average number of open leaks is 517 or 42 percent greater than the year-end total. [70]

Table 18-26– Average Number of Open Leaks Compared to End of Year Leak Count

Average Number of Open Leaks Compared to End of Year Leak Count					
	2016	2017	2018	2019	2020
Grade 1					
Average open leaks	35	42	33	49	46
December open leaks	16	9	15	42	27
Grade 2					
Average open leaks	1393	1242	1209	1008	823
December open leaks	1095	1075	885	792	672
Grade 3					
Average open leaks	751	569	510	400	356
December open leaks	538	397	330	289	266
Response to OC-0871.					

This next table shows a comparison of the Utility's open leaks to the same top 10 US utilities with largest amount of cast iron/ductile iron main, as noted in Table 18-20 – 2020 Distribution System Main and Service Leak Repair Comparison, where we saw PSE&G's leak rate for both mains and services was below the average for the comparison utility panel. Of the 11 utilities shown in Table 18-27 below, the Company has the second highest year end open leak backlog.

Table 18-27– Open Leaks Comparison to Top 10 US Utilities with Cast iron/Ductile Iron Main

Open Leaks Comparison to Top 10 US Utilities with Cast Iron/Ductile Iron Main	
Name	**Open Leaks**
PUBLIC SERVICE ELECTRIC & GAS CO	965
BOSTON GAS CO	608
DTE GAS COMPANY	2066
PHILADELPHIA GAS WORKS	73
KEYSPAN ENERGY DELIVERY - NY CITY	13
PEOPLES GAS LIGHT & COKE CO	5
BALTIMORE GAS AND ELECTRIC COMPANY	471
CONSOLIDATED EDISON CO OF NEW YORK	5
NIAGARA MOHAWK POWER CORP	155
SOUTHERN CONNECTICUT GAS CO	59
PECO ENERGY CO	184
Response to OC-0140.	

A number of utility companies have pursued the philosophy of maintaining a relatively small or near zero leak inventory at the end of the year. They believe by adding the costs associated with gas loss, interstate pipeline capacity, and the required periodic leak reinvestigation surveys, that the total cost

[70] Response to OC-0752.

savings supports a program focused on repairing all gas leaks on an annual basis. In addition, there is an environmental benefit component that results from a reduction of methane emissions,[71] as methane is viewed as a significant contributor to climate change. Overland did ask the Company if it had conducted a cost-benefit study to show potential savings related to reduced leak backlogs. In response PSE&G indicated it had not.[72]

Overland recognizes the philosophy regarding open leaks also vary from state to state and even within a state. For example, the State of California believes the best practice concerning open leak inventory is to "repair all leaks immediately as they are detected however, for utilities with large service areas that may not be practical or cost effective for small leaks. There may be a positive cost/benefit to allow a brief time limit before Grade [Class] 2 leaks have to be permanently repaired."[73]

Limiting the Number of Open Leaks

From a risk and environmental perspective, it is generally highly desirable to minimize the number of open main and service leaks at any given point in time. As discussed in an earlier section of this chapter, the number of open leaks is an important balanced scorecard KPI; and when the Hazard Index is relatively equal, the Company uses methane emissions to help prioritize future GSMP grid replacements, an Important societal goal of the New Jersey Energy Master Plan and the Federal PIPES Act of 2020.[74] PSE&G has previously made open leak commitments to the BPU with certain caveats; and has demonstrated that it is able reduce its leak backlog, when required.

- **Rate Case Settlement** – As part of the 2006 gas rate case settlement between PSE&G and the BPU, the Company agreed to establish an upper performance limit for open Class 2 leaks of 1500 leaks at year end. Since 2010, the year-end open Class 2 leak total has never exceeded the upper performance limit of 1,500 leaks.
- **Energy Strong I** – In connection with the Energy Strong I program, PSE&G made a separate commitment to reduce the active leak inventory of 1,937 leaks as of December 31, 2013, by 30 percent. As a result of focused Capital and Operation and Maintenance expenditures, the Company was able to complete 1,896 leak repairs or 96 percent of the active leak inventory through December 31, 2017.[75]
- **GSMP** – In the GSMP Stipulation of Settlement, PSE&G agreed to reduce its inventory of open leaks by 60 percent between September 30, 2015 and September 30, 2018. New leaks received after September 30, 2015, would not be counted.

[71] Methane is a greenhouse gas (GHG) and at least 20 times more potent than carbon dioxide. Methane is the major component of natural gas, typically in the range of 70 percent to 90 percent.
[72] Response to OC-0170.
[73] Survey of Natural Gas Leakage Abatement Best Practices, California Public Utilities Commission Safety and Enforcement Division Staff Report, March 17, 2015.
[74] Response to OC-0556.
[75] Response to OC-0706.

- **GSMP II** – In the GSMP II Stipulation of Settlement, the Company agreed to reduce its year-end open leak inventory by 1 percent for each year of the Program, based on the average number of year-end open leaks experienced in the past five calendar years.[76]

In making these commitments PSE&G has stated it is motivated for making a reduction in open leaks to "improve gas distribution system safety, integrity and reliability; reduce methane emissions and associated gas loss."[77]

In view of the various data points and information presented regarding open leaks: a relatively high end of year Class 2 leak open leak count, a misleading end of year leak count as compared to the average number of open leaks, a comparison to utilities with similar systems of which nine out of 10 had significantly lower end of year open leaks, and PSE&G's stated motivation, it is Overland's opinion that PSE&G should re-examine its philosophy of maintaining a relatively large backlog of leaks to be repaired. In connection with open leaks, Overland has three recommendations.

- Perform an open leak cost-benefit study, similar to what other gas utilities have conducted, to determine if there is a potential cost savings as well as reduced methane emissions associated with fixing leaks sooner.
- If conclusions from the open leak cost-benefit study support reducing the number of open leaks, the Company should develop and commit to a plan of significantly reducing the number of open leaks from end of year 2020 levels.
- Future GSMP filings will recommend continued replacement of cast iron and bare steel in PSE&G's gas distribution system. By continuing to remove these leak prone facilities and assuming normal winter conditions, the Company should experience less leaks per mile in the remaining facilities. Consequently, the Company should continue to commit to the BPU that it will achieve a reduced end of year open leak backlog in concert with any future GSMP filings.

Gas System Planning

The optimal gas distribution system provides proper pipeline capacity and pressure with the lowest possible investment. The system will be designed and built with materials that are most suitable for local conditions and with the highest regard for safety during construction; and reliability and safety once the system is placed in service. In this section we present the key elements of system planning, system planning flow studies, software utilized, peak day forecasting, several recent system planning studies related to peak day, types of projects initiated, what occurs when new load requests exceed capacity and concludes with how the impact of the New Jersey Energy Master Plan is incorporated in the gas sales forecast.

[76] Response to OC-1079.
[77] Response to OC-0551.

Key Elements of System Planning

To ensure the economic design of needed gas distribution facilities, an accurate estimate of present and future supply demands must be quantified. Present demands can fluctuate by hour, day, and season. The pattern of these demands, along with future growth projections, then provides the parameters for system planning. System planning encompasses analysis of loads and forecasts, and capital investment planning based on sound criteria and economic analysis to make sure adequate capacity will be provided to reliably supply the demand of present and future gas customers.
Key elements of system planning include:

- Developing a master plan for the system, which considers long-term system expansion, delivery reliability, system aging, and safety.
- Establishing standard planning processes, guides, and practices.
- Forming guidelines for both economic evaluation and non-financial factors.
- Understanding and considering regulatory and legislative policy initiatives.
- Receiving feedback from the field concerning results of various initiatives.

System Planning Flow Studies

The Gas System Planning function performs numerous planning and flow studies for the gas system, as follows:[78]

- **System Flow at Various Temperatures** – Hydraulic models are used to identify where system reinforcement or additional gas supply may be needed at various temperatures and flow conditions.
- **Asset Requirements** – Studies are performed to assess remote relief requirements, regulator capacities and remote pressure monitoring to meet PSE&G or federal requirements.
- **Non-firm Customer Interruptions** – Flow studies are done to determine at what temperature non-firm class customers will be asked to go off-line.
- **Meter & Regulating Station Failures** – Flow studies are performed to mimic M&R station failures at various temperatures (10 percent of the M&R stations studied yearly).
- **System Growth and Reinforcement** – Hydraulic models are used to perform forecast peak day load growth and analyze the system for each of the next 10 years, and identify projects needed to be completed to maintain adequate pressures and additional gas supplies on a design day.
- **Focused Studies** – Studies needed for specific concerns such as a planned or unplanned facilities out of service, supply studies, for billing and customer inquiries, and to support system replacement projects.

[78] Response to OC-0215.

From Overland's industry experience, these planning and flow studies are typical of what would be performed by a gas utility's system planning group.

Software Utilized

PSE&G uses SynerGi Gas hydraulic modeling software, version 4.92, from DNV-GL to analyze its gas networks.[79] SynerGi Gas hydraulic modeling software is the de facto standard for the gas industry. The software identifies, predicts, and helps address an assets existing or future condition and predicts the effects of changes. Models are created using the following information: pipe diameter, length, roughness, and efficiency; regulator set points and constraints; valve types and size; peak hour customer load and source pressures. The model's output are distribution system pressures and flow volumes.[80]

Gas System Planning updates its hydraulic flow analysis models with projected system loads and distribution system changes, annually. Distribution system changes are ongoing and result from replacement of mains, changes in main pressure from low-pressure to medium pressure, main extensions, infrastructure improvements, additions of new customer load and interface changes with the transmission system. Both loads and distribution system changes are essential to ensure acceptable model results.

Peak Day Forecasting

Gas procurement and supply is managed by PSE&G, the regulated utility. However, PSEG Energy Resource and Trading (ER&T), a nonregulated entity within PSEG Power, performs the actual gas supply procurement. Each year ER&T provides PSE&G a Winter Sendout versus Daily Average Temperature graph for the upcoming winter. Using this relationship for firm demand from the most recent winter, the System Planning group develops the new Gas Forecast peak day demand for the upcoming winter. Using a design criteria temperature of 5°F, System Planning develops peak hour sendout as a percent of the total daily sendout, resulting in a forecasted design day maximum hourly demand network modeling.[81]

Consistent with its Gas Design manual, PSE&G uses the forecasted peak hour demand in its network analysis to identify areas of the distribution system requiring reinforcement to maintain pressure at or above design criteria. The Company also reports that the peak hour network model results are used to compare pipeline contract capacity to daily pipeline supply requirements at each M&R station to identify stations needing additional capacity.[82]

The design peak-day criteria assume a weekday with an average temperature of 5°F, a temperature of 0°F at 8 AM, and an average wind speed of 15 mph at Newark Airport. A study conducted in 2019 of daily temperatures at Newark Airport from 1955 through 2019 indicated an average temperature 5°F or

[79] Response to OC-0219.
[80] Response to OC-0220.
[81] Response to OC-0222.
[82] Response to OC-0217.

below occurs once every 16 years; and PSE&G has been using an average temperature of 5°F for several decades.[83]

A measure of the effectiveness of pre-planned studies is whether any system reinforcement had to be completed on an emergency basis. When asked, the Company reported that in the last five years, nine projects, totaling 7200 feet of pipe and ranging in size from 2 inch to 6 inch, had to be installed on an emergency basis.[84] Typically, when system reinforcement pipe is installed on an emergency basis it means that customers have experienced low pressures or possibly outages. This amount of system reinforcement performed on an emergency basis raises a concern with regards to the design day network model. System planning addressed this concern in a study titled Gas Supply and Design Criteria Review, dated February 11, 2020, which will be discussed in a subsequent section in this chapter.

In the design day network model, M&R station and pounds to pounds regulators are generally set at the maximum allowable pressure. This practice can result two concerns: first, if the equipment performs poorly the MAOP could be exceeded, and second, low points in the system become the system minimum allowable pressure. In addition, add in a margin for forecasting or modeling inaccuracy or colder than design temperatures and you could have customers experiencing low pressures or possibly outages.

In 2020, PSE&G determined that it needed to make changes in its minimum system design pressure set points at M&R station and pounds to pounds regulators. The Company states that it believes current design day temperature is appropriate for peak design day planning. However, additional margin against over pressurization and potential customer outages can be achieved by lowering the M&R station and pounds to pounds regulators set points. The Company is currently in the process of implementing this new regulator setpoint operating criteria.[85]

Verifying the Network Model's Accuracy

We asked PSE&G how it verifies the accuracy of the hydraulic network analysis model, the number of field verification points, for a comparison of forecasted pressure to actual pressure for 2020, and what pressure and flow comparison results does the Company consider acceptable. In response, the Utility stated on a high flow day, typically the coldest day of the year, it uses a combination of 70 SCADA (Supervisory Control and Data Acquisition) control points and 695 remote pressure monitoring points to validate the model pressures. Referred to as a "Cold Day" network model, the peak hour remote source pressures and system demand are compared to the model results. The actual results are then used to adjust the hydraulic model. The Company seeks to achieve model results within plus or minus 10 percent of the actual system pressure and flows, with special emphasis on obtaining accurate pressures at system low points. This finalized Cold Day model is then used in the development of the next year's model.

[83] Response to OC-0221.
[84] Response to OC-0223.
[85] Response to OC-0221.

Due to the relatively mild winter in 2020, PSE&G did not interrupt non-firm rate customers. Consequently, the Cold Day model was not prepared as the distribution system is designed to meet firm customer load.[86]

From Overland's industry experience, the number of SCADA control points and remote pressure monitoring points should provide for a robust assessment of actual system pressures and flows.

Significant Studies

Gas System Planning recently conducted and presented several significant studies:[87]

- **Physical Gas Supply Interruption Risk –** A study titled Physical Gas Supply Interruption Risk – Incremental Risk Response, dated January 15, 2020, provided for a risk review of Peak Day, gas supply capacity, and gas supply interruption. The presentation addressed interruption due to supply, equipment failure and damaged equipment. Key takeaways included: efforts needed to increase system resiliency, possible nontraditional sources (CNG, LNG, renewable gas) to meet the state's gas capacity requirements and future technologies (power-to-gas, carbon capture, improved appliance efficiencies) to support clean energy efforts.
- **Gas Supply and Design Criteria Review –** A study dated February 11, 2020, sought to review gas supply planning criteria and reserve margin. With respect to system design, the study concluded the following: that temperature criteria PSE&G uses are less conservative than other New Jersey LDCs, should temperatures be colder than design system minimum design pressures there was a higher risk of customer outages, if the distribution system is operated very close to the maximum allowable operating pressure (MAOP) there is a risk of exceeding the MAOP, and there is little allowance for forecasting or network model inaccuracies.
- **Gas Strategy Plan-2020 Strategic Utility Initiative** – A study titled Gas Strategy Plan-2020 Strategic Utility Initiative, dated September 17, 2020, had the goal of developing a five-year plan for design and operation of the gas system on peak days. The plan includes eliminating hybrid systems, operating distribution systems to new modeling criteria, identifying increased peak shaving opportunities, and anticipating the location of future peak shaving facilities.

How Projects Are Identified and Justified

Since System Planning is involved in determining the need for projects, a natural extension of the system planning function is developing the capital plan and budget. To gain an understanding of how PSE&G

[86] Response to OC-0224.
[87] Response to OC-0208 (Confidential).

identifies and justifies projects, Overland reviewed process documents as described in the Company's Operational Excellence Model (OEM),[88] as follows:[89]

- **Replacement Facility Identification and Prioritization –** Support asset strategy implementation by annually identifying specific gas assets for replacement, complying with federal and state regulatory requirements and prudent annual work levels.
- **Capacity Planning –** Develop system design criteria to plan and operate the distribution system, and to cost-effectively expand each system to meet customer needs.
- **Design Gas System –** Develop cost-effective gas distribution system modifications and additions in accordance with PSE&G standards and all federal and state regulations.
- **Construct New Business –** Design, plan and construct new business-related gas distribution facilities in compliance with all federal and state regulatory requirements.

For each of these processes there is an explanation of the OEM document hierarchy, the purpose, who owns the process and their role, detailed process workflows and activity descriptions, scorecard measures directly and indirectly impacted, terms and definitions, cross-references to related documents and if needed, attachments.

From Overland's industry knowledge, process definition to this degree of specificity represents a leading industry practice.

New Load Requests Exceeding Capacity

When a new load results in exceeding a pipelines capacity or the need to exceed MAOP (maximum allowable operating pressure), the Company will first apply diversification criteria to better understand the peak demand. If system reinforcement is required, any existing planned work that may support the load is identified. Then analysis is conducted to determine the most appropriate system reinforcement project based on cost, constructability, environmental concerns, etc. Solutions may include system reinforcement, system uprate, supply adjustments, mobile LNG, compressed natural gas, etc.

Overland asked the Utility to give examples that occurred in the last five years of where potential alternatives to new long-term system reinforcement projects required to meet future peak load requirements were initiated or are under consideration.[90] In response, the Company provided one gas example and two electric examples. The gas example, called Hamilton System Reinforcement Project was needed to address peak day demand and maintain adequate pressure in the 60-pound Southern system. Temporary LNG was considered, but eventually extension of the high-pressure distribution main

[88] PSE&G's Operational Excellence Model (OEM) is composed of 5 levels of documents: Core Functions, Processes / Sub-Processes, Procedures, Technical Manuals and Job Hazard Analyses (JHA).

[89] Responses to OC-0210 and 0192 (Confidential).

[90] Response to OC-0212 (Confidential).

and construction of a new regulating station was selected. PSE&G memorialized its analysis in a Record of Decision.

The concept of non-pipe alternatives, as a means to address new long-term reinforcement projects, is relatively new. At present, PSE&G does not have a written policy and process regarding the assessment of potential non-pipeline alternatives to long-term system reinforcement projects.[91] Having a written policy and process would help guide a uniform approach to assessing the viability of alternative supply sources for any given pipeline capacity deficiency.

Impact of the New Jersey Energy Master Plan

Regulatory environment and legislative policy initiatives impacting the use of natural gas are incorporated into the gas sales forecast model by PSE&G's Electric and Gas Sales Forecasting group. The effect of these initiatives is accomplished by incorporating the annual energy efficiency and conservation targets from the Energy Master Plan and Clean Air Act. For example, the sales forecast includes a retail sales reduction of 1.1 percent by year five as established in the BPU's Energy Efficiency and Peak Demand Reductions order, dated June 10, 2020. The sales forecast further assumes the 1.1 percent annual savings level from year five until the end of the 10-year forecast; and the target of reducing state greenhouse gas emissions by 80 percent below 2006 levels by 2050 will be addressed in the sales forecast once the legislative policies have been defined or implemented .[92]

The Electric and Gas Sales Forecasting group produces three gas related forecasts: a Monthly Sales Forecast, a Peak Day Forecast, and an Hourly Peak Forecast.[93] By using these various sales forecasts in its hydraulic network analysis modeling, System Planning takes the current regulatory environment and legislative policy initiatives into account in its system planning assumptions.

Capital Program

In this section, we discuss the Company's capital program and the capital budget required to support the program. Consideration of the capital program starts with gaining an understanding of PSE&G's strategy for maintaining the condition of major gas assets. In addition, specific subsections address the Leak Hazard Assessment model, PSE&G's distribution system asset replacement policies, the various BPU approved accelerated asset replacement programs, assesses the Gas System Modernization Program's efficiency and effectiveness, and concludes with five years of actual and seven years of forecasted budget categories that comprise the Gas Delivery function's capital program.

[91] Response to OC-0213.
[92] Responses to OC-0225 and 1432.
[93] Response to OC-1433 (Confidential).

Strategy for Maintaining Major Distribution Assets

PSE&G's strategy for maintaining major distribution assets starts with embracing the Distribution Integrity Management program (DIMP)elements. Required by the Federal pipeline safety regulations, CFR Part 192, DIMP focuses attention on identifying risks to distribution pipelines where an incident could result in a serious consequence, and then requires focused priority attention in those areas. PSE&G's written DIMP plan is appropriately based on the following elements:[94]

- Knowledge
- Identify Threats
- Evaluate and Rank Risks
- Identify and Implement Measures to Address Risks
- Measure Performance, Monitor Results, and Evaluate Effectiveness
- Periodic Evaluation and Improvement
- Report Results

The Utility states it reviews the DIMP plan annually and updates it to reflect process, procedures, and analysis for each of the above elements of the program. In addition, the Company states it performs a complete program reevaluation every five years, the first of which was conducted in 2016 by a third-party auditor. Overland reviewed the independent auditor's assessment and noted several significant strengths as well as opportunities for improvement. Consistent with the Utility's expressed intent, Overland urges that the complete DIMP five-year reevaluation be continued.

Leak Hazard Assessment Model

Evaluating and ranking risks is accomplished through use of PSE&G's Leak Hazard Assessment model. This predictive model, considers both the pipe facility's leak history and a series of environmental factors, resulting in a relative Leak Hazard Index ranking. Environmental considerations include: building setback, number of underground utilities, whether area is urban, suburban or rural, whether surrounding buildings are industrial, commercial, or residential, pipe diameter and operating pressure.[95]

The Company's 2018 DIMP risk assessment identified the following facilities as having the highest risk due to the susceptibility of a threat and the consequences of a pipe failure:

[94] Response to OC-0818 (Confidential).
[95] Response to OC-0179.

Table 18-28– 2018 DIMP Risk Assessment

GAS ASSETS - HIGH RISK					
Facility	**Cause**	**Matrix Value**	**Rank**	**Relative Ranking**	
Plastic Services	Excavation Damage	1.454	1	1	High
Cast Iron Joints - Pre 1946	Natural Force Damage	1.089	2	0.75	High
Cast Iron Pipe - Pre 1946	Natural Force Damage	0.982	3	0.68	High
Steel Services	Corrosion	0.642	4	0.44	High
Cast Iron Pipe - Post 1946	Natural Force Damage	0.48	5	0.33	High
Response to OC-0818 (Confidential).					

Excavation damage to plastic services has been identified by PSE&G as the highest risk to the integrity of its gas delivery system. The subsection titled Damages Prevention Program Chapter 19 – Contractor Performance has additional discussion on this topic. Natural Force damage is also a high rated risk for cast iron pre- 1946 joints and cast iron pipe whether pre-1946 or post-1946 vintage. Similarly, corrosion in unprotected steel services ranked as the fourth highest risk. At a high level, Overland was able to confirm PSE&G's DIMP risk assessment based on data reported in Gas Distribution Annual DOT reports to Pipeline and Hazardous Materials Safety Administration (PHMSA).[96]

The Company's stated policy is to manage these facilities, keeping the potential risk to a minimum by annually studying its distribution systems leakage and breakage experience. Thus, the needed replacement levels and required funding is based on knowing the historical condition, failure rates, and maintenance of each type of asset.

When asked to demonstrate the overall effectiveness of its program in mitigating distribution system risk, PSE&G indicated that overall distribution leaks per mile, number of hazardous leaks per year, excavation damage, and annual total utilization pressure cast iron brakes are all in a declining trend. Furthermore, leak totals for utilization pressure cast iron, high pressure cast iron and unprotected steel main have been maintained below the BPU reported upper performance limits; and both the risk of water infiltration and over pressurization has been reduced. Also, an investigation was initiated to eliminate any cross bores due to horizontal directional drilling.[97]

To help maintain focus on potential incident causes, the Company prepares a balanced scorecard which highlights selected metrics concerning Gas Leak Reports per Mile, Leak Response Rate, Open Leaks, and Damages per 1,000 Locate Requests. These highly illustrative and informative reports are prepared monthly and circulated to senior leadership.[98]

Strategy for Maintaining Transmission System Assets

Operators of transmission pipelines were required to develop integrity management programs for pipe segments located in high consequence areas (HCA's) by December 2004 and to begin the baseline

[96] Response to OC-0155.
[97] Response to OC-1102 (Confidential).
[98] Response to OC-0153 (Confidential).

integrity assessment of those segments no later than June 2005. All baseline assessments were required to be completed by December 2012 and then each pipeline segment is to be reassessed every seven years.

The goals of the TIMP program are to:

- Operate safely in areas where failure could significantly and adversely impact the well-being of the public, environment, and/or property.
- Provide reliable transportation of natural gas to the distribution system.
- Maintain system integrity beyond the pipeline design life.

PSE&G's transmission system consists of 54.1 miles of cathodically protected coated steel transmission main of which 37.6 miles are in HCA's and operate at pressures ranging from 250 to 800 psi. The results of the baseline assessment did not disclose any external corrosion, dents, manufacturing, or coating anomalies where immediate remediation was required. Initially External Corrosion Direct Assessment (ECDA) was the primary means of assessment. In ensuing years various pipelines have been modified to accept the robotic in-line inspection (ILI) tool. Although the assessments have found numerous anomalies, the overall conclusion remains that the transmission system is both safe and reliable.

Since its development, the Company's TIMP has been reviewed either by PSE&G's internal audit staff or independent third-party auditors on five occasions 2011, 2015, 2017, 2018 and 2020. The most recent audit conducted by an outside firm was complementary towards PSE&G's TIMP in the areas of reviewing and documenting HCA's and for having a comprehensive ILI program. However, the audit noted several deficiencies as follows:

- **Threat Identification and Risk Assessment** – Threat and risk assessment process does not always include all applicable data.
- **Assessments** – Project documentation used to analyze possible growth of indications associated with the ILI program is not consistent in its level of completeness.
- **Preventive and Mitigative Measures** – While implementing P&M measures, the Company has not thoroughly documented the measures taken to address active threats.
- **Mega Rule Impact** – Mega Rule Part 1 procedure documents have not been updated. The Mega rule was in a stay of enforcement at the time of the audit.[99]

These deficiencies had been addressed by the end of calendar year 2021, as is evidenced in the Company's updated TIMP.[100]

[99] Response to OC-1101 (Restricted and Confidential).
[100] Supplemental Response to OC-0152 (Confidential).

Replacement Policy of Other Distribution System Assets

Pounds to Pounds Regulators - To meet performance issues or system reinforcement capacity needs, pounds to pounds regulators are replaced on a case-by-case basis. The Company is currently considering a program to modernize these assets.[101]

District Regulators - As utilization pressure systems are phased out, these regulators are being eliminated. Since the inception of the GSMP in 2016, the Utility has eliminated 247 district regulators.[102] In areas not yet converted to higher pressure, they are being replaced on a case-by-case basis due to performance issues.

Valves – Periodically, valves are replaced as a result of failure or main infrastructure replacement. Valves may be abandoned in place if no longer required consistent with the Company's Gas Design Manual and Gas Distribution Standards.

Failure Prone Material - Between 2013 and 2014 a program was conducted to replace Itron B-57R Service Regulators. As additional regulators of this type are found they are removed. Kerotest Kerotite Zytel-body Service Valves with Compression Ends are prone to leakage. As valves of this type are encountered, they too are replaced.[103]

Main and Service Replacement Policy

PSE&G's policy is to manage its distribution system to minimize the potential risk associated with failure prone pipe in its system. By conducting an annual analysis to evaluate system leakage and breakage, the Utility's Asset Management group evaluates replacement program priorities and determines future year replacements. The policy covers cast iron at elevated and utilization pressure, unprotected steel mains and services, and inferior plastic materials. In addition, the policy addresses when mains and services should be considered for replacement ahead of paving by others or in an area where adjacent construction activity is taking place.[104]

Overland reviewed the Company's Main and Service Replacement Policy dated, November 16, 2016, and found it to be concise and prescriptive in addressing specific distribution system replacement priorities.

Targeted Main and Service Replacement Programs

Cast Iron Main Programs – The Company has had a combination of segment-by-segment replacement based on risk assessment methodology, as well as targeted cast iron main and service replacement programs for over 50 years. In 1971 the inventory of cast iron main was 6,388 miles. Seeking to eliminate the potentially most hazardous cast iron mains, PSE&G has targeted 3-inch cast iron, 8-inch

[101] Response to OC-0186.
[102] Response to OC-0869.
[103] Response to OC-0157 (Confidential).
[104] Response to OC-0157 (Confidential).

and smaller cast iron operating at 15 PSIG, and 12-inch and smaller cast iron operating in the 60 PSIG system.

Unprotected Steel Service Replacement Program – In 1998, the Company implemented an Unprotected Steel Service Replacement Program. The replacement program targeted bare and cathodically coated but unprotected steel services when 20 percent or more of the services in a given area were found to have leaked. At the time the program was initiated, the estimated number of bare and coated cathodically unprotected service was 320,000 units. As of the end of 2020 the number of bare and coated cathodically unprotected steel services has been reduced by 68 percent to 102,728 units.

Unprotected Bare Steel Main Replacement Program – In 2005, PSE&G enhanced the level of unprotected bare steel main replacement. This program was an acceleration of existing replacement levels, by prioritizing the elimination of unprotected bare steel main from distribution service. At the time the program was initiated, the estimated number of unprotected bare steel mains were 596 miles. As of the end of 2020, the miles of unprotected bare steel main still in service was reduced by 71% percent to 171 miles.[105]

Energy Strong Program I and II – In 2014, in response to the devastation caused by Hurricane Sandy, the Company initiated the Energy Strong Program to accelerate the replacement of utilization pressure cast iron (UPCI) mains and raise certain M&R station and plant facilities in areas prone to flooding.

At the time the program was initiated, the amount of UPCI in flood zones was approximately 218 miles; at the end of 2020 the amount of pipe has been reduced to 17 miles. While this is beneficial, it does not fully address the water infiltration of low-pressure pipes. Between 2015 and 2020, PSE&G experienced 2,177 instances of groundwater infiltrating low-pressure systems of which only 15 occurred within flood zones. While the Energy Strong Program I replaced the low-pressure cast iron in the FEMA flood zone areas, the other 2,162 instances of groundwater infiltrating low-pressure systems will need to be upgraded to medium pressure to prevent future water intrusion through some other program.[106]

Gas System Modernization Program I and II – In 2016, PSE&G initiated the Gas System Modernization Program (GSMP) to accelerate the replacement of UPCI main, unprotected steel mains and services; abandon district regulators associated with this cast iron and unprotected steel, and relocate inside meters. Modernization of the gas distribution system will result in enhanced safety and reliability, enable the installation of high-efficiency appliances, and reduce methane emissions.
The program prioritizes UPCI and unprotected steel replacement based on a Leak Hazard Index per mile of main. The Hazard Index is based on a predictive model developed from a combination of leak history and environmental conditions. By designating the distribution system into prioritized grids of A, B, C, and D priorities, the Company can prioritize replacement and remove the most break and leak prone

[105] Response to OC-0185.
[106] Response to OC-0167.

UPCI and bare steel main in the system.[107] As a method of sub prioritization, methane emission flow volume was included in both GSMP I and II to reduce environmental impacts of natural gas emissions.[108] GSMP I and II programs have two components, investments recoverable through the GSMP Rate Mechanism and those that are not recoverable through the GSMP Rate Mechanism, referred to as the Stipulated Base program.

Gas System Modernization Program to Continue

PSE&G plans to file for future GSMP programs as well as continue its Distribution Integrity Management Programs (DIMP) for the replacement and/or rehabilitation of its gas system. In addition to reducing the risks associated with its gas distribution system, PSE&G cites several benefits that can be realized through continuation of the GSMP; these benefits include:[109]

- Improved environmental benefits through methane emissions reduction.
- Better safety for customers through installation of excess flow valves.
- Enhanced reliability by eliminating the potential of freeze ups in low-pressure risers.
- Expanded customer choice to accommodate new technologies and appliances by eliminating the low-pressure system.
- Reduced O&M costs associated with emergency leak response and inspection and maintenance of regulator stations.
- Improved damage prevention through more accurate records, installation of tracer wire and warning tape.

The Company states it will continue to monitor various metrics to ensure GSMPis accomplishing what it was intended to do. These metrics include:

- Diminished inventory of cast iron and unprotected steel mains and unprotected steel services.
- Decreased cast iron breaks and utilization pressure cast iron breaks per mile rate remain below upper performance limits.[110]
- Cast iron main leaks per mile and unprotected steel main leaks per mile rates remain below upper performance limits.[111]
- Reduced inventory of district regulators, because of system pressure upgrades.

Gas System Modernization Program Effectiveness

To help assess the effectiveness of the GSMP, PSE&G prepared a grid hazard analysis prior to the GSMP I Filing in 2015 and prior to the GSMP II Filing in 2017, and has indicated it will prepare another grid

[107] Response to OC-0158.
[108] Response to OC-0179.
[109] Response to OC-0556.
[110] Response to OC-0556.
[111] Response to OC-0556.

hazard analysis prior to filing an extension of GSMP. The next chart shows the grid hazard analysis tables that were prepared in 2015 and 2017.[112]

Table 18-29– Grid Hazard Analysis Comparison

Grid Hazard Analysis Comparison				
	2016		2018	
PRIORITY	Hazard Index Per Mile	MILES	Hazard Index Per Mile	MILES
A	≥ 15	467	≥ 15	143
B	10 - 15	625	10 - 15	468
C	5 - 10	1324	5 - 10	1,368
D	< 5	1072	< 5	918
Response to OC-0158.				

Utilizing the Hazard Index approach enables prioritization of map grids by A, B, C, and D in descending order based on the Hazard Index per mile of main per map grid. So, if PSE&G is selecting the most hazardous grids to work on first and the miles of lower priority pipe is not deteriorating to place them in a higher priority, the miles of inventory in the higher priority categories should be reduced as we see in the above tables. Further, observing the data between the tables, the hazard Index per mile of main per map grid demonstrates how lower priority pipe can move up to a higher priority over time. For example, when comparing the Priority C miles between the grids, the number of miles has increased.
The Hazard Index per mile of main per map grid is in effect a high-level indicator of progress resulting from the GSMP. PSE&G estimates that to update the hazard Index per mile of main per map grid annually would take approximately 40 hours.[113]

Overland believes it is important that the GSMP be able to demonstrate its success in reducing Hazard Index per mile of main annually and recommends that the inventory of prioritized utilization pressure cast iron main based on the Hazard Index per mile of main per map grid be performed annually and reported to the BPU.

Gas System Modernization Program Efficiency

When pursuing a significant capital-intensive program such as GSMP, it is essential that the program be both cost-efficient and effectively managed. PSE&G has been working with the American Gas Association (AGA) and AGA member companies to benchmark gas main replacement best practices. By utilizing peer to peer sessions, the Company reviews its internal processes covering topics such as management and damage prevention, safety, and pipeline management.

When the Gas Construction group was formed, PSE&G sought to develop a project management approach and utilize current project management tools to efficiently manage the work of GSMP I and GSMP II. By implementing the Project Management Body of Knowledge (PMBOK) and Project

[112] Response to OC-0158.
[113] Response to OC-1065.

Management Institute (PMI) methodologies, PSE&G now employs practices that have proven to be successful in managing projects. The Company's project management approach and cost results are further discussed in Chapter 19 – Contractor Performance.

When asked if based on the Company's GSMP experience to date, does PSE&G anticipate being able to demonstrate enhanced efficiency and effectiveness in its replacement/rehabilitation of cast iron and unprotected steel as a result of "Leverage AGA for Continuous Improvement and "Continued Working with Project Management Institute?" the Company answered "Yes. As the program progresses, redundancies are removed and opportunities to improve efficiency and production are created. Lessons learned through our own or AGA member experiences can be used to improve gas main replacement in the future."[114]

Capital Budget

Of course, maintaining PSE&G's assets and modernizing its distribution system requires increased capital expenditures. But as we saw from the 2019 Data Year Benchmark Result, PSE&G's Gas Construction Cost/Dth and Gas Construction Cost/Customer both compare favorably to the Utility's peers. This comparison should help to enable PSE&G to continue with its future capital investments to support the GSMP programs.

The following table describes the actual yearly gas capital expenditures for the last five years and the forecasted capital expenditures between 2022 and 2027. Total expenditures have been broken down by the following categories: New Business, Facilities Replacements, System Reinforcements, Environmental/Regulatory, Facilities Support, Energy Strong I, Energy Strong II, GSMP I, GSMP I Stipulated Base, GSMP II, and GSMP II Stipulated Base.[115]

[114] Response to OC-0557.
[115] Response to OC-0193 (Confidential).

Table 18-30– Gas Capital Investments

Gas Capital Investments												
	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Forecast	2022 Forecast	2023 Forecast	2024 Forecast	2025 Forecast	2026 Forecast	2027 Forecast
New Business	$ 79.2	$ 73.7	$ 94.8	$ 90.1	$ 99.7	$ 96.7	$ 99.4	$ 101.2	$ 103.0	$ 105.6	$ 97.7	$ 90.3
Facilities Replacements	$ 113.7	$ 231.7	$ 290.4	$ 123.6	$ 97.2	$ 121.5	$ 138.3	$ 308.5	$ 102.0	$ 224.6	$ 224.4	$ 601.6
System Reinforcements	$ 60.4	$ 71.1	$ 72.7	$ 52.9	$ 60.0	$ 71.2	$ 160.8	$ 236.8	$ 65.1	$ 63.8	$ 73.6	$ 62.2
Environmental/Regulatory	$ 27.2	$ 36.0	$ 38.4	$ 34.3	$ 29.9	$ 33.0	$ 30.9	$ 30.9	$ 31.1	$ 30.0	$ 31.0	$ 31.0
Facilities Support	$ 8.7	$ 12.8	$ 34.6	$ 7.8	$ 15.1	$ 19.9	$ 34.1	$ 44.2	$ 28.1	$ 28.5	$ 28.5	$ 28.5
Energy Strong I	$ 70.3	$ 4.6	$ 0.1	$ 0.0	$ 0.0	$ 0.2	$ -	$ -	$ -	$ -	$ -	$ -
Energy Strong II	$ -	$ -	$ -	$ 0.1	$ 4.0	$ 30.4	$ 27.9	$ 38.7	$ -	$ -	$ -	$ -
GSMP I	$ 159.0	$ 244.5	$ 200.8	$ 47.6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
GSMP I Stipulated Base	$ 94.8	$ 99.9	$ 93.9	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
GSMP II	$ -	$ -	$ -	$ 287.6	$ 406.9	$ 422.5	$ 337.0	$ 143.0	$ -	$ -	$ -	$ -
GSMP II Stipulated Base	$ -	$ -	$ -	$ 59.5	$ 46.2	$ 53.0	$ 70.0	$ 70.5	$ -	$ -	$ -	$ -
Total Gas Capital Expenditures	**$ 613.3**	**$ 774.5**	**$ 825.7**	**$ 703.5**	**$ 759.2**	**$ 848.5**	**$ 898.3**	**$ 973.6**	**$ 329.3**	**$ 452.5**	**$ 455.2**	**$ 813.6**
Response to OC-0193.												

When viewing the information presented in this table there are several data points and trends that require an explanation.

- The category of New Business grew by 25 percent from $79.2 in 2016 million to $99.7 in 2020, even though PSE&G has not engaged in efforts to expand gas service over this time period.[116] Between 2016 and 2020 the Company as added an average of 21,000 residential and commercial customers requiring approximately 230,000 feet of main and 6,000 services, annually. In addition, PSE&G responded to approximately 600 residential and commercial conversion requests.[117]
- As a result of the Energy Master Plan, the Company anticipates adding less customers and consequently reduced main, service and meter capital expenses in 2026.
- The increase in expenditures in 2022 – 2023 system reinforcements represent projects to eliminate hybrid systems, lowering M&R set points and elevating minimum system pressures. PSE&G states the benefits of these expenditures include reducing the risk of over pressurization, eliminate the need for M&R station pressure setting changes, reduce the risk of operator error, and improve system resiliency.
- Facility replacements increases from $224.4 million in 2026 to $601.6 million in 2027. The Utility anticipates “aggressive reductions” in cast iron main, unprotected steel services and enhancements to M&R facilities.
- Although GSMP II is shown as being complete in 2023, it is PSE&G’s intention to pursue with the BPU an extension of the GSMP program.[118]

[116] Response to OC-0195.
[117] Response to OC-0196.
[118] Response to OC-0870.

Operations and Maintenance

In addition to capital investments, the Company maintains an active facility repair process to support the reliability and safety of its distribution system. This entails finding and repairing gas leaks on mains, services, and customer premises; and performing other O&M related activities such as responding to emergency situations involving gas facilities, inspecting and maintaining various types of equipment associated with the distribution system, and a variety of customer focused activities. Also, there are number of miscellaneous activities that get classified as O&M expense, such as business and employee support activities and research & development.

Operations and Maintenance Budget

The following table describes the actual yearly gas operations and maintenance expenditures for the last 5 years and forecasted gas O&M expenditures between 2022 and 2027. Each year's expenditures are summarized into the categories of Distribution Operations, Distribution Maintenance and Gas Transmission and with additional category detail of AS Safety, AS Measurement, Gas Markouts and Inspections & Surveys; and Mains and Service Maintenance.[119]

Table 18-31– Operations and Maintenance Expenditures

Operations and Maintenance Expenditures												
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
Distribution Operations	$ 119.6	$ 115.0	$ 126.9	$ 119.1	$ 121.7	$ 118.7	$ 121.6	$ 124.7	$ 127.8	$ 131.0	$ 134.2	$ 137.6
Distribution Maintenance	$ 22.9	$ 20.9	$ 20.5	$ 18.6	$ 28.2	$ 20.9	$ 21.4	$ 21.9	$ 22.5	$ 23.0	$ 23.6	$ 24.2
Gas Transmission	$ 2.6	$ 5.8	$ 2.3	$ 2.4	$ 2.7	$ 2.7	$ 2.8	$ 2.9	$ 3.0	$ 3.0	$ 3.1	$ 3.2
Total Gas O&M Expenditures	**$ 145.0**	**$ 141.6**	**$ 149.7**	**$ 140.1**	**$ 152.6**	**$ 142.3**	**$ 145.8**	**$ 149.5**	**$ 153.2**	**$ 157.0**	**$ 161.0**	**$ 165.0**

Additional Category Detail	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Actual	Actual	Actual	Actual	Actual	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
AS Safety (Operations)	$ 49.1	$ 45.6	$ 54.0	$ 54.6	$ 52.3	$ 55.7	$ 58.8	$ 60.2	$ 61.7	$ 63.3	$ 64.8	$ 66.5
AS Measurement (Operations)	$ 25.3	$ 21.1	$ 17.0	$ 15.9	$ 10.8	$ 9.8	$ 17.2	$ 17.6	$ 18.0	$ 18.5	$ 18.9	$ 19.4
Gas Markouts (Operations)	$ 18.6	$ 20.0	$ 21.3	$ 17.0	$ 17.7	$ 18.0	$ 18.5	$ 18.9	$ 19.4	$ 19.9	$ 20.4	$ 20.9
Inspections & Surveys (Operations)	$ 8.2	$ 7.2	$ 9.8	$ 9.9	$ 11.0	$ 12.5	$ 12.8	$ 13.1	$ 13.5	$ 13.8	$ 14.1	$ 14.5
Main & Service Maintenance (Maintenance)	$ 6.7	$ 6.5	$ 7.7	$ 7.5	$ 8.6	$ 7.5	$ 7.7	$ 7.9	$ 8.1	$ 8.3	$ 8.5	$ 8.7
Response to OC-0194.												

Where:

- **AS Safety** – Is tariff work performed by appliance service personnel, i.e., leak response, no heats, etc.
- **AS Measurement** – Is tariff work performed by appliance service personnel, i.e., active & inactive orders, reconnect meter for nonpayment, etc.
- **Gas Markouts** – Costs associated with marking out gas and underground electric facilities.

[119] Responses to OC-0194 and 1100 (Confidential).

- **Inspection & Surveys** – Costs stemming from various inspection surveys, i.e., walking, leak mobile, business district, etc.
- **Meter & Service Maintenance** – Includes costs such as non-leaking main repairs, water infiltration, regrading valve/curb boxes, locating test stations, clearing contacts, repairing insulation, and repairs to district regulators.

Most of the actual O&M cost data reflects inflation related increases except for:

- **AS Safety** – Low winter temperatures resulted in cost increases in 2018.
- **AS Measurement** – Shutoffs for nonpayment were curtailed due to COVID-19 resulting in reduced costs in 2020 and 2021.
- **Gas Markouts** – Costs were reduced in 2019 as a result of technology enhancements.
- **Inspections and Surveys** – Frequency of business district survey was increased from every three years to one, resulting in a cost increase in 2021.

Based on the data presented the overall growth rate for O&M expense consistently increases but is projected to stay below the expected rate of inflation.

Reduced O&M Expenditures Attributable to Infrastructure Replacement Programs

PSE&G has had several accelerated infrastructure replacement programs in effect, Energy Strong I and GSMP I, and GSMP II, in addition to its normal infrastructure replacement program resulting from DIMP Program Expenditures. Overland asked and was advised that these accelerated infrastructure replacement programs are expected to reduce future main and service O&M costs. The following table provides an estimate of savings attributable to each of the accelerated infrastructure replacement programs through 2024. The annual O&M saving estimates are based on the actual units of facilities taken out of service and are considered estimates as it is not possible to calculate actual avoided cost since the facilities are no longer in service.[120]

Table 18-32– O&M Savings Resulting from Infrastructure Replacement Programs

Estimated Annual O&M Savings										
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Energy Strong Total O&M Savings ($Ms)	$0.08	$0.18	$0.19	$0.20	$0.20	$0.21	$0.21	$0.22	$0.22	$0.23
GSMP I Total O&M Savings ($Ms)	N/A	N/A	$0.09	$0.17	$0.23	$0.23	$0.24	,25	$0.25	$0.26
GSMP II Total O&M Savings ($Ms)	N/A	N/A	N/A	N/A	N/A	$0.20	$0.43	$0.65	$0.87	$1.10
Responses to OC-0184 (Confidential) and OC-1430.										

Overland reviewed PSE&G's "Avoided Cost" worksheet, which detailed how the O&M savings for GSMP II were calculated and generally agrees with the Company's methodology and assumptions. The savings

[120] Response to OC-0184 (Confidential) and 1430.

attributable to the Energy Strong II program does not include any estimated O&M savings as the intent of the program was to raise and protect these M&R stations from flooding, as opposed to reducing anticipated O&M costs.

Inspection and Maintenance Programs

Overland reviewed the various inspection and maintenance programs PSE&G performs on its distribution system. In total, a list of 28 programs were provided, along with a brief description of each program, the frequency and who requires that the program is performed, and whether it exceeds Federal Code or New Jersey requirements. The list of inspection and maintenance programs provided are consistent with federal or state code and are required to help maintain a safe and reliable distribution system.[121]

There are several programs that PSE&G performs that exceed regulatory requirements. These programs include:

- **Non-Business Area Main Leak Survey** – Federal code requires this survey to be conducted every five years and for cathodically unprotected mains every three years. PSE&G completes the survey annually.
- **Winter Patrol Survey** – Is not required by code. The Company conducts this leakage control survey in business areas and other locations during cold winter weather.
- **Public Building Inspections** – Is not required by code. PSE&G conducts public building inspections every three years to verify curb valve location, accessibility, and test for leaks.
- **House Heater Periodic Inspection –** Is not required by code. PSE&G conducts a safety inspection of residential house heaters every five years.
- **Transmission Inspection Patrol** – New Jersey requires monthly patrols, while the federal requirement is for quarterly controls. The Company conducts a transmission pipeline safety inspection two times per month.
- **Transmission Leak Survey** – Federal code requires an annual survey. PSE&G surveys its transmission pipelines for leaks two times year.

Inspection And Maintenance Year-End Backlogs

Asset related inspection and maintenance work scheduled and year-end backlogs for each of the last five years for a variety of work inspection and maintenance activities were reviewed; and the results obtained for each type of survey or inspection are as follows:[122]

[121] Response to OC-0187.
[122] Response to OC-0188.

Corrosion structure surveys – Corrosion structures surveys are scheduled to be read and completed within the year as well as backlog structures. Testing as tract in the Mobile Inspection Management System (MIMS) showed a minimal acceptable backlog in each of the last five years.

Various surveys – Leak mobile/private right away, manhole/business, service miles and transmission/high pressure distribution surveys are all tracked in the Delivery Work Management System and were shown to be 100 percent completed in each of the last five years.

Regulator inspections – District regulator and pounds to pounds regulators as tracked within MIMS System showed a 100 percent completion in each of the last five years.

Exposed Pipe Inspections – Exposed pipe inspections, as tracked within MIMS, confirms that they are inspected as required on a three-year cycle.

Inside and Outside Meter Set inspections – PSE&G has had consistent difficulties in completing these three-year cycle atmospheric corrosion and leakage inspections. For example, in 2020, 138,416 outside meter inspections were due and 126,895 or 91.7 percent of the inspections were completed. The situation for inspecting inside meter inspections shows a far greater gap with 297,669 inside meter inspections due in 2020 and only 90,895 or 30.5 percent of the required inspections completed. Prior to 2016, meter inspections were performed in combination with responses to customer homes/businesses for other work. In 2016, Gas Operations initiated a program utilizing 36 employees to perform inside and outside meter set inspections exclusively. This program helped to close the gap, but access to inside meters remains difficult. Consequently, as gas services are replaced, whether on an individual basis or in concert with GSMP inside meter sets, in most cases, are being relocated outside.[123]

Line valves inspections – Both Transmission and Distribution line valves are inspected at least once per year, similarly separation valves are also inspected yearly. For the last three years PSE&G has been able to complete all valve inspections and has achieved a zero backlog in both the line and separation valve categories.

Meter and Regulating Station inspections – Various assets in PSE&G's M&R Station are inspected annually. The Company has been able to achieve a zero backlog in each of the last five years.

Support Functions and Other Concerns

Critical to successfully managing a gas distribution system are robust information technology support and timely access to accurate records. This section explores both of these areas, as well as highlights certain important hydrogen related research projects the Gas Delivery function supports and discusses the regulatory environment in which the Utility functions in today.

[123] Response to OC-1431.

IT Systems Used to Support Gas Delivery

PSE&G employees numerous IT systems to support the Gas Delivery function and currently has many significant replacements and or enhancements contemplated for improved future functionality. The following is a brief description of the IT systems currently in use and the improvement plans that are underway or contemplated.[124]

Deliver Work Management System (DWMS-CAD) – Enables the dispatching of work to mobile data terminals. Functionality includes timesheets, facility as-builds, trouble reporting and job status. This system was scheduled to be replaced in 2021 by Mobile Work Management Solution (MWMS). MWMS will provide a simplified interface on mobile devices such as iPhones and iPads, with features such as Talk to Text and attaching pictures of equipment damages. Potentially this system should improve work scheduling, dispatching and completion recording.

Geographical Information System (GIS) – Is a system that creates, manages, analyzes, and maps all types of data. Updated daily, the GIS serves as the asset register for gas transmission and distribution facilities. Sketches of gas assets are obtained from the system. This system is scheduled to be replaced in the first quarter of 2024.

ACES – Used in the appliance service business for scheduling, execution, and completion of orders.

Synergi Gas – Modeling tool used to perform gas system studies and analysis. This system is the de facto industry standard and is scheduled to be upgraded in the first quarter of 2024.

Business Objects (Crystal Report) – Used to track asset information and when inspections are due and completed. This system is scheduled to be replaced by PowerBI.

Automated Vehicle Location System (AVLS) – Used as a fleet management tool, allows the tracking of locations and other pertinent information for vehicles and heavy equipment.

Gas Estimating System – A job cost estimating tool due to be replaced by innovative system called GIS Gas Design. This new system planned for some time in the future, will integrate with GIS data eliminating the need to manually redraw assets and when linked to SAP's compatible units will allow for automatic generation of cost elements and work orders. Construction crews will have access to sketches and can confirm work when completed.

Mobile Information Management System (MIMS) – This system gives the field user a mobile device to identify and record the inspection of assets. Inspection results are updated into the GIS system daily. The system is planned to be upgraded the first quarter of 2024.

[124] Response to OC-0191.

Strategic Planning Optimization Tool (SPOT) – An exciting new application that supports the ability to optimize labor resource utilization with the financial plan. The expectation is reduced workforce over-time and nonproductive time through more efficient use of labor. The Company states ultimately the technology could enable Machine Learning, predicting work demand based on historic data.

Gas Bid & Daily App – This system was used to replace the recording of contractor construction work, which prior to its installation, was paper intensive. Deployed on a mobile device, field inspectors can create the contractor's daily work record allowing for electronic review and approval.

Translore Markouts – To support the New Jersey One Call tickets, this system is used to process dispatch and record completed work and is scheduled to be replaced in 2021 by MWMS.

Gas Reports – Used to report DWMS CAD field construction completion data. This application is planned to be replaced by Tableu and PowerBI.

SAP – Enterprise resource planning software which contains key organizational business functions. Currently tracks gas distribution operator qualification (OQ) and appliance service OQ. OQ tracking and historical data is currently on multiple systems and will be migrated to SuccessFactors LMS in late 2021.

SuccessFactor LSM – Software used to record training. As a process improvement, the tracking of training and historical data in SAP, described above, will be migrated by the end of 2021, to SuccessFactors LMS as the only tracking system for OQ.

Questionmark On-Demand – Used to develop, distribute, and track testing assessments such as quizzes, exams, and hands-on evaluation checklists.

Gas Asset Tracking and Traceability (LocusView) – Scheduled for installation in 2021, allows gas distribution crews to link the location and material manufacturer information for all new material as it is installed in the field. The information collected will then be maintained in the GIS system for accurate record-keeping.

Management of Change (MOC) – Software that documents and tracks asset pressure setting changes to ensure system control, safety, and reliability.

Distribution Integrity Management Program (DIMP) – In connection with Gas Delivery's DIMP, the Company is contemplating implementing probabilistic risk analysis software. This software enables consistent risk assessment across all asset types and aids in understanding high-risk assets and resource allocation. Probabilistic models are considered an industry best practice.

As can be seen, the Company has numerous IT systems in place to aid in the optimization of its operations and response capabilities. In addition, PSE&G has demonstrated that as technology evolves, as can be demonstrated with update plans for MWMS, Gas Estimating System, SPOT, Gas Asset Tracking

and Traceability, and DIMP, it is willing to introduce new, expanded and/or enhanced technology into existing IT systems and established work practices.

Records Management

To facilitate an assessment of how PSE&G creates, completes, verifies, and stores its field originated records, Overland reviewed a description and flowchart of the Company's current Record Management Process as well observed how the process has changed the last five years.[125] In addition, we noted the Company's plans to enhance the Geographic Information Systems (GIS) process.
The current process for gas distribution assets includes:

- Asset group determines the work to be performed; and Planning group creates work orders.
- Construction group performs the work completing orders and preparing paper sketches.
- Construction supervisor reviews both for accuracy.
- GIS group reviews completed work orders and paper sketches; and will formally reject, if necessary.
- GIS group second-level supervisor approves orders.
- GIS group updates GIS and attaches scanned sketch to asset in GIS; and paper sketches are filed in the originating district location.

To enhance the gas distribution records management process, in the last five years PSE&G has initiated the following:

- Gas service records were added to GIS in 2016, providing field access to scanned service sketches.
- Ability to digitally submit discrepancies through a Red Line procedure established in 2020, providing users the ability to markup asset changes based on field observations.
- In 2021 started implementing LocusView Track and Trace to enable barcode facility identification and location of newly installed Company facilities, which will be helpful should the facility need to be relocated in the future.

The Company plans to enhance the GIS Gas Asset Register through the Gas Asset Register Enrichment Initiative (GAREI). Originally, the GIS Gas Asset Register was populated with asset information from the wall map as well as SAP data, and digital gas service data was added from scanned service cards. So, the GIS Gas Asset Register was never complete. In addition to ongoing use of LocusView, the GAREI project will rescan all of PSE&G's paper main and service asset records. The rescan images will be cross-referenced with the data in the GIS, with any gaps identified corrected in the GIS. This project is scheduled to start in 2022 and projected to be completed by the end of 2024.[126]

[125] Response to OC-0189.
[126] Responses to OC-1088 and 0755.

The current process for gas M&R assets includes:

- Asset and/or M&R group determines the work to be performed and initiates a project that is assigned to an M&R Project Manager or to Projects and Construction.
- Construction or M&R group performs the work completing orders and the Piping and Instrumentation Diagram ("P&ID")/Visio is updated by M&R/Plants.
- GIS group updates GIS.
- P&ID/Visio are distributed to users and filed in SharePoint.

To enhance the gas transmission and M&R asset records management process, in the last five years PSE&G has initiated

- Mobile inspection application was added in 2019 to give the field user a mobile device to identify and record the inspection of assets.
- Ability to digitally submit discrepancies through a Red Line procedure established in 2020, providing users the ability to markup asset changes based on field observations.

Research and Development

The Gas Delivery function through its Gas Transmission and Distribution Engineering group participates in various hydrogen research and development initiatives at the local and national level, including:[127]

Evaluate the Impact of Hydrogen Gas Blends on LDC Infrastructure Integrity – The purpose of this project is to determine the impact on the physical properties of materials used in the gas delivery system, if hydrogen is blended into the natural gas supply. To support this project PSE&G has committed $30,910 to NYSEARCH/GTI on a Phase II project.

Odor Detection Study to Determine the Effects of Hydrogen Blends on Odorizing Natural Gas – The focus of this project is to determine at various percentages of blended hydrogen and hydrogen, the impact on the detectability of major natural gas odorants. To support this project PSE&G has committed $21,835 to NYSEARCH.

HyBlend Project – The purpose of this project is threefold; test the compatibility of hydrogen blends on piping materials, conduct a lifecycle analysis of hydrogen blends emissions, and study the cost and opportunities associated with blending hydrogen within the gas delivery systems. This national study is managed under a Cooperative Research and Development Agreement. PSE&G has committed $50,000 over two years, which will be combined with $4 to $5 million from a number of other utilities, GIT and $10 million in funding from the U.S. Department of Energy.

[127] Responses to OC-0552 and 1083.

Current Regulatory Environment

Energy Master Plan

To lessen dependence on fossil fuels and reduce emissions, the state of New Jersey has advanced its diversified clean energy portfolio. The state has enacted one of the most determined Renewable Portfolio Standards in the country by requiring 35 percent of the energy sold in New Jersey to come from qualifying energy sources by 2025, 50 percent by 2030 and 100 percent by 2050. In May 2018, by Executive Order, the New Jersey Board of Public Utilities, in collaboration with other state agencies, was directed to develop a statewide clean energy plan, referred to as the Energy Master Plan.

In response, PSE&G filed with the BPU a plan to achieve a .75 percent gas energy efficiency goal and a 2 percent electric energy efficiency goal. The BPU approved PSE&G's Clean Energy Future – Energy Efficiency (CEF-EE) plan on September 22, 2020. The plan, which involves committing $1 billion toward energy efficiency investments, is a three-year program with subprograms serving residential, multifamily, and industrial and commercial customers. The Company planned to have all subprograms operational by July 1, 2021. As an interim target, the BPU determined that PSE&G's energy efficiency programs should achieve at least a .34 percent reduction by June 2023 in natural gas consumption, and PSE&G reported that through November 2021, their energy efficiency programs have already achieved a reduction of 942,730 MMBTUs.[128]

Greenhouse Gas Reduction

PSE&G is supporting the state of New Jersey's Greenhouse Gas (GHG) reduction goals by using methane mapping to quantify reduced methane emissions as part of its gas main replacement strategy. Though the Gas System Modernization Program (GSMP) main replacement is primarily focused on mitigating risk, the Company is able to use reduce methane emissions as a sub prioritization for some of its replacement grids. Methane emissions are estimated utilizing a methodology referenced in 40 CFR 98, Subpart W.[129]

In addition, the Company is evaluating supplying decarbonized natural gas through potential of RNG and hydrogen. The development of these potential gas supply technologies will require industry advocacy and additional research & development.[130]

Review of Prior Management and Affiliate Transaction Audit of Gas Operations

The previous Management and Affiliate Transactions Audit of PSE&G, Chapter 20: Gas Delivery and Operations Management, dated January 2012, had numerous findings and three recommendations. All

[128] Response to OC-1586.
[129] Responses to OC-0548 and 0549.
[130] Response to OC-1586.

three audit recommendations were accepted by PSE&G,[131] and as a result the Company initiated several supportive actions. The prior audit report' s recommendations and PSE&G's stated follow-up follows.[132]

> **Develop a program that prioritizes the replacement of all short sections of cast iron pipe operating above utilization pressure. The program should have a definitive start and end date consistent with prudent distribution system risk management.**

In conjunction with its Gas System Modernization Program (GSMP), PSE&G is replacing leak prone infrastructure, including cast iron main operating above utilization pressure. When a short segment (less than 50 feet) of smaller diameter (8-inch and smaller) operating above utilization pressure cast iron is encountered in a designated GSMP grid, it is replaced or abandon. It is the Company's intent to continue accelerated cast iron replacement and associated high-pressure cast iron short segments through future GSMP's and other replacement programs. Since 2014, PSE&G has replaced 52 short segments (less than 50 feet) of smaller diameter (8-inch and smaller), but still has 97 similar segments to replace or abandon.[133]

> **Conduct an in-depth study to explore the benefits of accelerating its cast iron replacement program. The study should be accompanied with an assessment of possible regulatory cost recovery mechanisms. The final study along with its underlying assumptions should be formally presented and discussed with the New Jersey Board of Public Utilities.**

After conducting successful discussions for accelerated replacement of leak prone infrastructure and securing BPU approval for cost recovery, PSE&G has developed and filed several significant programs for the accelerated replacement of gas distribution infrastructure. The programs developed: Energy Strong I, GSMP I, and GSMP II each have a significant portion of the program targeted toward the replacement of cast iron main and bare steel. The filings for these programs, which included testimony regarding the benefits of accelerating replacement of cast iron, took place in 2013, 2015 and 2017, respectively. As a result of these programs, the replacement of cast iron main in PSE&G's distribution system has accelerated by over 250 percent when compared to the prior 8-year period. Between 2005-2012 PSE&G replaced 409 miles of cast iron main, since 2012, 1,042 miles of cast iron main have been replaced.

> **Expand the makeup of the Peer Panel Benchmarking companies to include those with greater amounts of cast iron remaining in their system. This would permit a more balanced assessment of performance in this critical area.**

PSE&G's Peer Panel Benchmarking process annually seeks participation from gas distribution companies. Participation in this process is voluntary, but due to the perceived benefits of sharing information, has grown over time. In January 2012, the time of the previous Management and Affiliate Transactions Audit

[131] Response to OC-0443 (Confidential_2012-07-12PS Comments).
[132] Response to OC-0442.
[133] Response to OC-1424.

of PSE&G, only five of the 2007 top 11 U.S. utilities with cast iron main were participants in the Peer Panel Benchmarking Process **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. As a result of PSE&G's efforts to work to expand the make-up of companies in the Peer Panel Benchmarking process, the Gas Peer Panel has expanded the number of companies that have more than 500 miles of cast iron in their system by 28 percent compared to the previous Management Audit. Companies added were **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.[134]

[134] Response to OC-0749.

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19. CONTRACTOR PERFORMANCE

Introduction & Overview

This chapter addresses PSE&G's Contractor Performance. Initial topics reviewed and evaluated are the Damage Prevention Program, in particular excavation damage causes, benchmark comparisons, and legal proceedings involving excavators. The chapter focuses on gas construction work including the Distribution Operations Gas Construction group, the ongoing use of contractors, how both the Gas Construction group and contractors are managed, an assessment of how well they have performed, and how quality oversight is provided. The chapter also reviews management of electric construction work including the Projects and Construction Project Management Office and its approach to estimating large projects, budget performance, electric work outsourced, how contractor oversight is provided, and finally how electric construction and contractor work is monitored through quality assurance and quality control.

Summary of Findings

Damage Prevention Program

1. Between 2016 and 2020 the number of bargaining unit personnel performing electric and gas facility field markouts has ranged from 80 to 110 employees with oversight of their work provided by 12 gas supervisors, one in each district location. The annual cost to perform markouts in 2020 was $17.67M. The direct labor cost per markout unit in 2020 was $10.66.
2. Approximately 10% of all facility locates are designated as a high-risk opening, meaning a Construction Inspector will follow up with an on-site meeting with the excavator to assess the potential risk.
3. Between 2016 and 2020 the number of gas markouts performed increased by 29.5 percent, while the number of damages decreased by 7.2 percent resulting in a damage rate decrease of 28.5 percent. Over the same five-year period the number of electric markouts performed increased by 32.3 percent while the number of damages doubled resulting in a damage rate increase of 25 percent.
4. Between 2016 and 2020 Damages by Excavator accounts for 62.3 percent of the damages, Damages by Operator accounts for 33.9 percent of the damages, and Could Not Determine was used to categorize the remaining 3.7 percent of the damages.
5. The amount of BPU Underground Facility Protection Act (UFPA) fines levied against PSE&G has varied from a high of $486,000 in 2018 to a low of $9,000 and 2020.
6. Between 2019 and 2021 the Company was successful in recovering $2.2 million or 60% of the total amount of gas facility damage invoiced and $2.6 million or 66% of the total amount of electric facility damage invoiced through either "intercompany binding arbitration" or legal counsel for expense recovery.

7. There is no statewide database of excavators who frequently and/or flagrantly damaged underground utilities shared between the various utilities. Consequently, it is difficult to recognize these contractors in advance so that extra safety precautions can be taken.
8. PSE&G has recently implemented several initiatives to enhance its damage prevention program including equipping and training markout personnel with multifrequency locators, formed a Damage Prevention/Markout Team to explore technology, supporting systems, data analytics, cost tracking, and work management approaches, initiated an enhanced One Call ticket management system, and hired artificial intelligence firm to look at the application of AI to damage prevention.

Gas Construction Work

9. In 2017 PSE&G established the Gas Construction group to address the accelerated replacement of cast iron, bare steel main, and related service renewal workload. Referred to as the Gas System Modernization Program, GSMP operates by replacing the identified distribution facilities in defined map "grids," requiring a high level of coordination with municipalities and increased customer communications.
10. The Gas Construction group is made up of 331 employees of which 73 are MAST and 258 are bargaining unit employees. In addition, to provide management and oversight, another 30 positions, consisting of Project Managers, Construction Managers, Project Control Engineers, and supervisors were created.
11. Despite the establishment of the Gas Construction group, contractors still play a large support role in the completion of the Gas Operations department's capital project workload. Between 2016 and 2018 the hours worked by internal crews has steadily increased when compared to contractor hours and overall, outsourced work as averaged about 28 percent of total capital and O&M work completed in gas.
12. To formulate the design and implementation of the Gas Construction PMO, Gas Operations collaborated and worked with the Projects & Construction PMO group and implemented the Project Management Body of Knowledge (PMBOK)/Project Management Institute (PMI) methodologies, providing the tools needed to efficiently manage the Gas Construction group and contractor workloads.
13. A comparison of Distribution Integrity Management Program (DIMP), Energy Strong I, GSMP I, and GSMP II program costs show DIMP related work, which includes scattered replacement for individual leakage, as generally most expensive; and for GSMP types of programs, the high-volume nature and enhanced project management practices resulting in lower costs.
14. A recently initiated phone customer satisfaction survey for Gas Operations showed two categories of improvement ideas mentioned by customers, better restoration of the job site after the utility work was completed and the need for more specific and complete communications. Both categories of improvements ideas, if not adequately addressed, could potentially negatively impact PSE&G's ability to continue its GSMP work.
15. Formed in 2015, a gas Quality Assurance/Quality Control (QA/QC) group that audits district crews, construction crews and contractors. The QA/QC Group completed 6,005 work site audits between January 2018 and July 2021, of which 1,295 (21.6 percent)

were performed on contractor sites. Of these, 1,048 were related to GSMP work and 247 to other contractor work.

16. QA/QC audit results are shared with contractors on-site. When improvements are required, meetings to discuss the audit results and develop improvement plans are held. Contractors whose performance is unsatisfactory may be given a "second chance." Superior performance is "rewarded by being invited to participate in future bids," whereas continued unsatisfactory performance "is likely to result in ineligibility to bid on future work."

Electric Construction Work

17. Large electric and certain gas projects are managed by the Projects and Construction (P&C) Project Management Office (PMO). The PMO, which consists of a director with seven direct reports and 88 employees is responsible for forecasting, estimating, scheduling, performance reporting, invoice management, accrual oversight, risk management, workforce modeling, contract oversight, quality control & assurance, and Interconnection Support.
18. The 10 largest construction projects in the most recent five years were all electric, and eight of the 10 were at budget and two were under budget.
19. P&C utilizes Primavera P6, EOS/Sage and an internally developed Project Tracking System that are integrated with one another to eliminate data redundancy and improve the timeliness of information and reporting.
20. P&C and Electric Operations outsources work in both the Capital and O&M categories. For the years 2016 through 2020, overall outsourced work accounted for about 50 percent of total capital and O&M efforts.
21. Large electric construction projects are subject to procedures that affect contractor oversight and include Workplan, Schedule and Field Status Management, Quality Assurance and Quality Control, Change Management and Contract Closeout, Safety Management, and Invoice Management.
22. Electric related construction work not overseen by P&C consists of projects that provide for the installation of primary, secondary, services, and additional capacity associated with the connection of new customers. Work includes installing new overhead, underground, and buried underground distribution facilities including transformers, poles, cable, wires, and service upgrades.
23. P&C's QA/QC group independently perform audits of P&C's technical and operational field activities. The group activities include Field Oversight-Surveillance-Inspections, Architect & Engineering Firm Inspections, Project Assessments, and Contract Compliance and Cost Verification Audits.
24. Contractor audits may cover safety, environmental, cost, and schedule performance during or at the conclusion of a project. Results are shared with individual suppliers at meetings, and "on an ad-hoc basis depending on findings."

Summary of Recommendations

19.1 Expand PSE&G's Peer Panel Benchmarking to include additional comparisons for gas and electric damage prevention, specifically the markout program, or develop some other enhanced

comparative analysis for damage prevention. The comparison should be structured in such a way that the damage prevention program variability between utilities can be identified to allow

a. understanding of the methods utilized by the utilities achieving superior gas and electric damage prevention performance.

19.2 Initiate the documenting and tracking of any procedure or process changes resulting from analysis of major categories of improvement ideas expressed by customers in the Transaction Satisfaction Survey should be initiated.

19.3 Include the Gas Operator Qualifications Program in PSE&G's audit risk assessment process and perform an internal audit of operator qualifications (OQ) program compliance with US Department of Transportation (DOT) rules and regulations. The audit should focus on determining whether the OQ program adheres to the protocols required by DOT rules. Reassess audit risk after performing the audit and determine whether the OQ program should be subject to periodic audit.

Technical Analysis

Background

Excavation damage continues to represent a high risk to the integrity of the gas and electric delivery systems. To help mitigate this risk, PSE&G performs both electric and gas underground utility markouts with its internal staff. Utility markouts are an important high-volume, labor-intensive, and costly work activity.

Gas Operations utilizes its internal workforce for most of its gas distribution construction and maintenance activities, however, based on availability and complexity of the proposed project the department will also outsource construction activities. In 2017 the BPU approved the Gas System Modernization Program (GSMP), which greatly accelerated the replacement of the PSE&G's cast-iron main, unprotected steel main, and unprotected steel services. To address this workload, the Utility created the Gas Construction Group organization and a Gas Construction Project Management Office (PMO) to help ensure efficient, cost effective, and timely completion of the program.

To help formulate the design and implementation of the Gas Construction PMO, Gas Operations collaborated and worked with the Projects & Construction (P&C) PMO group. All large electric and certain gas projects are managed by the P&C PMO. Formed in 2008, the P&C PMO is a more established project management group with responsibilities for forecasting, estimating, scheduling, performance reporting, invoice management, accrual oversight, risk management, workforce modeling, contract oversight, quality control & assurance, and Interconnection Support.

Historically, the Gas Delivery function has outsourced significant amounts of Capital work, while Electric Operations has outsourced significant amounts of work in both the Capital and Operations & Maintenance (O&M) categories.

Damage Prevention Program

Excavation damage to plastic services has been identified by PSE&G as the highest risk to the integrity of its gas delivery system.[1] To help mitigate this risk for both gas and electric facilities, New Jersey utilities perform markouts in accordance with New Jersey's Underground Facilities Protection Act. This Act or One Call Law requires excavators to participate in a damage prevention program by calling a toll-free telephone number or an abbreviated dialing code 811, three days prior to excavation. Once notified, the One-Call System operator transmits the excavator's notice to underground facility operators located in the geographic area of the proposed excavation. Within three business days after receipt of the information from the One-Call System operator, utilities with underground facilities are then required to identify the location of those facilities to prevent damage.

This section reviews the current damage prevention program, the best practices PSE&G employs, program performance, causes of excavation damage, legal proceedings taken against excavators, benchmark comparisons and concludes with future program enhancements.

Current Program Process

Locate requests received by PSE&G are assigned to predetermined geographic areas through an automated management process called TransLore.[2] Company markout inspectors will then route the work in their queue based on their knowledge of the area to which they are assigned. By assigning the inspector to a geographic area, PSE&G believes the employee will learn and become proficient in knowledge of the infrastructure, the excavators, and the terrain.[3] Workload balance between the geographic areas is provided by supervisory oversight, so that the three-business day markout requirement is adhered to.

A total of 12 gas supervisors, one in each district location is responsible for oversight of both electric and gas facility locates; and the markout inspector will complete, both gas and electric facility markouts at a given location.

Markout inspectors typically come from the ranks of Senior Inspector, Line Inspector, or Utility Leader nomenclatures. These are more senior bargaining unit positions and typically have had previous experience working with the Utility's distribution systems. In addition, since these are not entry-level positions, turnover of staff doing markouts is relatively low. To perform facility markouts, employees are trained through a combination of classroom and hands-on training followed by a skills and knowledge assessment. Training provided is consistent with Operator Qualification (OQ) Task 19. The number of

[1] Refer to the subsection titled Strategy for Maintaining Major Distribution Assets in Chapter 18 – Gas Delivery for additional discussion on this topic.

[2] The TransLore system is used to process dispatch and record completed work and is scheduled to be replaced in late 2021 by Mobile Work Management Solution (MWMS) called Boss 811.

[3] Response to OC-1086.

bargaining unit personnel performing field markouts between 2016 and 2020 has ranged from 80 to 110 employees. In addition, there are three Markout Hub clerks that provide administrative support.[4] Should an employee's work performance result in an inaccurate markout, progressive discipline will be administered consistent with the respective bargaining unit contract.[5] In 2020, PSE&G recorded 125 entries into its Positive Discipline log related to employee markout performance. The level of discipline administered varies depending on specific circumstances associated with each inaccurate markout.[6] Once an underground facility has been marked out, the locator might initiate a "Construction Inspection" request if the excavation appears to be a high-risk opening. This will result in a Construction Inspector conducting an on-site meeting with the excavator to assess the potential risk. The Company maintains that markout inspectors identify approximately 10% of all facility locates as high-risk. Should the excavation take place near either a gas or electric underground transmission facility, a representative from the respective transmission group will be on site to monitor the excavation activities.[7]

Best Practices

In carrying out its damage prevention program, PSE&G asserts that it incorporates numerous facility location and mark out procedure's best practices, including:

- **Use of records** – Markout locators always consult available records for approximate location and number of facilities in each area.
- **Multiple facilities** – Markout employees locate both electric and gas facilities.
- **Positive response** – Excavators receive a positive response on all locate requests.
- **Locating technique** – Utilize active/conductive locating as compared to passive/inductive locating.
- **Verification** – Document is completed by the markout inspector requiring verification that all facilities within the requested area were marked.
- **Quality assurance** – Assess the locating and marking out of facility process with a quality assurance program.
- **New facilities** – New facilities are marked when installed in an area with active excavation.

Damage Prevention Performance

To help gauge the overall success of PSE&G's damage prevention program, we asked the Company to provide the total number of markout requests and damages to gas and electric facilities per 1000 mark-out requests for the last 5 years.[8]

[4] Response to OC-1477.
[5] Response to OC-0052.
[6] Response to OC-1579.
[7] Response to OC-0693.
[8] Responses to OC-0050 and 1475.

Table 19-1 – Gas and Electric Location Requests and Damages

Gas and Electric Location Requests and Damages					
	2016	2017	2018	2019	2020
Electric					
Markouts Received	328559	368786	397878	405514	434670
Damages	52	165	154	146	157
Damages per 1000 Markout	0.16	0.45	0.39	0.36	0.36
Gas					
Markouts Received	401659	447694	488200	495418	520320
Damages	815	819	704	746	756
Damages per 1000 Markout	2.03	1.83	1.44	1.51	1.45
Response to OC-50 and OC-1475.					

A review of the data in this table indicates that over the five-year period the number of gas markouts performed increased by 29.5%, while the number of damages decreased by 7.2% resulting in a damage rate decrease of 28.5%. Over the same five-year period the number of electric markouts performed increased by 32.3% while the number of damages doubled resulting in damage rate increase of 25%. In reviewing the damages to electric facilities data for 2016 we sought to understand how such a superior (low) damage rate was achieved. In response, PSE&G stated "There is always some variability when comparing one year to the next. Secondly, there does appear to be some correlation between the number of electric damages and large utility projects/programs underway at the time."[9]

We also sought an explanation as to why the number of gas and electric markouts increased so significantly between 2016 and 2020. In response, the Company stated it believes that there is an increased general awareness of safe digging requirements due to aggressive public outreach programs, and that in general there have been many projects requiring excavation including: waterline replacement, road reconstruction, and gas and electric infrastructure hardening.[10]

Excavation Damage Causes

To analyze excavating damage causes, PSE&G uses three primary cause categories Excavator at Fault, Operator at Fault, and Could Not Determine. This last category is only used where the cause of damage cannot be determined. The cause category of Excavator at Fault is further broken down to No Valid Request, Marked Accurately, and Did Not Maintain Marks. The cause category of Operator at Fault is further subdivided into Human Error, No/Poor Records, and No Tracer Wire. Electric and gas damage caused data for the last five years is captured in the following chart.[11]

[9] Response to OC-1618.
[10] Response to OC-1479.
[11] Response to OC-0051.

Table 19-2 – Causes of Excavating Damages

Gas and Electric Damage Cause Data							
Year	2016	2017	2018	2019	2020	Total	Cause Percentage
Total Damages	**865**	**984**	**858**	**890**	**913**	**4510**	
Excavator at Fault	**529**	**580**	**571**	**572**	**558**	**2810**	**62.3**
No Valid Request	190	220	252	255	231	1148	
Marked Accurately	329	307	269	268	291	1464	
Did not Maintain Marks	10	53	50	49	36	196	
Operator at Fault	**310**	**367**	**258**	**278**	**316**	**1529**	**33.9**
Human Error	112	168	109	134	130	653	
No/Poor Records	189	192	137	138	179	835	
No Tracer Wire	9	7	12	6	7	41	
Could Not Determine	**26**	**37**	**29**	**40**	**39**	**171**	**3.7**
Response to OC-51.							

As can be seen from the data, the Total Number of Damages and Damages by Excavator and Damages by Operator have been generally constant throughout the five-year period despite the significant increase in facility location requests. Between 2016 and 2020 Damages by Excavator accounts for 62.3 percent of the damages, Damages by Operator accounts for 33.9 percent of the damages, and Could Not Determine was used to describe the remaining 3.7 percent of the damages. For Damages by Excavator, where the excavator was at fault, the damage has occurred even though the facility was Marked Accurately. For Damages by Operator, where the operator was at fault, the most consistent cause has been No/Poor Records.

Also, it can be observed from the data that electric facilities have a significantly lower damage rate. When questioned, PSE&G indicated the lower damage rate for electric facilities is related to less electric infrastructure and the ability to locate energized facilities more accurately.[12]

As noted in PSE&G's report, referred to as Markout Scorecard, the annual cost to perform markouts in 2020 was $17.7M. The direct labor cost per markout unit in 2020 was $10.66. This cost does not include time spent by the Construction Inspector follow-up. The Markout Scorecard is a monthly report containing additional data that is helpful in analyzing the Company's damage prevention program. Included in the report for each gas and electric location are the number of units located, number of damages compared to a goal, labor cost per unit compared to a goal, union labor hour splits, number of operator errors, amount of excavator fines, and the amount of Underground Facility Protection Act (UFPA) fines. In addition, for just the gas locations, the total main and service miles, and the number of damages per mile for main and service. Where appropriate, data is also available for gas transmission pipe and pipe cable.

[12] Response to OC-0758.

The chart below captures some select data dealing with excavator damage, operator fines, excavator fines, and UFPA fines from the end of year Markout Scorecard report over the last five years.[13]

Table 19-3 – PSE&G as Operator/Excavator Damages and BPU Fines

	2016	2017	2018	2019	2020
Damages	867	981	858	892	913
Operator fines	110	137	162	75	3
Excavator fines	2	2	0	0	0
UFPA fines	$328,000	$419,000	$486,000	$225,000	$9,000
Response to OC-49 and OC-691.					

In this table operator fines, excavator fines and UFPA fines are defined as follows:

- **Operator Fines** – Number of fines levied against PSE&G by the BPU for damages where the Company was found to have violated the Underground Facility Protection Act. Examples of what are a violation subjecting PSE&G to a fine include: failing to accurately mark a facility within 18 inches or not being able to complete the markout within the three-day time requirement.
- **Excavator Fines** – Number of fines levied against PSE&G by the BPU for damages where PSE&G is the excavator, and the Company was found to have violated the Underground Facility Protection Act. Examples of what are violations subjecting PSE&G to a fine include: using mechanized equipment within 2 feet of a marked facility, failing to request a markout, or failing to maintain the facility markings.
- **UFPA Fines** – Total dollar amount of fines levied against PSE&G by the BPU stemming from either excavator fines or operator fines as defined in the Underground Facility Protection Act.

In reviewing the data in a table, PSE&G experiences substantially more fines from the role of operator as compared to when the Company is acting as the excavator. In addition, there has been significant variability in the number of fines levied against the Utility from year-to-year with almost no fines issued in 2020. Overland questioned PSE&G as to why there is such a variance from year-to-year, and we were advised "Any fines levied are solely at the discretion of the BPU."[14]

The BPU's use of operator and excavator fines appears to have decreased or are no longer being assessed as part of its enforcement activities.

Legal Proceedings against Excavators

PSE&G's Claims Department defines the following two types of legal proceedings that can be initiated against contractors who are responsible for damaging PSE&G underground facilities:[15]

[13] Responses to OC-0049 and 0691.
[14] Responses to OC-1476 and 0758.
[15] Response to OC-1619.

- "Action involving 'Binding Arbitration' (The filing of a Docket, taken by one member against another member of Arbitration Forums).
- Referral of an unpaid damage invoice to counsel when liability and damages can be proven against a third-party damager, whether or not 'Litigation' is instituted."

[BEGIN CONFIDENTIAL] [redacted] **[END CONFIDENTIAL]**

Between 2019 and 2021 there were a total of 12 Financial Recovery underground damage loss files referred to "intercompany binding arbitration" and a total of 531 Financial Recovery underground damage loss files referred to legal counsel for expense recovery. The Company was successful in recovering $2.2 million or 60% of the total amount of gas facility damage invoiced and $2.6 million or 66% of the total amount of electric facility damage invoiced.

[BEGIN CONFIDENTIAL] [redacted] **[END CONFIDENTIAL]** In Overland's experience there is a relatively small number of excavators who habitually and sometimes flagrantly damage underground utilities. Recognizing who these contractors are can be challenging as in New Jersey there is no statewide database of excavators who frequently and/or flagrantly damaged underground utilities shared between the various utilities. When asked about this, PSE&G stated it "believes this would be a valuable tool."[16]

Benchmark Comparisons

To get a better sense for the effectiveness of PSE&G's damage prevention program, we asked for any comparison information that the Company had available regarding the results of its electric and gas markout program as compared to other electric and gas utilities in New Jersey and across the nation. The Company stated, "It generally does not maintain or track markout related comparative information (aside from damage data) due to the high degree of variability from one utility to another." Damage data is included in the PSE&G Peer Panel Benchmarking.

[BEGIN CONFIDENTIAL] [redacted]

[16] Response to OC-1619.

[redacted] **[END CONFIDENTIAL]**While PSE&G does not formally benchmark its markout program with other utilities in New Jersey, PSE&G does discuss and evaluate process improvements and best practices from the New Jersey Common Ground Alliance, National Common Ground Alliance, Northeast Gas Association, and American Gas Association. PSE&G states that most learnings from NJCGA are in the area of public damage prevention outreach. [18]

In Overland's opinion, benchmarking the Company's markout program is important for several reasons, including: to gain an independent perspective as to how well PSE&G is performing compared to other companies, to be able to drill down into performance gaps and identify methods that have led to improvement, and to help set performance expectations. Benchmarking processes are typically a rewarding and effective endeavor in the utility industry where non-competitor companies are generally willing to share information.

The Company should expand PSE&G's Peer Panel Benchmarking to include the markout program for gas and electric facilities. We understand that such expansion would require agreement from the other participants. Alternatively, PSE&G should explore some other way to enhance its comparative analysis and should structure the comparison in such a way that the damage prevention program variability between utilities can be identified, seeking to understand and apply the methods utilized by utilities with superior gas and electric damage prevention performance.

Future Program Enhancements

Striving for continuous improvement, PSE&G has several initiatives underway to enhance its damage prevention program, these include:[19]

Multifrequency locators – PSE&G has recently equipped and trained markout personnel with Radiodetection RD 8100/8200 pipe and cable locators. These multifrequency locators provide several additional features compared to the legacy pipe and cable locators being phased out. Expectations are that multifrequency locators should be able to perform more accurate markouts and reduce damage due to inaccurate locates.

Damage prevention/markout team – In the spring of 2021 PSE&G formed a Damage Prevention/Markout Team to explore technology, supporting systems, data analytics, cost tracking, and work management approaches. The team currently consists of three employees focused on achieving regulatory compliance and continuous improvement. Their goals are directly tied into the business unit scorecard metrics of "markout cost per unit" and "damages per 1000 locate requests."[20]

[17] Response to OC-1436.
[18] Response to OC-1581.
[19] Response to OC-1086.
[20] Response to OC-1085.

Enhanced technology – The Company is in the process of initiating a One Call ticket management system, called Boss 811. The new system will support markout inspector route optimization, GIS integration, time recording, and communications. PSE&G states this enhanced technology should result in both regulatory compliance and markout efficiency improvements.[21]

Artificial intelligence pilot – A firm, specializing in artificial intelligence, has been hired to complete a one-year pilot program looking at certain high-risk excavations and markout records. Using multiple data sets, the firm hopes to identify markout requests that have an increased risk of resulting in a damaged facility.

Gas Construction Work and Outside Services

Gas System Modernization Program I (GSMP I) and GSMP II resulted in a significant increase in distribution system construction work. To address this workload, the Company formed the Gas Construction group and continued to rely on qualified contractors. In this section we discuss the formation and size of the Gas Construction group, construction contractors and other outsourced gas related work, the Operator Qualification Program, how the Gas Construction the group as well as contractors are managed, the best practices employed, performance achieved, and concludes with a review of the gas quality assurance/quality control function.

Gas Construction Group

In 2017 PSE&G established the Gas Construction group to efficiently address the replacement of cast- and bare steel main and related service renewal workload associated with the GSMP I. The GSMP operates by replacing the identified distribution facilities in defined map "grids," requiring a high level of coordination with municipalities and increased customer communications. Staffing for this new organization was filled from existing distribution employees as well as external hires. Initially, the Gas Construction group consisted of 183 workers of which 63 were internal transfers and 120 were external hires. Today, the group has grown to 331 employees of which 73 are MAST employees and 258 are bargaining unit. In addition, to provide management and oversight, another 30 new positions, consisting of Project Managers, Construction Managers, Project Control Engineers, and supervisors were added. Transferred employees came with their existing vehicles and equipment. To support the new hires additional equipment such as dump trucks, backhoes, mini excavators, sweepers, compactors, vans, pick-up trucks, and box trucks were acquired.

Gas Operations can dispatch an average of 31 construction crews per day, each consisting of six bargaining unit crew members. One supervisor is utilized to oversees the work of 4 to 6 construction crews. The 31 crews are allocated between the four construction field offices with Northern having 10 crews, Central 12 crews, Mid-Central five crews and Southern four crews.

[21] Response to OC-1083.

Gas Construction group employees are unique in that their work is solely focused on upgrading gas facilities. This degree of specialization allows the organization to concentrate on driving accountability and efficiencies on replacement work. To promote efficiency, it was necessary to create the right work rules. PSE&G negotiated agreements with both of its unions concerning job classifications and needed work rule adjustments to meet the goals and objectives of the group. When seasonal weather prohibits efficient main replacement, crews are assigned service replacement work, which is less weather dependent.[22]

Construction Contractors

Qualified construction contractors provide significant support for PSE&G's capital programs. Most of the work performed by contractors consists of replacement mains and services associated with the Gas System Modernization Programs and the associated stipulated base. This support is needed to achieve the GSMP replacement goals. In addition, contractor's complete large diameter steel pipe installations (12-inch or greater), horizontal directional drilling, valve repairs, bell joint encapsulations, permitting, and to a far lesser extent, other distribution activities.[23] When main and service work are combined, contractors complete approximately 55% of the total footage. Gas Operations completes "the vast majority" of customer generated work, which consists of new service requests, main extensions, and relocations.[24]

Consistent with budgetary and regulatory compliance requirements, work is distributed either to the internal workforce or a contractor. Considerations in making any assignment include a variety of reasons, such as level of expertise required to do the work, specialized tools and equipment needed particularly for large and complex projects, internal workforce staff limitations and cost.

The management and supervision of the Gas Construction group and contractors are from staff within Gas Construction. Contractors, who perform gas construction work in accordance with their competitive bid, are held to similar project goals and milestones as the Gas Construction crews. PSE&G does not measure efficiencies from a cost perspective between contractors and the Gas Construction crews.[25] A description of the capital work performed by Gas Operations as well as the ongoing maintenance work required to sustain the reliability of gas distribution system is discussed in Chapter 18 – Gas Delivery.

Other Outsourced Gas Related Work

In addition to contracted gas construction work, PSE&G outsources gas related work to consultants and professional firms in several categories, as described below.[26]

[22] Responses to OC-0783 and 1066.
[23] Responses to OC-0143 and 0699.
[24] Response to OC-0066.
[25] Response to OC-0783.
[26] Response to OC-0066.

Engineering and Design – Contractors are used for engineering and design of metering and regulating stations, in gas plant and transmission design and for complex horizontal directional drilling, but PSE&G completes the distribution design "almost exclusively with internal resources." Overall, PSE&G estimates contractors perform less than 5 percent of the work in this category.

Design Oversight and Permitting – Consulting firms are engaged for permits requiring Professional Engineer certification, such as Department of Transportation and county permits. Consultants are also hired for large project permitting, such as GSMP I & II. Overall, consultants represent about 10 percent of the work in this category.

Construction & Installation Oversight & Inspection – Traditionally the Company has used only employees for oversight and inspection of contractor work. Recently, a third party was hired to supplement oversight and inspection services. The third-party work has accounted for about 5 percent of total oversight and inspection in the last few years.

Distribution System Facilities Maintenance – Less than 5 percent of gas maintenance activities are outsourced to contractors.

Mark-outs and Leak Surveys – All mark-outs and gas leak surveys are conducted by employees. PSE&G used a contractor as part of the GSMP I and II programs for a non-standard leak survey, but PSE&G also surveyed the same areas with its own employees.

The table below shows a comparison of the total number of hours worked by the Gas Delivery function as compared to contracted work for each of the last five years. Overall, outsourced work as averaged about 28 percent of total capital and O&M work completed in gas.[27]

Table 19-4 – Labor Hour Comparison of Work Completed by Internal Labor to Outside Services-Gas

PSE&G Gas Delivery Internal Labor & Contractor Hours					
Year	Internal (Employee)		External (Contractor)		Total Hours
	Hours	Percentage	Hours	Percentage	
2016	2,375,403	71%	97,221	29%	3,347,615
2017	2,940,463	68%	1,370,966	32%	4,311,429
2018	3,120,004	71%	1,275,297	29%	4,395,301
2019	3,049,633	74%	1,065,989	26%	4,115,622
2022	3,146,433	74%	1,120,671	26%	4,267,104
Total	**14,631,936**	**72%**	**5,805,135**	**28%**	**20,437,071**
Response to OC-872.					

[27] Gas Delivery function includes the Gas Operations department and gas related support groups within Asset Management & Planning department.

As can be seen from the numbers displayed in the table, despite the creation of the Gas Construction group, contractors still play a large support role in the completion of the Gas Delivery function's total workload. Between 2016 and 2018 the hours worked by internal crews has steadily increased and since then has leveled off.

Operator Qualification Program

The US Department of Transportation (DOT) rules and regulations require those who perform covered tasks on gas facilities be qualified by their knowledge and experience to facilitate the protection of life and property. Specifically, Federal Regulations, in 49 CFR part 192, subpart N subpart requires that in-house gas distribution personnel and contractor staff must be qualified to complete cover tasks. Pipeline operators are required to develop and maintain a qualifications program based on the following protocols:

- Document the program, procedures, and qualification criteria.
- Identify covered tasks and how they are evaluated.
- Identify, evaluate, and qualify those individuals performing the covered tasks.
- Periodically continue evaluation of individuals.
- Monitor program performance, seeking improvements.
- Maintain records and manage change.
- Conduct field verifications.

In response to these OQ program protocols, PSE&G has initiated the following:[28]

Written Plan – Developed an OQ Written Plan to provide program guidance.

Administration – Administration for the program is supported by an OQ Administration Team for tracking and reporting.

In-House Training and Requalification – Using the SuccessFactors LMS, developed and implemented OQ knowledge training and assessment. Gas distribution personnel are qualified at the Edison Training and Development Center Training, appliance service personnel are qualified at field locations, and Meter & Regulating staff complete their OQ with ITS, a third-party vendor.

Field Responsibilities – Qualifications of personnel are subject to routine inspection, while supervisors ensure staff is aware of covered tasks and that they are not to be performed unless qualified.

Contractors – PSE&G is responsible to ensure contractor employees are qualified to perform a covered task. The Company's qualification requirements are transmitted to the contractor and no contractor

[28] Responses to OC-0054 and 1488.

employee may perform a covered task on PSE&G's pipeline unless the contractor has provided qualification evidence.

Tracking and Reporting – Using a third-party vendor ITS, contractor OQ certifications are tracked, while certifications for PSE&G personnel are tracked in the Company's SAP and SuccessFactors LMS. By the end of 2021, the Utility anticipates SuccessFactors LMS will be the only tracking system used.

Management of Gas Construction

Given the enhanced volume and complexity of gas construction work stemming from GSMP I and GSMP II, PSE&G created a Gas Construction Project Management Office (PMO) to provide oversight and management of the programs and other gas related capital projects. Gas Transmission and Meter & Regulating projects are managed through the Projects and Construction PMO, which is discussed at length in the Electric Construction Work section later in this chapter.

To help formulate the design and implementation of the Gas Construction PMO, Gas Operations collaborated and worked with the Projects & Construction PMO group.[29] By implementing the Project Management Body of Knowledge (PMBOK)/Project Management Institute (PMI) methodologies, the Company provided the tools needed to efficiently manage the Gas Construction group and contractor workloads. Starting with project initiation and carrying through closeout, the Company implemented improved work management processes by employing techniques such as: meeting minutes, change order management, risk registers, forecasting, lessons learned reviews, dashboard, and monthly progress reporting. The PMO also performs a valuable role in establishing relationships and ongoing communications between various functions during a project's lifecycle.[30]

Other aspects of the Gas Construction PMO worth noting are:[31]

Responsibility Matrix – Initially to help define roles and tasks a responsibility matrix was developed, which resulted in clarifying roles and responsibilities during a project's lifecycle.

Value Added Process – In an effort to reduce costs and improve the processes associated with procurement of services and material, a structured assessment approach known as Value Added Processes was employed.

Communications and Town Meetings – Prior to committing to work a specific GSMP project, meetings are held with towns and counties to coordinate the planned work. These meetings and other communications allow for an explanation of project benefits, a description of the construction process, discussion of the extensive customer/public outreach approach, and identification of any concerns regarding future planned paving, ordinances, permit fees, etc.

[29] Response to OC-1620.
[30] Response to OC-1584.
[31] Response to OC-1071.

Record of Decision – If significant impediments exist about initiating a specific GSMP project, the issues are documented in a Record of Decision and maintained on the PMO's SharePoint site.

Internal Meetings – Numerous meetings are held at various levels within the Gas Construction organization including weekly region meetings to review project status, mid-month project review meetings, high-level monthly meetings involving GSMP related groups with senior managers, and planning meetings with Asset Management to clearly identify feasible grid projects.

Key Performance Indicators – Several key performance indicators (KPI's) were established to help drive customer perception, operational, and financial results.

To manage its projects, the Gas Construction PMO uses several Microsoft Office products including Microsoft Project to provide project schedule management and Microsoft Excel for project estimates, project tracking, and forecasting. All financial data is accessed from SAP, the Corporate Enterprise Financial Accounting System.[32] In addition, a SharePoint site was created to provide a centralized location for project data, current reports, and links to information needed for project execution. Led by a Senior Project Manager, the Gas Construction PMO has four Project Managers, each responsible for one of the PSE&G's gas construction regions. The Project Manager's function is to provide oversight and coordination of all needed activities to successfully complete GSMP and gas capital projects. Project Managers work closely with Construction Managers, who are responsible for all field construction activities from start-up to commissioning and delivering projects on time and on budget.

Currently, there are 16 certified Project Management Professional (PMP) employees working to support the GSMP II activities of the Gas Construction group and contractors. In addition, PSE&G reports 80% of the Gas Construction Managers and supervisors have taken a course on PMI principles.[33]

In addition to the above information, to help assess the value the Gas Construction PMO brings to the management of gas construction work, Overland requested and assessed: examples of communication notices of pending construction to PSE&G customers, minutes of weekly meetings at the regional level, sample project status reports reviewed at mid-monthly meetings, and notes summarizing GSMP II 2020 Lessons Learned.[34] Based on our review, as well as our knowledge of industry-leading approaches to project management, we conclude that Gas Operations approach to managing the expanded volume of gas construction work originating from the two GSMPs is sound and continues to evolve.

[32] Response to OC-1486.
[33] Responses to OC-0557 and 1058.
[34] Response to OC-1071.

Gas Construction Best Practices

PSE&G identified the following best practices that it employs in gas infrastructure contracting.[35]

Construction – Uses pipe lining to renew aging infrastructure, benefits include "restoration avoidance, railroad crossings, highway crossings and lack of space for new large diameter facilities." The Company also utilizes horizontal directional drilling (HDD) when feasible in installing new pipe. HDD is often superior to trenching in that installation time can be reduced, HDD can be accomplished with a smaller crew and lower costs, and the installed pipe tends to be stronger due to the "tightness" of the installation compared with a backfilled trench. In addition, pipe inserts are used when feasible.

Restoration – Employs infrared paving procedures to minimize restoration areas and cost. This is the practice of using heat to soften pavement in areas to be repaired so that new asphalt can be blended with pre-existing asphalt. Milling and paving are used when the area to be restored is too large for infrared paving. In addition, paving contracts are awarded for larger geographic areas to obtain better pricing.

Permitting – Negotiates blanket soil erosion and sediment control permits for its replacement facility program. Also, municipal street opening permits are submitted in quantity for grid type work, with one application covering an area consisting of the entire grid of streets, as opposed to the process of submitting one application per street.

Gas Construction Performance

To assess the performance of PSE&G's gas construction work, Overland reviewed cost comparison data for mains and services replaced under the Distribution Integrity Management Program (DIMP), Energy Strong I, Gas System Modernization Program I (GSMP I) and GSMP II. Energy Strong II was excluded from the comparison as there are no main miles or services defined in the program. In addition, we examined the Construction Efficiency report established in 2019 to monitor the newly formed in-house construction operation. Also, we surveyed the results of PSE&G's recently initiated Transaction Satisfaction Survey, which samples customer reactions to service provided.

Program Cost Comparison

The table below lists for the DIMP, Energy Strong I, GSMP I and GSMP II programs the number of miles and cost per mile of main, the number of services and cost per service for each of the last five years. The costs shown include labor infringes, contractor costs, restoration costs, materials, etc.

[35] Response to OC-0056.

Table 19-5 – Cost Comparison of Work Completed Under Various Capital Programs

DIMP, Energy Strong I, GSMP I, GSMP II Cost Comparison						
	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Oct. YTD Actual
DIMP Replacement Main Miles	84.6	117.1	99.1	28.9	30.6	18.4
DIMP Replacement Main Miles Cost per Mile ($M)	$ 1.3	$ 1.7	$ 2.1	$ 2.1	$ 1.8	$ 1.4
DIMP Number of Services Replaced	11,116	12,973	18,999	7,820	6,320	5,478
DIMP Cost Per Service ($)	$ 6,158	$ 5,343	$ 6,298	$ 7,517	$ 8,096	$ 8,080
Energy Strong I Replacement Main Miles	6.3	-	-	-	-	-
Energy Strong I Replacement Main Miles Cost per Mile ($M)	$ 6.5	$ -	$ -	$ -	$ -	$ -
Energy Strong I Number of Services Replaced	2,654	-	-	-	-	-
Energy Strong I Cost Per Service ($)	$ 7,099	$ -	$ -	$ -	$ -	$ -
GSMP I Replacement Main Miles	118.4	103.6	86.2	1.5	-	-
GSMP I Replacement Main Miles Cost per Mile ($M)	$ 1.0	$ 1.8	$ 1.7	$ 25.3	$ -	$ -
GSMP I Number of Services Replaced	6,808	9,858	9,963	1,927	-	-
GSMP I Cost Per Service ($)	$ 5,158	$ 5,962	$ 5,662	$ 4,576	$ -	$ -
GSMP II Replacement Main Miles	-	-	-	210.0	318.4	234.6
GSMP II Replacement Main Miles Cost per Mile ($M)	$ -	$ -	$ -	$ 1.1	$ 1.0	$ 1.3
GSMP II Number of Services Replaced	-	-	-	14,655	18,222	23,037
GSMP II Cost Per Service ($)	$ -	$ -	$ -	$ 4,462	$ 4,629	$ 4,716
Response to OC-180 (Confidential) and OC-1474 (Confidential).						

Based on a review of the data presented, we can conclude the following:[36]

- DIMP related work, which includes scattered replacement for individual leakage, is generally the most expensive type of main and service replacement work.
- Final year of Energy Strong I and GSMP I costs run higher due to heavy tie-in and paving costs associated with previous years' work when compared to miles completed.
- For GSMP types of programs, the high-volume nature and enhanced project management practices will result in lower costs.

To increase our understanding of these costs, Overland asked PSE&G to identify the major cost drivers and the approximate percent they contribute to the total cost of pipe replaced in concert with DIMP, Energy Strong, GSMP I and GSMP II. In response, the Company identified three major cost drivers' construction contractors (including paving), internal labor, and material & material surcharges, as provided in the following table:

Table 19-6 – Major Cost Drivers for Replacement Work

DIMP, Energy Strong I, GSMP I, GSMP II Cost Drivers				
Percent Imposed on Total Cost				
Major Cost Drivers	DIMP	Energy Strong I	GSMP I	GSMP II
Construction Contractors Including Paving	44%	60%	59%	51%
Internal Labor	19%	12%	13%	18%
Material & Material Surcharges	20%	6%	13%	17%
Response to OC-182.				

[36] Responses to OC-0180 (Confidential) and 1474 (Confidential).

In assessing the various cost driver percentages imposed on the total cost, it can be noted that the internal workforce is a significant cost driver for DIMP related work and has significantly increased for GSMP II work resulting in a decreased reliance on construction contractors. The planned program work for Energy Strong I, GSMP I, and GSMP II required increased use of contractors as compared to DIMP. The Company also notes material costs and material surcharges were increased under DIMP due to both planned and emergent replacements of larger diameter pipe and associated materials.[37]

Construction Efficiency Reports

In 2019, the Company initiated a Construction Efficiency Report system to establish performance rate baselines and real-time monitoring of Gas Operations distribution crew performance. Job types recorded include new business main, new business service, replacement main, replacement service and bell joints. For each type of job, the report lists total hours spent performing the activity, number of units accomplished, labor hours per unit and a comparison target.

There is a report for each district headquarters as well as a roll-up to the various field construction offices as well as a state-level summary report. The report system also provides the ability to list the individual distribution crew performance crew by name.

In reviewing the reports provided, we observed certain productivity improvements regarding replacement main and service work. PSE&G uses the report to develop crew skill levels, improve its planning and sequencing of replacement projects as well as daily crew management.[38]

Transaction Satisfaction Survey

The Utility administers a customer satisfaction survey for each line of business sampling customers that had a recent service and/or transacted with PSE&G to obtain feedback about their experience. For the Gas Delivery function the survey seeks to measure customer satisfaction with Gas Distribution, Appliance Service Repair and Appliance Service Emergency processes and determine opportunities for improvement. In reviewing the January 2021 report, PSE&G Gas Operations Transaction Satisfaction Survey - December Results, Gas Operations had two categories of improvement ideas mentioned by customers, better restoration of the job site after the utility work was completed, and more specific and complete communications. Both categories of improvements ideas, if not adequately addressed, could potentially impact PSE&G's ability to continue its GSMP work. So, thoughtful consideration and follow-up should be given regarding needed procedure or process changes.

When asked if survey results brought about any change of procedure or process, we were advised that "… process changes are not tracked back to the specific line of business."[39] Consequently, whether any meaningful follow-up to the expressed customer concerns regarding Gas Operations construction work took place is unknown.

[37] Response to OC-0182.
[38] Response to OC-0698 (Confidential).
[39] Response to OC-1057 (Confidential).

PSE&G should initiate documenting and tracking of any procedure or process changes resulting from analysis of major categories of improvement ideas expressed by customers in the Transaction Satisfaction Survey.

Quality Assurance/Quality Control

As a result of the Ewing investigation, (refer to Chapter 18-Gas Delivery, page 31 for details regarding the Ewing investigation) PSE&G formed a Quality Assurance/Quality Control (QA/QC) group in 2015. The group focused on "handling live gas, emergency response and mark outs."[40] Specific effort was directed towards accelerated main and service replacements due to the significant resources dedicated to this area.

Four QA/QC Specialists are assigned to conduct random field inspections and quality assurance audits across PSE&G's gas service territory.[41] The audits cover PSE&G's gas district crews, gas construction crews and gas contractors. PSE&G stated that the QA/QC Group completed 6,005 site audits between January 2018 and July 2021, of which 1,295 or 21.6 percent were performed on contractor sites. Of these, 1,048 were related to GSMP work and 247 to "other work performed by contractors."[42]
There are currently 20 "task types" identified in the QA/QC process, 17 of which are listed in the table below.[43] Each task type includes its own set of observations to assess safety, quality, and standards compliance.[44]

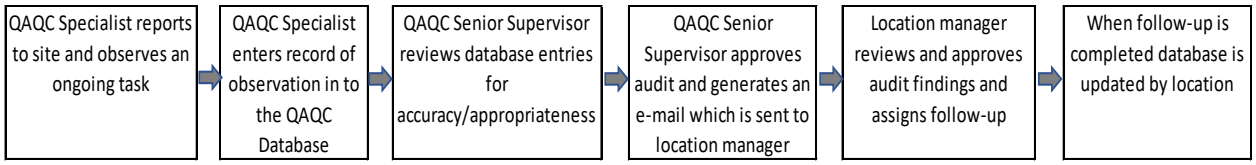
[40] Response to OC-1087-a.
[41] Response to OC-0694.
[42] Response to OC-0694.
[43] PSE&G stated there were 20 task types, but their list was limited to 17.
[44] Response to OC-1087-b.

Table 19-7 – Tasks Observed in Gas QA/QC Audits

Gas QAQC Group Task Type Sep-21
Description
Safety
Mark Outs
Excavating
Live Gas
Backfilling and Restoration
Install/Replace - Direct Bore
Install/Replace - Insert
Pipe Connect - Fusion
Pipe Connect - Mechanical
Pipe Connect - Welding
Main Leak Repair
Tapping / Stopping
Cathodic Protection
Emergency Response
Retire Main in Service
Encapsulation
Meter Install / Inspect
Response to OC-1087.

Field audits include observation of work practices, methods and materials using a predetermined set of safety, quality, and standards compliance observations for each task type. There is a list of safety-specific observations that require the job to be stopped. Observations are supported by citing backup documentation when submitted. PSE&G does not audit contractor facilities, but contractor staging areas are audited if they are used to store materials. The audit process includes the following steps:[45]

Table 19-8 – Gas QA/QC Audit Process



QA/QC Specialists attend training sessions at PSE&G's Edison Training Center. Training includes locator and leak survey training. Supplemental training based on task type is also provided, based on Gas Distribution Standards and Safety Standards and Procedures.[46]

A Microsoft Access database is used to record, share, approve, and perform follow-up on audit results. The database information is used to generate reports in Tableau reporting software, which are

[45] Response to OC-0694.
[46] Response to OC-0694.

distributed to PSE&G management in district operations and to contractors. Each audit item entered into the database is weighted using a risk assessment process and audit reports are scored based on the overall weighted value of the items. The Company is in the process of improving its data collection system using System 123. The installation of this system was expected to be complete by the end of 2021.

Sharing Gas Audit Results with Contractors

Audit results are shared with contractors when QA/QC Specialists are on-site performing field visits. Results are communicated with PSE&G project leadership teams in monthly meetings. When improvements are required, the leadership team conducts bi-weekly or monthly meetings to discuss the audits and develop improvement plans. Contractors whose performance is unsatisfactory may be given a "second chance." Superior performance is "rewarded by being invited to participate in future bids," whereas continued unsatisfactory performance "is likely to result in ineligibility to bid on future work."[47] Overland requested examples of unsatisfactory work over the past five years, but no specific examples were given. The Company stated that it "provides field inspectors for the vast majority of our work, so quality has not been an issue of any magnitude and is addressed swiftly on site." The Utility further explained that "a contractor was temporarily suspended from bidding on new work due to several significant safety-related incidents, [but] [a]t a later time, the contractor was introduced back into the workforce after being evaluated by an independent consultant and submitting an improvement plan…" PSE&G stated the contractor was closely monitored following reinstatement.

Electric Construction Work

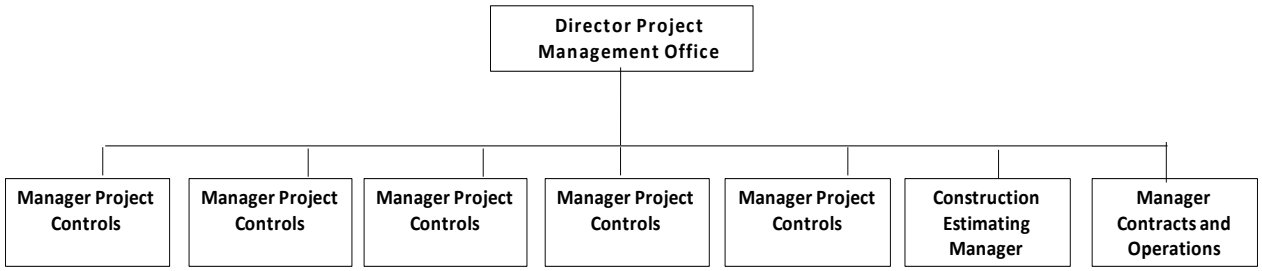
Electric construction is both completed by the in-house workforce as well as contractors. Large electric and certain gas projects are managed by the Projects and Construction (P&C) Project Management Office (PMO). In this section we discuss the P&C PMO, construction project estimating, budget performance, software utilized, best practices employed, other electric construction not overseen by P&C, contractor oversight and field status monitoring, and conclude with a review of the quality assurance/quality control program.

Projects and Construction Project Management Office

P&C PMO responsibilities include forecasting, estimating, scheduling, performance reporting, invoice management, accrual oversight, risk management, workforce modeling, contract oversight, quality control & assurance, and Interconnection Support. The organization consists of a Director with seven direct reports and 88 employees.
Below is the department's organization chart as of December 8, 2021.

[47] Response to OC-0055.

Table 19-9 – Projects and Construction Project Management Organization[48]



The activities carried out by this PMO organization are typical of what is expected when a rigorous project management approach is employed to achieve enhanced project execution. P&C PMO accountabilities include the following:

Cost & Scheduling Engineering – Group has a wide variety of cost and scheduling responsibilities, such as, forecasting, plant in-service cash flows, scheduling, milestone performance reporting, project status reporting, variance reporting, accrual submission, invoice management, documentation, volatility analysis, purchase requisitions, and audit responses.

Center of Excellence – This group has numerous reporting responsibilities along with workforce modeling, cash flow process and quality management, and PMO initiatives. Report responsibilities include portfolio reporting, scorecard metric support, financial reporting, variance reporting, plant in-service reporting, and schedule control reporting.

Administration & Project Support Specialist – Responsible for a variety of administrative and support functions including invoice & accrual support, purchase order requisition support, facility management, office supplies management, motor vehicle, and availability reporting support.

Estimating & Risk Management – Accountable for risk analysis and reporting, estimate development ranging from feasibility, study, conceptual, definite and interconnect studies.

Contracts & Operations – Responsible for a variety of contract and operating related activities including quality assurance and control, document management, procedure management, audit assessments and responses, contract administration, supplier performance, and interconnection agreements.

[48] Response to OC-1587 (Confidential).

Construction Project Estimation and Budget Performance

PSE&G stated that P&C estimates for large projects are developed using historical project costs, current industry labor and material data, and project specific data and assumptions. Estimates of project scope are provided by internal stakeholders (i.e., members of the Engineering, Corporate Properties, Licensing & Permitting, Division, Environmental Services, and Mobile Construction groups), PSE&G's project estimating group, and outside firms. To maximize accuracy and reliability, several independent estimates of the project scope may be prepared and compared. Estimates are price-escalated based on project schedule. Risk and contingency are applied based on the known and unknown risks at each project phase.[49]

Confidence levels for these estimates coincide with the phase of the project, as follows:

- **Feasibility Phase** – With only rough outlines available, and engineering typically less than 10 percent complete, estimate confidence is between 15 percent and 40 percent.
- **Study Phase** – Project scope and schedule are defined, and preliminary drawings are available in the study phase and confidence rises to 50 percent.
- **Conceptual Phase** – The estimate confidence level is 70 percent based on the availability of Issued for Construction (IFC) drawings, field studies and initial procurement contracts.
- **Definitive Phase** – With engineering complete and most major equipment and contracts purchased, estimation confidence rises to 90 percent.

Overland asked PSE&G to identify its 10 largest construction projects in the most recent five years through November 2021. We also asked for the dates and amounts of the initial estimates, whether the projects were completed or ongoing, and a budget to actual cost comparison. The projects are all electric, and the data provided is summarized in the following table.

[49] Response to OC-1483.

Table 19-10 – 10 Largest Construction Projects

10 Largest PSE&G Construction Projects (Amounts in $000s							
Project ID	Description	Ongoing or Complete	Actual Costs Accrued to Date	Initial Cost Estimate	Estimate at Completion	% Budget Performance	Budget
C.92052	Construct a 230/69/4kV station near the location of Orange Valley	Ongoing	$ 9,078	$ 105,800	$ 107,521	102%	On Budget
C.91709	Convert the F-1358/Z1326 and K1363/Y-1325 (Trenton - Burlington) 138kV circtuis to 230kV circuits	Complete	$ 687,836	$ 665,000	$ 692,300	104%	On Budget
	Convert the N-1340 and T-1372/D-1330 (Brunswick - Trenton) 138kV circuits to 230kV circuits						
C.91909	Construct a new 69/13kV station in Cranbury, construct a 230/69kV station at Plainsboro (Hunters Glen), and reconfigure 69kV bus at Harts Land and Sand Hills	Ongoing	$ 180,304	$ 234,592	$ 226,228	96%	On Budget
C.91801	Roseland-Branchburg 230kV corridor rebuild	Ongoing	$ 318,378	$ 546,000	$ 551,000	101%	On Budget
	Branchburg-Pleasant Valley 230kV corridor rebuild						
C.91708	Build a new 138/26kV Newark GIS station in a bldg (layout #1A) located adjacent to the existing Newark Sw and demolish the existing Newark Sw	Ongoing	$ 230,814	$ 283,300	$ 285,088	101%	On Budget
C.91806	Third Source for Springfield Rd. and Stanley Terrace Stations	Ongoing	$ 119,965	$ 157,600	$ 157,133	100%	On Budget
C.91903	Construct a new 230/69kV and a new 69/13kV station in the Clifton area on the existing ROW.	Ongoing	$ 64,007	$ 112,200	$ 74,586	66%	Under Budget
C.91711	Paterson Area Asset Condition and Reliability	Ongoing	$ 112,559	$ 116,132	$ 114,385	98%	On Budget
C.91902	Construct two (2) new 69/13kV stations in Doremus area and relocate Doremus load to new stations	Ongoing	$ 41,187	$ 109,000	$ 86,461	78%	Under Budget
C.92133	Construct Cliffs 69/13kV Class H Station	Ongoing	$ -	$ 155,800	$ 155,800	100%	On Budget

Of the 10 projects, none are designated to be over budget, and two are stated to be under budget.[50]

Software Used in Project and Construction

The P&C department uses a combination of commercial off-the-shelf software and an internally developed system to manage projects.[51] These include:

- **Primavera P6** – Is used for project planning and schedule management. Primavera is an Oracle product. Oracle describes it as a system to prioritize, plan, manage and execute projects, programs, and portfolios.

[50] Response to OC-1484 (Confidential).
[51] Response to OC-1482.

- **EOS/Sage** – Is used to develop project estimates. EOS Group describes Sage Estimating as a program to enable "accurate, defensible [project] estimates" which provide support for Work Breakdown Structures to provide structure and organization for estimates.
- **Project Tracking System** – An internally developed tracking system is used for cost management.

The Company stated that these systems are integrated with one another to eliminate data redundancy and improve the timeliness of information and reporting. However, the systems do not interface directly with PSE&G's corporate enterprise accounting system other than the ability to read certain SAP data, such as Work Breakdown Structure and project actual spending. As discussed elsewhere in this report, the Company stated that SAP will be ending support for PSE&G's current enterprise accounting system before the end of this decade. It is reasonable to expect that whatever system replaces the current SAP system will integrate with, if not include the functions performed by P&C's current project management software.

Contracting Best Practices

PSE&G identified that it employs the following best practices in its electric utility infrastructure contracting.[52]

Safety Related – Contractors in "high risk" areas of work are required to register with ISNETworld. ISNETworld is a software company that assists in procuring contracted services by vetting and verifying potential contractors. Contractor registration on the site is intended to "reduce unnecessary duplication" in the contractor qualification process, in part by verifying such items as insurance certificates, safety programs, training documentation, OSHA 300 logs and experience modification rates.[53] In addition, the Company requires registered contractors to report labor hours and OSHA incidents through the ISNETworld website.

Strategy – Master Service Agreements are established when feasible with the objective of reducing contracting cycle time and shift the process focus to contract scoping, establishing rate freezes for Time and Material work to reduce administrative activities associated with wage changes and related scheduling requirements, track contract cycle time from scope development through contract award and purchase order issuance and maintains procedures to ensure scoping documents are free from ambiguity and conform to commercial terms. The Utility states these procedures help limit contractor-initiated change requests.

Diversity – Contract waivers are obtained when no diverse suppliers are included in a bid. Contract bidders are requested to identify diverse contractors to be used on a job-by-job basis. Commercial contract terms include a 30 percent diversity requirement.

[52] Response to OC-0056.
[53] https://jjsafetyllc.com/isnetworld/what-is-isnetworld?

Electric Work Outsourced to Contractors

Electric related work it is outsourced to contractors, consultants, and professional firms in several categories, as described below:[54]

Engineering and Design – Architectural & Engineering firms perform about 80 percent of inside plant capital projects, including preparation of conceptual plans, design and drafting, and calculations in accordance with PSE&G's standards. Outside plan projects are designed almost exclusively by Company employees.

Design Oversight and Permitting – Design oversight is performed by Company engineers, with the caveat that 15 percent of the employees are contracted from an outside service provider and work under PSE&G supervision. Contractors provide most of the technical research and preparation to enable the Company to file and process permit applications; the work is overseen by employees.

Distribution System Construction – Contractors are responsible for about 40 percent of electric distribution system construction. PSE&G employees construct distribution lines and install poles and equipment. Employees also conduct maintenance activities, including storm restoration.

Construction & Installation Oversight & Inspection – Approximately 15 percent of construction and installation oversight is outsourced to contractors. Contractor oversight typically involves the distribution components of larger transmission projects that are program managed.

Distribution System Facilities Maintenance – PSE&G outsources infrared surveys, pole inspections, tree trimming and diagnostic equipment testing. The Company did not indicate the percentage of electric maintenance work this accounted for.

Both P&C and Electric Operations outsource Capital and O&M work. For the year 2020, based on costs the overall outsourced work accounts for about 50 percent of total Capital and O&M efforts, with the PSE&G workforce performing 56% of the O&M work and contractors completing 53% of the capital work. Details are summarized in the following table.

[54] Response to OC-0066.

Table 19-11 – Cost Comparison of Work Completed by Internal Labor to Outside Services-Electric

PSE&G Electric Internal Labor & Outside Service Spend - 2020			
($'s)			
Internal Labor	**O&M**	**Capital**	**Total**
Project & Construction	9,795,296	15,801,346	25,596,642
Electric Operations	27,252,775	60,304,069	87,556,844
Vice President - T&D	30,677,024	71,249,664	101,926,688
Internal Labor Totals	**67,725,085**	**147,355,079**	**215,080,174**
Outside Services	**O&M**	**Capital**	**Total**
Project & Construction	613,896	8,590,992	9,204,888
Electric Operations	53,573,863	155,153,765	208,727,628
Vice President - T&D			
Outside ServicesTotals	**54,187,759**	**163,744,757**	**217,932,516**
Percentages	**O&M**	**Capital**	**Total**
Electric Internal Labor	54%	47%	50%
Electric Outside Services	44%	53%	50%
Response to OC-1490 (Confidential).			

Contractor Oversight and Field Status Monitoring

Large Projects

Large electric construction projects are subject to Projects & Construction (P&C) procedures. PSE&G stated that the procedures were designed in part to ensure proper contractor oversight is maintained. Contractor oversight controls and activities help ensure that the project is completed as planned and in accordance with specifications, is conducted in a cost-effective manner, the quality of the work and adherence to the schedule and budget are monitored, and potential problems are identified and solved before they affect the project. Procedures identified by the Utility that affect contractor oversight include the following. [55]

Workplan, Schedule and Field Status Management – P&C Scheduling Procedure PMP-004 provides guidance on the methodologies for developing, reviewing, and approving project schedules for P&C capital projects. Projects utilize Primavera P6 as a project planning and scheduling management tool. Work planning begins with the project team identifying all planned system outages, interconnections, interfaces, and interdependent deliverables between the project team and the contractor. The contractor baseline schedules are developed based on these planning requirements and reviewed/agreed to with PSE&G. Weekly construction status meetings and updates are conducted and contractors are required to submit monthly progress reports and updated schedules to the Project

[55] Response to OC-1485.

Control group. Schedule submissions are reviewed for key deliverables, deadline dates and evaluated for any impacts to the agreed to contractor baseline as well as the Integrated project schedules.

Quality Assurance and Quality Control – P&C Quality Assurance / Quality Control Procedure PMP-007 provides guidance to ensure that products and services provided by contractors comply with the quality requirements, codes, and specifications of the contract. Generally, when required, all contractors submit and adhere to their project-specific QA/QC Plan. The Company provides independent oversight as needed.

Change Management and Contract Closeout – Contract Administration Procedure (PMP-009) provides guidance on ensuring that the approaches for developing, reviewing, and approving Contract Change Orders and Closeout are in accordance with the appropriate agreed upon contract commercial terms and conditions as well as Corporate/Enterprise Procurement Procedures and Practices. To facilitate and manage change for contracts, three different process/document types are established leading up to the issuance of a Contract Change Order. These process/document types are as follows:

- **Field Change Directive (FCD)** – a FCD is used when a change has the potential to affect the critical path and time constraints making the Request for Quote process impractical. An FCD allows the contractor an immediate notice to proceed, including a not-to-exceed value.
- **Change Order Request (COR)** – a COR is submitted by the contractor to the project team with the necessary backup to identify and quantify the change event. Once all negotiations have been agreed upon, the change event becomes a change order to the agreement.
- **Request for Quote (RFQ)** – a RFQ is generated by the project team to the contractor seeking pricing, schedule, and other impacts around a specific out-of-scope item. The contractor is then required to submit a COR to the project team with the necessary backup, quantifying the negotiated cost to complete the work addressed by the RFQ.
- **Change Order (CO)** – a CO is the Final Phase, and it occurs when the change event has been through all negotiations between the contractor and PSE&G. At this phase, the change event becomes a change order to the agreement and the change event has reached the final stage of the change management process. All COs are reviewed and verified for the contractor's entitlement to the specific change, cost, and schedule impact to the committed contract, and to the overall project budget and schedule.

Safety Management – P&C's Project & Contractor Safety (PMP-008) identifies the requirements for Contractor Safety Requirements and outlines the process for Contractors to develop a project-specific Project Safety Management Plan. Generally, all Contractors are instructed to submit and adhere to a project-specific Project Safety Management Plan. In accordance with their Safety Plan, contractors provide safety professionals to manage their plan for compliance and PSE&G provides independent oversight, as needed.

Invoice Management – P&C Invoice Management Procedure (PMP-006) identifies the requirements set for receiving invoices, evaluating (including validating the quantity, quality, pricing, accuracy, and supporting documentation of goods and services reported on invoices), and approving and processing invoices for payment.

Other Electric Construction

Electric related construction work not overseen by P&C consists of projects that provide for the installation of primary, secondary, services, and additional capacity associated with the connection of new customers. Work includes installing new overhead, underground, and buried underground distribution facilities including transformers, poles, cable, wires, and service upgrades.[56]

Upon receiving a customer request requiring new construction, PSE&G creates an internal project notification with relevant customer-specific information. Anticipated load data is obtained to determine the required service size. Where applicable, engineers assess the capacity of existing infrastructure available to serve the new customer. If the project requires service that is not readily available from existing infrastructure, then a line extension is mapped to determine the best method to provide service. Throughout the duration of the project, there are various points of interface within PSE&G. Prior to the service being energized inspections are performed during the construction process by the Company and the government authority having jurisdiction. Inspectors look for compliance with the building specifications communicated by PSE&G's Engineering Department.

Quality Assurance/Quality Control for Electric Work

PSE&G states that it continually assesses electric contractor performance through daily inspections and oversight activities. Construction and Operations Supervisors have the primary responsibility for this work. Activities are discussed with contractors at daily tailboard meetings held at the beginning and end of each workday. Problems arising from contractor work are communicated in these meetings. Anyone on any job is obligated to stop the job, if they observe work that is inadequate or unsafe. Project and Construction Project Managers and supervisors provide ongoing feedback to contractor teams. A final assessment and review are prepared at the time of purchase order closeout, depending on the scope and nature of the job.

Work evaluations and assessments of PSE&G employees and contractors relating to Electric Operations are as follows:

[56] Response to OC-1489.

Projects and Construction QA / QC – PSE&G describes the P&C QA/QC group as "a small team of highly skilled and experienced professionals" that independently perform on P&C's technical and operational field activities. They follow a "step by step assessment plan that results in a meaningful report of findings…provided to project team managers and upper-level management as deemed appropriate."[57] PSE&G describes the QA/QC Group's function as the 'check' part of the Plan-Do-Check-Act (PDCA) process, designed to help ensure work is completed in accordance with PSE&G's specifications, standards, procedures, and requirements. P&C QA/QC group activities include:

- **Field Oversight-Surveillance-Inspections** – Field inspections are performed for the 69kV, Transmission Life Cycle, Energy Strong II, Transmission Hardening, and Regional Transmission Expansion components of the P&C portfolio, with a primary focus on inside plant and underground activities. Two QA/QC field analysts, both of whom have construction and engineering backgrounds, conduct daily unannounced field oversight-surveillance-inspections. Contractor facilities and staging areas are not generally part of these field activities, however, depending on risk assessment results or other circumstances, the QA/QC Group may visit contractor facilities as part of Contract Compliance and Cost Verification audits, as discussed below.

- **Architect & Engineering (A&E) Firm Inspections** – Conducts A&E compliance assessments with a focus on engineering performance, including compliance with PSE&G's specifications and standards, project schedule, invoicing, the A&E firm's QA/QC processes, and implementation of PSE&G's engineering work.

- **Project Assessments** – Performs compliance assessments of selected projects in the Electric T&D portfolio. Activities include interviewing project management and other stakeholders, review project records and documents, and performing testing and analysis.

- **Contract Compliance and Cost Verification Audits** – Selects "one contract, purchase order or contractor based on their critical nature and financial significance" to perform a "focused assessment" of costs (labor, labor burden, materials purchases, equipment rental, etc.), contracted scope of work and documentation and contractor QA/QC activities.

Safety – PSE&G stated that it "conducts random, frequent and unannounced safety observations of contractor work" with an objective of improving contractor safety performance.[58] Safety Coordinators ensure that contractors meet minimum safety standards, including OSHA, New Jersey Department of Labor and contractual safety requirements beyond OSHA PMP-08A requirements. Since 2020, Safety Coordinators have also been responsible for compliance with PSE&G and Contractor COVID Prevention and Preparedness Plans. Safety Coordinators will stop the job if they find unsatisfactory, unsafe or non-compliance work, while they work with contractor leadership team to correct the situation. Safety observations are recorded in SERIM (Safety, Environmental & Reliability Information Management

[57] Response to OC-0694.
[58] Response to OC-0694.

System) and share observation results with PSE&G Project Management Teams (Project Managers, Construction Representatives, etc.) and Contractor Leadership Teams. Apart from limited exceptions, Safety Coordinators do not visit contractor facilities.[59]

Electric Field Operations – Apart from vegetation management, discussed below, PSE&G stated that electric field operations such as metering and wiring, overhead construction and underground construction make limited use of contractors. To the extent contractors are used, PSE&G stated the nature of their activities is such that it does not warrant the same level of QA/QC scrutiny as P&C, which is involved in "complex, multiple million dollar inside and outside plant transmission projects."[60]

Electric Operations field divisions oversee the work of blanket contractors in the areas of minor underground work (e.g., installation of a new conduit riser from a manhole to an overhead pole), horizontal directional drilling (HDD), and property restoration. Contract terms are based upon unit pricing and typically run between two and three years for a given contractor.

For underground work, engineering is completed by a Company Engineering Technician and the job is turned over to the contractor. The jobs are visited by a PSE&G crew upon completion and prior to installation of underground cable. Any defects are cited and corrected. Upon satisfactory completion of the work as determined by the Engineer, invoices are validated and approved for payment by Construction Supervisor. For HDD, a PSE&G Chief Underground Technician is assigned to oversee and witness all contractor work while on site. When PSE&G is satisfied with the work performed, contract rates and terms are verified, and the invoice is approved for payment. Contractors also install sonatubes for pole installations. PSE&G Engineering Technicians specify the height and depth for the tube. When contractor work is completed, an overhead line crew is scheduled. Defects or failure to comply with Company standards, if they occur, are cited by PSE&G and corrected by the contractor before work is signed off and the contractor paid.

Notwithstanding that P&C's QA/QC group does not get involved in field inspections, the Utility stated that contractors hired by Electric Field Operations may be subject to P&C QA/QC cost verification assessments.

Vegetation Management – For distribution vegetation management, Distribution Supervisors certified as Arborists by the International Society of Arboriculture (ISA) perform crew review audits. The certification exams include safety modules. PSE&G stated that as of June 29, 2021, there have been 195 "random" crew reviews conducted. The audits do not include contractor facilities or staging areas. PSE&G cannot estimate the percentage of work reviewed.

Approximately 20 times per month transmission vegetation management crew audits are conducted at randomly selected work-in-progress sites throughout PSE&G's transmission system. The audits cover

[59] Exceptions include contractors receiving, storing, and shipping certain transformers or transmission structures, when motorized equipment (cranes, forklifts) is involved in handling the equipment.

[60] Response to OC-1693.

safety, quality, productivity, and environmental compliance and are conducted by ISA-certified Utility Arborists and Supervisors. Environmental reviews are conducted twice per month by parties working for the Environmental Projects and Services Department. Contractor facilities and staging areas are not audited. The Mobile Information Management System (MIMS) is used to store all quality assurance forms, and "more informal" crew audits are conducted using a crew review forms. These are used to inform the contractor about their performance. All contractor work is inspected before payment.

Environmental Services – The environmental compliance team consists of ten employees in the Environmental Services Group (ESG) responsible for inspecting Company locations, assets, and operations as part of the Utility's Environmental Compliance program. The compliance team is trained in permitting and construction site management. ESG inspects both project and routine work. It performs annual compliance inspections at every electric and P&C location even if the location has no ongoing project. It does not typically inspect contractor yards. Exceptions include one yard that stores transformers. Inspections are documented in SERIM (also used for safety inspections, as discussed above). Documentation was expected to switch to a new platform – Locus – near the end of 2021.

Sharing Audit Results with Contractors

Contractor audits may cover safety, environmental or cost and schedule performance during or at the conclusion of a project. Results are shared with individual suppliers at performance meetings, and quarterly with a larger group of companies at contractor safety review meetings and during bi-annual "owners" meetings. Real-time results may be shared with individual contractors "on an ad-hoc basis depending on findings." PSE&G stated it may pursue remedies through contractual notices and enforcement, if audits reveal a breach of the contract.[61]

Audit follow-up is done through in-person or telecom conference meetings with contractor management. Contractors found to have unsatisfactory performance are provided a second chance. Moderate unsatisfactory performance usually results in on-site feedback and a request for improvement plans. When a contract violation is involved, the contractor is provided an opportunity to cure the failure. A contractor whose performance is below par is less likely to receive future bid opportunities and may be determined as ineligible to bid on future work. As with gas contractors, superior performance by electric contractors is rewarded through continued opportunities to bid work. Good past performance results in a higher rating during future bid evaluations, which improves the likelihood of contract awards.

PSE&G cited the following examples of unsatisfactory work in the year in which it occurred, with the actions taken as described below:[62]

[61] Responses to OC-0055 and 1635.
[62] Responses to OC-0055 and 1635.

- **Engineering firm** – Poor design work (2021) – PSE&G stated that this matter is under legal review.
- **Civil construction firm** – Pile driver tipping (2013) – A root cause team was formed to investigate the incident. Following the investigation, the contractor was removed from the P&C bidders list and has not been reinstated.
- **Civil construction firm** – A saw cut through an underground oil-filled line (2017) – The contractor was suspended from working for P&C, after which the contractor identified and implemented corrective action. The contractor was placed on probationary status and allowed to bid on projects of limited scope and complexity. The contractor was reinstated to fully qualified status after demonstrating satisfactory performance. Work performed since reinstatement has been satisfactory.
- **Electrical construction firm** – Dropped a cable across the New Jersey Parkway (2015) – Following an internal investigation the contractor was terminated and removed from the list of qualified bidders for overhead electrical work. The contractor has not been reinstated as qualified to bid on P&C overhead electrical work.

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20. HUMAN RESOURCES

Introduction and Overview

This chapter covers Overland's review of PSEG's Human Resources function and procedures. It covers the following topics:

- Compensation and Benefits practices and programs
- Labor Relations
- Workforce Planning
- Training and Development
- Affirmative Action / Equal Employment Opportunity

Summary of Findings

Compensation and Benefits

1. PSEG provides annual salary adjustments for its employees. For MAST employees, salary increases are budgeted based on corporate salary trends. Actual increases for union-represented employees are based on contracts with employee unions.
2. PSEG participates in several salary surveys to benchmark its salaries and assist in the salary budgeting process.
3. PSEG uses a third-party market pricing tool, MarketPay, to benchmark jobs and properly position them within the MAST salary grading structure. All new positions are evaluated for placement within the grading structure. Existing positions are also evaluated for potential regrading when position requirements change.
4. Total direct compensation for non-executive employees, which includes base salary, targeted cash-based incentive pay and the grant date value of long term stock based incentive pay, appears consistent with the market. In 2018 compensation consultant Pay Governance found that PSEG's overall total direct compensation was "slightly above median market rates."
5. The primary bonus pay program for non-executive employees is the Performance Incentive Plan (PIP). Data from Pay Governance indicates that the median target annual incentive as a percentage of salary, and the percentage of MAST employees eligible for and participating in the PIP is consistent with peers. However, the incentive pay target percentage for employees in the five lowest PSEG pay grades **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** is somewhat below the average of the peer group **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.
6. About 98% of eligible employees receive an annual PIP incentive award. The most important factors determining the award amount an employee receives are: 1) the budgeted (target level) award pool, which the actual award pool closely tracks, and 2) the employee's pay grade, with

targeted awards ranging from 5% of base salary for employees in the lowest five pay grades up to 40% of base salary for employees in grade LX, one step below officer level.

7. Financial and operational performance results appear to play a relatively minor role in determining an individual employee's cash-based incentive pay. Although performance metrics from up to four categories (corporate financial, business unit financial, business unit Balanced Scorecard and "strategic") are factored into each award calculation, apart from a difference between Director employees and employees below the Director level, the same performance measures apply to all employees in a subsidiary.[1]
8. Non-officer employees in salary grades 30 through 33 and LX are eligible for participation in the stock-based Non-Officer Long Term Incentive Plan (LTIP). Of 496 PSE&G and PSEG Services employees who were eligible in 2021, 206 were participants. Compensation consultant Pay Governance conducted an assessment of the LTIP in 2018 and found: 1) PSEG granted LTIP awards to a smaller percentage of its employee population relative to the 50th percentile of its peers, and 2) the salary level required for eligibility (salary grade 30 or above) was consistent with "majority market practice."
9. PSEG provides employees with a menu of employee benefits that includes retirement income, retirement health and welfare, active employee health and welfare, paid time off and various other cash-based benefits. According to Benefit Index™ data from Aon for 2017 and 2021, the overall economic value of benefits provided to MAST and union employees is roughly equivalent to the economic value of benefits provided to employees in a comparator group. However, PSEG ranked below the comparator group median in most specific benefit categories, and the comparator group of companies against which PSEG's benefits were compared was selected by PSEG.

Labor Relations

10. PSEG maintains contracts with four labor organizations. Contracts with all four unions are set to expire in April 2023. In recent years the Company has extended existing contracts with Memoranda of Understanding at the time of expiration. PSEG is currently in the process of developing management proposals for contract negotiations.
11. Changes in the Labor Relations function during the past decade include establishment of a Union Diversity, Equity and Inclusion (DEI) and Culture Council and a PSE&G Executive Safety Forum focused on health and safety initiatives and meetings.
12. To assess the reasonableness of union-requested changes in wages, PSEG stated that the Labor Relations team researches wage data from the U.S. Bureau of Labor Statistics, leverages information provided by other HR Centers of Excellence, and informally consults with industry peers through memberships in the Regional Utility Group, Edison Electric Institute, and American Gas Association. Records of the research and consultation are not formally maintained and thus were not provided in response to Overland's data request.

[1] For example, in 2021 all PSE&G Director employee incentive pay distributions were based on the same weighted performance factor, and all employees below Director received incentive pay based on a single weighted performance factor.

13. It appears PSE&G does not utilize benchmarking data to assess the reasonableness of union-requested changes in wages. The Company stated that it researches wage data from the U.S. Bureau of Labor Statistics and informally consults with industry peers through memberships in the Edison Electric Institute and American Gas Association. In response to our request for benchmarking data, PSEG stated that "other than the benchmarking data provided by the other HR Centers of Excellence, records of the research and consultation performed by Labor Relations are utilized in the normal course of business to inform the work of the Labor Relations team but are not archived."
14. Union employee grievances average approximately 200 per year. The annual number of grievances was relatively stable during the six year period 2015 through 2020. Less than 10 percent of grievances are arbitrated. Of non-arbitrated grievances filed in the years 2015 through 2020, slightly less than half were "accepted" by the applicable union and approximately 20% were withdrawn.

Workforce Planning and Training

15. Staffing levels have remained consistent for PSE&G over the past decade, although hiring volumes and open vacancies are higher in 2021 than in previous years.
16. There were no material constraints to workforce availability due the pandemic. While some impacts to hiring were observed at certain localities, the Company did not implement a hiring freeze or other enterprise wide program to limit hiring in the last few years.
17. While open vacancies were at six-year highs at the end of 2021, PSE&G's turnover rates were consistent with industry peers. Human Resources has not retained a consultant or performed any formal internal studies specific to workforce staffing levels or organizational design. Staffing levels are determined through the 10 year business planning process.
18. Contractor resources are used to meet peak demand requirements and where expertise is not available from the internal workforce. Costs have remained constant over the audit period and appear to be adequately managed.
19. PSEG does not track overtime at a corporate level or perform external benchmarking. However, the company's overtime rates, managed by department, appear to be lower than Overland's assessments of industry peers.
20. PSE&G and PSEG Services have not seen any appreciable increase in retirements over the past few years, but workforce demographics indicate that employee retirement eligibility will measurably increase in the next few years.
21. Training courses have been redesigned in the last two years to improve efficiency and reduce seat time. While training hours appreciably decreased as a result of the pandemic, these enhancements are expected to reduce training hours without impacting effectiveness.

Equal Employment Opportunity

22. PSEG maintains a Diversity, Equity and Inclusion (DEI) program with the goal of ensuring an equitable and safe working environment. Practical components of the program include

leadership development programs aimed at developing emerging women and minority leaders, reverse mentoring and identification of diverse talent to support succession planning.

23. PSEG maintains a Human Resources Practice Guide with policies covering, among other things, Equal Employment Opportunity (EEO) and Affirmative Action (AA). All newly hired employees attend training, which covers, among other things Standards of Conduct, EEO, Workplace Harassment Prevention, Safety and Diversity, Equity and Inclusion.
24. To maintain compliance with the US Department of Labor's Office of Federal Contract Compliance Program's AA requirements, PSEG stated that it: 1) conducts an annual Impact Ratio Analysis to ensure hiring, termination and promotions have been in compliance, 2) conducts compensation regression analysis to identify statistically significant pay differences by race and gender, 3) ensures its facilities are compliant with the Americans with Disabilities Act and any violations found are cured, and 4) ensures that employee requests for accommodation are handled in compliance with regulations.
25. PSEG has an increased focus on outreach and AA activities for veterans and people with disabilities. It conducted a dedicated campaign in 2020 with an aim on increasing inclusion for people with disabilities.
26. As a federal contractor, PSEG maintains an AA plan with hiring goals and results by job group. The plan attempts to compare the percentage of women and minorities in each group with requisite skills available in the Company's geographic are for employment, and develops a placement goal where there is a gap.**[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.
27. Employee demographic data shows that during the four year period from 2017 through 2020: 1) overall ethnic diversity increased slightly, from 25% non-white to 26% non-white; 2) female employment decreased slightly, from 19% to 18%; 3) Hispanic and Asian employment increased by 1% each, to 9% and 5%, respectively, while African American / Black employment remained stable at 12%.

Recommendations

20.1 The Labor Relations team within HR, in consultation with the company's Compensation HR Center of Excellence, should consider more formally benchmarking wage compensation for union employees against peers to assist in negotiating union wages that are both fair and comparable with peers. Overland requested union wage, benefits, job classification and work rules benchmarking data. In response to our request, PSEG stated that "[o]ther than the benchmarking data provided by the other HR Centers for Excellence, records of the research and consultation performed by Labor Relations are utilized in the normal course of business to inform the work of the Labor Relations team but are not formally archived." Our recommendation applies primarily to union wages, as opposed to employee benefits, given that PSEG obtains benchmarking data for union employee benefits from Aon.

Compensation and Benefits

PSEG offers a comprehensive compensation plan including salary, incentives, awards, and a range of employee benefits.

Salaries and Wages

Corporate salaries and wages are normally based on a structure or matrix consisting of pay grades and bands, or steps. Positions are classified into pay grades, each of which has a specific range of allowed salary compensation. Pay grades are based on analysis of the position's responsibility, educational requirements and the skills required for successful job performance. Pay bands are steps of increasing compensation within a pay grade through which employees in a given position may move as their experience and skills increase over time. The matrix (structure) of pay grades and bands provides a systematic way of ensuring that positions across an organization with similar levels of responsibility, education, required skills and experience are compensated on a similar basis. They help reduce pay discrimination and they help reduce or replace the amount of salary negotiation that takes place when the company hires new employees or promotes existing ones. We found PSEG maintains a typical salary and wage structure for non-executives, composed of 14 pay grades and six bands.[2]

PSEG's salary adjustments occur annually. Employees may receive increases in salary or wages based on one or more the following:[3]

- A merit increase based on successful job performance that increases compensation within the range allowed for the position's pay grade and band.
- An increase based on movement to a higher band within the pay grade, based on acquired experience within the position.
- An increase based on the employee's promotion to a new position with a higher pay grade.
- An increase based on adjustment of the entire salary and wage structure (the matrix of grades and bands) for inflation.

Salary and Wage Budgeting

PSEG's Human Resources function is housed within PSEG Services. As part of the annual business planning process, Human Resources assists PSEG Finance in budgeting overall salary and wage compensation for all subsidiaries. For MAST employees, budgeted salary increases are based on corporate salary trends for management employees. For union employees, actual increases are dictated by union contracts.[4]

[2] Interview of Sheila Rostiac and Dianne LaRocca on July 6, 2022.

[3] In cases of unsatisfactory performance, salaries may also be adjusted downward. An employee may also receive a pay decrease when moving from a position in a higher pay grade to one in a lower pay grade, although such moves are relatively rare in most companies absent significant reorganizations.

[4] Interview of Sheila Rostiac and Dianne LaRocca on July 6, 2022.

In order to help establish the annual salary budget, PSEG participates in salary surveys. PSEG provided summarized survey results for merit budget and salary grade structure changes. The summaries show that the weighted averages of budgeted merit and salary band increases are consistent from one survey to another and from one year to the next during the period we reviewed. The table below summarizes the overall weighted averages for the seven surveys PSEG uses for the years 2018 through 2021.[5]

Table 20-1 - Salary Planning Market Data Used by PSEG

[BEGIN CONFIDENTIAL]

Salary Planning Market Data Used By PSEG					
Survey Vendor Weighted Averages		**2018**	**2019**	**2020**	**2021**
Merit Budget Increase	National	[redacted]	[redacted]	[redacted]	[redacted]
	Utility / Energy	[redacted]	[redacted]	[redacted]	[redacted]
	Northeast	[redacted]	[redacted]	[redacted]	[redacted]
Salary Structure Increase	National	[redacted]	[redacted]	[redacted]	[redacted]
	Utility / Energy	[redacted]	[redacted]	[redacted]	[redacted]
	Northeast	[redacted]	[redacted]	[redacted]	[redacted]
Response to OC-1788 (Restricted).					

[END CONFIDENTIAL]

Position Pay Grade Analysis

PSEG uses a third-party market pricing tool called MarketPay to "benchmark roles and position them into PSEG's grading structure." PSEG stated that MarketPay is "widely used" and "consolidates all the salary surveys into one database that enables us to research and evaluate jobs."[6] PSEG provided data for 2018 through 2021 showing new positions for which pay grades were established, and existing positions for which pay grades were changed. The table below summarizes existing positions evaluated for 2021, and new positions for which pay grades were established in 2021. An existing position is evaluated when if its requirements change materially.[7]

[5] Surveys include AON Hewitt, The Conference Board, Culpepper, Empsight, Mercer, Willis Towers Watson, World at Work and EAPDIS.

[6] Response to OC-1788-A2.

[7] Interview of Sheila Rostiac and Dianne LaRocca on July 6, 2022.

Table 20-2 - Non-Office Position Evaluations for PSE&G-2021

[BEGIN CONFIDENTIAL]

Non-Officer Position Evaluations for PSE&G - 2021		
Position	**Current Grade**	**New Grade**
Existing Positions		
Campaign Manager	[redacted]	[redacted]
Director Energy Services	[redacted]	[redacted]
Director Solar Energy	[redacted]	[redacted]
Director Workforce Development & Operation Services	[redacted]	[redacted]
ESOC Training Instructor	[redacted]	[redacted]
Gas Administrative Mgr to Mgr Gas Administrative Operations	[redacted]	[redacted]
Manager Energy Efficiency Outreach	[redacted]	[redacted]
Material Analyst	[redacted]	[redacted]
Material Control & Logistics Manager	[redacted]	[redacted]
Mgr Electric Supply Acquisition	[redacted]	[redacted]
Mgr ESOC NERC Compliance	[redacted]	[redacted]
Procurement Materials Logistics Manager	[redacted]	[redacted]
Project Controls Engineer - Cost Gas Ops	[redacted]	[redacted]
Service Consultant	[redacted]	[redacted]
Sr Dir Construction & Maintenance	[redacted]	[redacted]
Sr Dir Electric System Oper Ctr	[redacted]	[redacted]
Sr. Director - Electric T&D Operations & Support	[redacted]	[redacted]
Sr. Director of Energy Supply Acquisition & Operations	[redacted]	[redacted]
Staff Engineer	[redacted]	[redacted]
Training & Development Specialist	[redacted]	[redacted]
New Positions		
Appliance Services Program Manager		[redacted]
Business Support Specialist - M&R		[redacted]
Customer Care Office Administrator		[redacted]
ESOC Technical Clerk		[redacted]
Manager Business Performance and Improvement		[redacted]
Manager ESOC SCADA/Advanced Applications & Power Systems		[redacted]
Manager Safety PSE&G		[redacted]
Process Lead / Sr Customer Operations Spv		[redacted]
Product Mgr - Central Sales & Service		[redacted]
Senior Director – Gas Asset Strategy, Integrity Mgt., and System Operations / Director Gas Transmission & Distribution Engineering		[redacted]
Sr Data Systems Administrator		[redacted]
Sr Director Utility Investment Planning, Bus. Imprvmt & Processes		[redacted]
Sustainability Program Mgr		[redacted]
Response to OC-1788.		

[END CONFIDENTIAL]

Incentive Pay for Non-Executive Employees

Incentive pay programs available to non-executive MAST employees include the short-term, cash-based Performance Incentive Plan (PIP) and the stock-based Long Term Incentive Plan (LTIP). The table below summarizes participants in each plan for the year 2021:

Table 20-3 - Non-Executive Employee Incentive Plan Eligibility and Participation

2021 Non-Executive Employee Incentive Plan Eligibility and Participation				
Subsidiary	**Perf. Incentive Plan**		**LT (Stock) Incentive Plan**	
	Eligible	**Received**	**Eligible**	**Received**
PSE&G	1,974	1,933	229	79
PSEG Services	1,089	1,077	267	127
Totals	**3,063**	**3,010**	**496**	**206**
Response to OC-1904.				

Performance Incentive Plan

Salaried, non-union-represented employees who work 20 or more hours per week are eligible to participate in the cash-based Performance Incentive Plan (PIP). The PIP's stated purposes are:[8]

- To foster attainment of the financial and operating objectives of the Company and its subsidiaries by providing incentive to employees who contribute significantly to the attainment of those objectives,
- To promote individual and shared accountability for achieving annual performance and operating goals,
- To supplement salary and benefit programs so as to provide overall compensation for employees with corporations with which the Company and its Subsidiaries must compete for talent; and,
- To assist the Company and its Subsidiaries in attracting and retaining employees who are important to continued success.

The PIP is administered by the PSEG Employee Benefits Policy Committee (Committee). Awards are allocated based on corporate, business unit financial, business unit scorecard and strategic goals established during the first three months of each Plan Year.

The Committee and the Chief Executive Officer specify which goals are used to determine target incentive amounts prior to the beginning of each plan year and the relative goal weights that may be used to calculate awards for each plan participant or group of participants. The distribution of PIP awards is made within 2 ½ months of the end of each plan year.

[8] Response to OC-0428 Attachment.

Cash-Based Incentive Compensation Compared with Peers

Data from Pay Governance indicates PSEG's median target annual incentive as a percentage of salary, and the percentage of employees eligible for and receiving incentive pay appear is generally in line with peers. However, PSEG's target employee incentive compensation percentage for employees in the lowest five MAST salary grades, at **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, is somewhat below that of peers, which ranges from **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** in the lowest grade up to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** in the fifth lowest grade.[9]

PIP Award Determination

Nearly all MAST employees receive a PIP award every year. Targets are established each year based on earnings guidance and include a level of stretch performance. Targets are not set with the expectation that they will be exceeded. In this sense, the PIP can be thought of as a variable component of annual employee compensation.[10] The calculations that result in individual employee PIP awards are detailed. However, while the calculation involves a number of steps, it is important to understand that PIP awards are fundamentally based on and closely track a budget determined in the latter months of the year before awards are made. Awards for any employee or group of employees are essentially an allocation of an award pool that closely tracks the budget. Allocation of awards to individual employees is most heavily influenced by pay grade. Within a pay grade, business unit performance and the weights assigned to different categories of performance determine the award allocated to various categories of employees. In some cases, an employee's award may be individually modified based on employee-specific factors such as exceptional performance, but it is unlikely such modifications have more than a small impact on most individual awards. The following table shows the key employee eligibility and award statistics for the PIP for 2018 through 2021.

[9] Response to OC-1907 Attachments.

[10] For example, performance factors that determine whether an award will be paid did not fall below the 0.50 performance threshold required for payout at any time during the period 2018 through 2021. The average score for all performance for PSE&G and PSEG Services during this four year period, giving equal weight to all scores, was 1.30, well above target performance levels of 1.0 (Response to OC-1906). In other words, targets under the PIP are set such that they are normally exceeded.

Table 20-4 - PIP Employee, Budget and Award Statistics - 2018 through 2021

PIP Employee, Budget and Award Statistics - 2018 through 2021								
Year	Employees			Budgeted		Awarded		
	Eligible	Received	% Receiving	% of Salaries	Amount ($MM)	Amount ($MM)	% of Budget	$ per Employee
PSE&G								
2021	1,974	1,933	97.9%	19%	45.0	44.9	99.8%	23,228
2020	1,957	1,912	97.7%	15%	35.1	35.1	100.0%	18,358
2019	1,978	1,953	98.7%	19%	41.8	44.1	105.5%	22,581
2018	2,016	1,975	98.0%	17%	38.1	34.8	91.3%	17,620
PSEG Services								
2021	1,089	1,077	98.9%	24%	34.5	34.5	100.0%	32,033
2020	1,076	1,054	98.0%	19%	26.1	26.2	100.4%	24,858
2019	1,083	1,070	98.8%	18%	25.9	25.9	100.0%	24,206
2018	1,028	1,009	98.2%	17%	22.2	22.5	101.4%	22,299
Response to OC-1905.								

Business performance is measured in four categories: corporate financial, business unit financial, business unit scorecard and strategic initiatives.[11] Performance categories and the basis for their measurement are summarized in the following table.

Table 20-5 - PIP Four-Part Performance Measurement Structure

PIP Four-Part Performance Measurement Structure			
Component	Basis	Performance	
Corporate	PSEG Corporate EPS	Threshold	0.50
		Target	1.00
		Exceptional	2.00
Business Unit Financials	Contribution to Operating Earnings (PSE&G)	Threshold	0.50
		Target	1.00
		Exceptional	2.00
Business Unit Scorecards	Multiple Operational Goals	A. Target	0.5-2.0
		B. Continuous Improvement	0.5-2.0
		C. Scorecard Initiatives	0.5-2.0
Strategic	Leadership & practices supporting strategic initiatives	Threshold	0.50
		Target	1.00
		Exceptional	2.00
Response to OC-0299.			

The table below shows the 2021 factor scores and relative weights given to factors for PSE&G and PSEG Services.

[11] The business unit financial factor is used only for Director-level employees in operating subsidiaries PSE&G and PSEG LI. For PSEG Power, the unit financial factor applies to both Director and Non-Director employees.

Table 20-6 - PIP Award Factors and Weights in 2021

PIP Award Factors and Weights in 2021									
Subsidiary	Corporate EPS		Bus. Unit Financial		Bus. Unit Scorecard		Strategic		Weighted Score
	Factor	Weight	Factor	Weight	Factor	Weight	Factor	Weight	
PSE&G Directors	2.00	30%	1.05	20%	1.44	40%	1.25	10%	1.51
PSE&G below Director					1.47	90%	1.25	10%	1.45
PSEG Svcs Directors	2.00	50%			1.30	40%	1.25	10%	1.65
PSEG Svcs below Director	2.00	30%			1.31	60%	1.25	10%	1.51
Response to OC-1906.									

Unweighted average performance for all PSE&G and PSEG Services employees during the four years 2018 through 2021 was 1.30, well above target performance of 1.00.[12] In 2021, as shown in the table above, weighted performance scores ranged from 1.45 for PSE&G employees below the Director level to 1.65 for PSEG Services Director-level employees.

Individual Employee PIP Award Calculation

At the employee level, PIP awards are based on:

- Base Salary.
- PIP Target Incentive Percentage (of Base Salary), which varies based on employee pay grade. In 2018 this varied from 5% for employees below pay grade 24 up to 40% for employees above pay grade 33.
- Weighted Performance Score for the Employee Group (e.g. 1.51 for Directors, as shown in the table above).
- Individual Performance Modifier (Ranges around 1.0, based on individual employee performance).

Business Unit Balanced Scorecard Performance

The majority of PIP awards for most MAST employees is a function of Balanced Scorecard metrics. During the years 2018 through 2021, 90% of PIP awards for PSE&G MAST employees below the Director level, and 60% for PSEG Services employees below Director depended in part on Balanced Scorecard results. The Balanced Scorecard is divided into the categories shown in the following table. Specific metrics within the categories change from year to year. The table shows metrics used in 2021. Scorecard categories and individual metrics apply to all employees in a given subsidiary. There are no metrics applicable only to employees in specific departments.[13]

[12] Response to OC-1906 (Restricted), Table 1.

[13] For example, the Customer Service Average Speed of Answer contributed to the Balanced Scorecard performance for all utility employees, not just to employees in the Customer Service function.

Table 20-7 - 2021 Balanced Scorecard Performance Metrics

2021 Balanced Scorecard Performance Metrics	
PSE&G	
People	DEI Score
Safety & Reliability	SAIDI, JD Power Electric & Gas Quartile Scores, Customer Service Avg. Speed of Answer, Best Practices Initiative Milestones, SOX 404 Test Deficiencies and Remediation, Supplier Diversity and New Jersey Spend, and Cybersecurity Index.
Green	Annualized Energy Efficiency, Electric & Gas, Key Project Milestones, Open Leaks.
PSEG Corp (PSEG Services)	
People	OSHA Recordable Incidents Rate, Days Away From Work Rate, DEI Score
Safety & Reliability	SAIDI, JD Power Electric & Gas Quartile Scores. Customer Service Avg. Speed of Answer, Power Assets EFOR'd, INPO Plant Performance, IT Critical Systems Unplanned Outages, SOX 404 Test Deficiencies and Remediation, Supplier Diversity and New Jersey Spend, and Cybersecurity Index.
Economic	Controllable O&M Exp., Cash Generation, {Pension Peer Group Ranking, Total Shareholder Return, Return on Invested Capital, Benefits Cost per Employee.
Response to OC-1906 Attachment (Restricted).	

Review of Balanced Scorecard metrics indicates performance for most metrics meet or exceed established targets.[14] During the years 2018 through 2021 the overall average Balanced Scorecard result for PSE&G and PSEG Services employees was 1.29, well above the target performance level of 1.00.

Mercer's Review of the 2014 PIP

Compensation consultant Mercer reviewed PSEGs overall market compensation in 2014. With respect to the PIP, Mercer recommended reducing the plan's complexity by reducing the number of scorecard metrics to allow greater focus on key metrics. PSEG states that it adopted this recommendation.[15] However, Overland notes that Balanced Scorecards continue to contain a large number of metrics. For example, in 2021, the scorecard applicable to PSEG Services included 29 Part A and 28 Part B metrics, while the scorecard applicable to PSE&G included 19 Part A and 18 Part B metrics.[16] In our view, the scorecards remain fairly complex, and, given that the metrics set applies to all employees within a subsidiary, as an award distribution mechanism they bear little relationship to aspects of performance within an individual employee's control.

[14] For example, in 2021 there were 37 separate scorecard measurements. Only five (13.5%) failed to meet or exceed target performance levels. In 2020 there were 35 scorecard measurements, with 11 (31.4%) failing to meet or exceed targeted performance.

[15] Response to OC-1907-A.

[16] Response to OC-1906 (Restricted).

Non-Officer Long Term Stock Incentive Plan (LTIP)

Non-executive employees in salary grades 30 and above are eligible for participation in PSEG's Long Term (stock-based) Incentive Plan. LTIP features are discussed in the chapter covering Executive Compensation. In 2021 approximately 500 PSE&G and PSEG Services employees were eligible for the LTIP, of which approximately 200 participated.[17]

The compensation consulting firm Pay Governance conducted an assessment of PSEG's non-officer LTIP in 2018. Pay Governance found:[18]

- PSEG granted LTIP awards to a smaller percentage of its employee population relative to the 50th percentile of its peers.
- The salary level required for eligibility (salary grade 30 or above) was consistent with "majority market practice."
- PSEG's overall current total direct compensation (the sum of base salary, short-term, cash-based incentives and the grant-date value of long-term (stock based) incentives, were slightly above median market rates.

Employee Benefits

PSE&G's employee benefits include retirement income (contributions to pensions and 401K matching), health care, disability and life insurance, compensation for vacation and other time off, and various other cash benefits, such as education reimbursement. To evaluate PSE&G's employee benefits we reviewed Benefit Index™ data produced by Aon for salaried management and hourly union-represented employees in 2017 and 2021. This is summarized in the following table.

[17] Response to OC-1904.

[18] Response to OC-1787 Attachment (Restricted).

Table 20-8 - Employee Benefit Benchmark Results

[BEGIN CONFIDENTIAL]

Employee Benefit Benchmark Results				
Employee Category / Benefit Area	2017		2021	
	Index	Rank	Index	Rank
Salaried Employees				
Retirement Income (matched savings and employer pensions)	[redacted]			
Active Employee Health Care (medical, dental, vision)	[redacted]			
Retiree Health & Welfare (retiree medical and life insurance)	[redacted]			
Active Employee Welfare (disability, group life and survivor ins.)	[redacted]			
Time Off With Pay (Vacation, holiday, personal days, parental leave)	[redacted]			
Cash-Based Benefits (Employee Stock Plan, adoption assistance, education reimb. and dependent care financial assistance)	[redacted]		[redacted]	[redacted]
All Benefits Combined	[redacted]	[redacted]	[redacted]	[redacted]
Union Employees				
Retirement Income (matched savings and employer pensions)	[redacted]			
Active Employee Health Care (medical, dental, vision)	[redacted]			
Retiree Health & Welfare (retiree medical and life insurance)	[redacted]			
Active Employee Welfare (disability, group life and survivor ins.)	[redacted]			
Time Off With Pay (Vacation, holiday, personal days, parental leave)	[redacted]			
Cash-Based Benefits (Employee Stock Plan, adoption assistance, education reimb. and dependent care financial assistance)	[redacted]		[redacted]	[redacted]
All Benefits Combined	[redacted]	[redacted]	[redacted]	[redacted]
Response to OC-1785.				

[END CONFIDENTIAL]

The Aon data is compared among organizations based on Aon's determination of the "economic value" of various benefits. The data show PSEG's overall employee benefits package is very close to the "value weighted average" of the benefit areas for the comparator (peer) group, which, depending on the survey year and benefit area, varied from six to 25 total companies.[19] The Active Employee Health Care category made up approximately 45% of the weighting of the All Benefits Combined index. Thus, although PSEG ranked in the lower half of companies in the comparator group in many categories, many of these did not add much weight to the overall index. For example, although PSEG ranked 11th of 12 comparison companies in 2021 in the salaried employee retiree benefits area, this area contributed only 0.7% to the All Benefits Combined index value for the comparator group, while Active Employee Health Care contributed 32.4% to the total Combined Index Value weight.

Although it appears that PSEG is very close to the median of the Total Benefits Index both in 2017 and 2021, it should be noted that PSEG selects the organizations included in the comparator group.[20]

[19] PSEG redacted all information about the comparator companies. Overland has no information about the industries to which they belong or their size. What we can say is that PSEG is very close to the median of the group.

[20] The Executive Summary of the Benefit Index report stated "Benefit Index is a measure of the competitive value of your benefit program compared to the value of benefits provided by organizations you select."

Labor Relations

Labor Contracts

PSE&G stated that it currently has contracts covering the terms and conditions of employment with the following four labor organizations (unions):[21]

- International Brotherhood of Electrical Workers Local 94
- Office and Professional Employees International Union Local 153
- United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry AFL-CIO, Local 855
- Utility Workers Union of America, AFL-CIO, Local 601

All of PSE&G's contracts with these unions are set to expire at the end of April 2023. Rather than negotiate entirely new contracts, in recent years PSEG and the unions have extended existing contracts with Memoranda of Understanding. PSEG is currently in the process of meeting internally to develop a full set of management proposals for contract negotiations. The Company also stated it expects to codify any changes to existing contracts in 2023 with Memoranda of Understanding.[22] PSEG companies with union-represented employees, organizations, and the types and numbers of employees are summarized in the following table.

[21] Response to OC-0429.
[22] Response to OC-1795.

Table 20-9 - Summary of PSEG Unions, Company Organizations and Number of Employees

Summary of PSEG Unions, Company Organizations and Number of Employees						
Contract	Companies	Organizations & Types of Employees Covered	Employee Counts, Year End			Contract Term Ends
			2012	2016	2021	
IBEW Local 94	PSE&G PSEG Power PSEG Services	Electric Delivery & Transmission Projects & Construction Fleet Maintenance Stores Mail Services Facilities Maintenance Nuclear	3,099	3,050	2,601	4/30/2023
	PSE&G	Gas Delivery, Construction & Appliance Services (Jersey City, Summit & Harrison)	452	543	627	
UA Local 855	PSE&G	Gas Delivery, Construction & Appliance Svcs (Other Than JC, Summit & Harrison) Fleet Maintenance Stores	1,305	1,470	1,647	4/30/2023
		Gas Plants	16	18	14	
UWUA Local 601	PSE&G	Call Center Customer Service Centers Meter Reading & Field Collection	1,193	1,132	1,064	4/30/2023
OPEIU Local 153	PSE&G	Clerical employees and certain technical employees in Electric Delivery and Projects & Construction.	270	269	263	4/30/2023
Employee Count Totals			**6,335**	**6,482**	**6,216**	
Responses to OC-0429, 1789, and 1793.						

Changes and Improvements to Labor Relations

We asked PSEG to describe any noteworthy changes or improvements to the Labor Relations function since 2012. The Company listed the following:[23]

- Establishment of a Union Diversity, Equity and Inclusion (DEI) and Culture Council. (This is discussed below under the heading of Equal Employment Opportunity.)
- Establishment of an Executive Safety Forum focused on health and safety initiatives and meets to strengthen the importance of performing work safely and efficiently.
- Since the beginning of the Covid pandemic, PSEG stated that it has used video conferencing when needed to maintain regular communication with union employees.

PSEG's relationship with its unions and their employees has been stable for the past decade.

[23] Response to OC-1790.

Union Wage Increases and Benefit Changes

We asked PSEG to provide a copy of an available benchmarking data used within the past 10 years to assess the reasonableness of union-requested changes in contract wages, benefits, job classifications or work rules. The data response stated:[24]

> In assessing the reasonableness of union-requested changes to wages, benefits, job classifications and work rules, Labor Relations researches wage data from the U.S. Bureau of Labor Statistics; leverages other Centers of Excellence within Human Resources, which maintain formal benchmarking data pertaining to wages and benefits; and informally consults with industry peers established through memberships such as the Edison Electric Institute (EEI), the American Gas Association (AGA) and the Regional Utility Group (RUG) for information they can share. Other than the benchmarking data provided by the other HR Centers of Excellence, records of the research and consultation performed by Labor Relations are utilized in the normal course of business to inform the work of the Labor Relations team but are not formally archived.

The table below summarizes across-the-board wage increases applicable to PSEG unions and employees over the past 10 years, including the most recent increase that became effective on May 1, 2022. Although the details differ slightly by union in 2012 and 2013, union wages have increased by a compounded total of 32.5% over the 10 years ending May 1 2022. For comparison, according to the Bureau of Labor Statistics the Consumer Price Index for All Urban Consumers (CPI-U) in the Mid-Atlantic Region increased by 25.33% between March 2012 and March 2022.[25] While union employee wage increases have exceeded inflation over the past decade using a comparison based on CPI, the Company stated that the increases were offset in part changes in represented medical plan benefits over the same period of time. Comparison using average wage increases or average hourly earnings in the utility industry over the same period yields results more aligned with PSE&G's, in the 33% to 39% range.[26]

[24] Response to OC-1791.

[25] https://www.bls.gov/regions/mid-atlantic/data/consumerpriceindexhistorical_us_table.htm.

[26] For example, average hourly earnings of all employees in the utilities industry rose from $33.72 in March 2012 to $46.80 in March 2022, and increase of approx. 39 percent. https://data.bls.gov/timeseries/CES4422000003?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true If we look at average hourly earnings of production and non-supervisory employees in the utilities industry, we see an increase from $31.16in March 2012 to $41.38 March 2022, an increase of approx. 33 percent. https://data.bls.gov/timeseries/CES4422000008?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true This does not control for geography.

Table 20-10 - PSEG Across-the-Board Union Wage Increases 2012-2022

PSEG Across-the-Board Union Wage Increases 2012-2022				
Date	**IBEW Local 94**	**UA Local 855**	**UWUA Local 601**	**OPEIU Local 153**
5/1/2012	3.25%	3.25%	1.75%	3.25%
5/1/2013	1.50%	1.50%	3.00%	1.50%
5/1/2014	2.00%	2.00%	2.00%	2.00%
5/1/2015	2.00%	2.00%	2.00%	2.00%
5/1/2016	2.25%	2.25%	2.25%	2.25%
1/2/2017	3.00%	3.00%	3.00%	3.00%
5/1/2018	3.00%	3.00%	3.00%	3.00%
9/2/2019	3.00%	3.00%	3.00%	3.00%
5/1/2020	3.00%	3.00%	3.00%	3.00%
1/1/2021	2.75%	2.75%	2.75%	2.75%
5/1/2022	2.75%	2.75%	2.75%	2.75%
Response to OC-1794.				

PSEG stated it has a "collaborative relationship with its unions [that] has resulted in the ability to negotiate contract extensions with all four unions between 2011 and 2021."[27]

Changes in Union Benefits

Following are the significant changes in represented employee benefits over the past 10 years:

Pension Plan

The pension plans applicable to both union-represented and MAST employees have been amended a number of times since January 2012. Other than a merger of the plans at the end of 2016, the amendments have consisted primarily of minor administrative changes. Among the amendments were:[28]

- For both the cash balance and final average pay components of the pension plan, for UWUA Local 601 employees only, the definition of pensionable earnings was changed to include a cap on overtime earnings at 10% of base pay (January 1, 2012)
- Cash Balance Plans were merged into the Final Average Pay Pension Plan. The combined plan is referred to as "Pension Plan of Public Service Enterprise Group Incorporated" (December 31, 2016).
- The Pension Plan was split into two plans: one for predominantly inactive participants and one for active participants. PSEG stated that the split was done in accordance with ERISA and IRS

[27] Response to OC-0429.

[28] Response to OC-0428, Cash Balance Component Represented Chronology – 2011 – Present and FAP Component Chronology – 2011 – Present.

non-discrimination rules. It further stated that "the split . . . into two plans was done to better manage pension plan expense volatility" [and] "there was no change or impact to the underlying benefits to any participant . . . as a result of the split" (July 1, 2019).

Health and Welfare (Medical) Plans

Health and Welfare plans include medical, dental and other health-related employee benefit plans. Plans tend to change annually based on adoption of employee benefit trends and due to medical inflation. A few of the more significant changes applicable to union employees over the past 10 years have been the following:[29]

- The $750 / $1500 deductible traditional medical option was eliminated for all represented employees except UWUA Local 601 (January 2014). (The option was eliminated for UWUA Local 601 represented employees effective January 2015.)
- A High-Deductible Health Savings Plan with Health Savings Account was introduced for all employees except those in UWUA Local 601. It provided for $500 annually in Company funding for the HSA, with an additional $750 for an employee or $1,500 in Family HSA funding based on participation in wellness activities (January 1, 2014). A similar plan, with the same features, extended to employees of UWUA Local 601 beginning January 1, 2015.
- Eligibility for spousal medical coverage extended to represented same-sex couples beginning January 2017. As a result, domestic partner coverage was no longer applicable.

In addition, there were a number of administrative and design changes to medical plans which altered penalties for selecting brand-name drugs, medical plan deductible amounts, copays, and plan out-of-pocket maximums.[30] With a few exceptions, the changes applicable to union-represented employees were also applicable to MAST employees.

Savings Plan Changes

Following are significant changes to employee savings plans applicable to union-represented employees since January 2012:[31]

- Savings Plan amended to reduce Company matching contributions from 50% to 25% on the first 7% of pay contributed (January 2012).
- Savings Plan amended to restore Company match to pre-suspension levels (50% on the first 7% of contributed pay) (January 2013).
- Adopted a number of Plan changes relating to match eligibility, auto-enrollment, withdrawals and loans (October 2017).

[29] Response to OC-0428, HW Plans Chronology – 2011 – Present.
[30] Response to OC-0428.
[31] Response to OC-0428, Savings Plan Chronology, 2011 – Present.

In addition to the Pension, Medical and Savings Plan changes listed above, PSEG listed a number of additional changes applicable to union-represented employees. The more significant of these changes included:[32]

- The Shared Savings program provided eligible employees with an additional 1-3% of base wage based on meeting "desired targets" (April 29, 2014).
- Modified the company's Postretirement Supplemental Health Benefits Plan (VEBA) contribution for union-represented Benefits 2000 employees.
- Temporarily provided up to 80 hours of paid time off for COVID related qualifying events (April 3 2020). This was rescinded beginning April 1, 2022.
- During the onset of COVID, temporarily provided 5 days of paid bereavement leave.
- Provided eligible full-time represented employees up to 40 hours of paid time off per benefit year to use for purposes as outlined in the NJ Earned Sick Leave Law.
- Provided Veteran's Day as a fixed holiday (UWUA Local 601 only) (January 2021).
- Work from home agreement provides a $25.00 monthly stipend for internet and utility costs (UWUA Local 601 and OPEIU Local 153 employees) (May and October 2021).

Labor Relations Metrics – Grievances

We requested the metrics PSEG maintained for the Labor Relations function. PSEG provided data showing the number of union employee grievances and associated arbitration outcomes, summarized in the table below.[33]

Table 20-11 - Summary of Union Employee Grievances and Outcomes

Summary of Union Employee Grievances and Outcomes											
Year	Total Grievances	Arbitrated				Non-Arbitrated					
		Settled	Closed in Favor of PSEG	Closed in Favor of Union	Withdrawn	Accepted	Expired	Rejected	Resolved	Withdrawn	Open or "Rediscuss" as of May
2015	208	11	1	0	1	66	1	5	1	45	0
2016	161	7	5	1	6	79	44	8	1	32	0
2017	194	9	3	0	2	76	61	9	1	42	0
2018	229	18	3	1	3	89	86	6	4	38	0
2019	240	14	1	2	4	128	61	8	9	33	0
2020	226	12	1	0	1	90	46	14	8	30	31
Totals	**1258**	**71**	**14**	**4**	**17**	**528**	**299**	**50**	**24**	**220**	**31**
Responses to OC-0569 and OC-1805.											

The number of grievances filed amount to between 3 and 4 per year for every 100 union-represented employees. We requested data comparing PSEG's grievances and arbitration outcomes with other

[32] Response to OC-1796.
[33] Response to OC-0569.

utilities to determine whether this was low, high or average. PSEG stated it does not participate in any formal benchmarking comparing this data with other utilities.[34]

The data provided show that the number of grievances has been stable for the period shown, although there was a significant disparity between the high year, 2020 with 226 filed grievances, and the low, 2016 with only 161 grievances filed. The data show that about 90% of filed grievances are resolved without going to arbitration.

Workforce Planning

Current workforce status.

Utility staffing levels consistently increased over the past decade apart from Customer Operations. For Customer Operations, much of this was due to attrition in the meter reading function, as the Company installed meters with Encode-Receive-Transmit (ERT) technology, which converted manual reading routes to walk-by or drive-by routes. This trend is expected to continue through the implementation of Advanced Metering Infrastructure (AMI), which is expected to be completed in 2024. Staffing trends are shown on the table below. Decreases appearing in Electric Operations beginning in 2019 are due in part to movement of employees within the utility to the Projects and Construction organization, thus, do not have an impact on the overall staffing levels of the utility.

Table 20-12 – PSE&G Employee Count, 2012-2020

PSE&G Employees as of December 31,									
Line of Business	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Electric Operations	1,883	1,850	1,927	1,930	1,882	1,832	1,853	1,782	1,503
Asset Management & Centralized Services	569	597	687	793	829	843	786	628	621
Delivery Projects & Construction	455	567	634	787	789	816	908	876	1,091
Gas Distribution	(A)	(A)	(A)	982	1,102	1,359	1,279	1,260	1,291
Appliance Services	(A)	(A)	(A)	994	1,098	1,054	1,162	1,151	1,136
Total Gas Delivery	1,942	1,899	1,973	1,976	2,200	2,413	2,441	2,411	2,427
Customer Operations	1,504	1,486	1,481	1,468	1,447	1,471	1,477	1,390	1,362
Renewables and Energy Solutions	-	-	-	66	46	48	48	49	62
Utility Support	46	22	23	2	2	1	1	127	120
Total Utility	**6,399**	**6,421**	**6,725**	**7,022**	**7,195**	**7,424**	**7,514**	**7,263**	**7,186**

(A) Not provided.
Response to OC-0404.

[34] Response to OC-1792.

Headcount for PSEG Services increased approximately 20% by 2019 due to the transfer of PSEG Power's 270-employee Nuclear Security department from Power. Headcount increased by an additional 9% between the end of 2018 and 2021, primarily due to the insourcing of computer applications and desktop management activities that had previously been performed by a contractor. The staffing trends are shown on the following table.

Table 20-13 – PSEG Services Employee Count, 2016-2021

PSEG Services Corp. Workforce at December 31,						
	2016	**2017**	**2018**	**2019**	**2020**	**2021**
Employees:						
PSE&G Dedicated*	129	131	132	132	130	146
Other	925	910	896	1,208	1,216	1,280
Subtotal - Employees	**1,054**	**1,041**	**1,028**	**1,340**	**1,346**	**1,426**
Contractor Equivalents	22	26	26	18	20	28
Total	**1,076**	**1,067**	**1,054**	**1,358**	**1,366**	**1,454**
* Exclusively supports PSE&G - includes some positions in accounting, HR, IT, communications and purchasing, among others.						
Responses to OC-0418 and 1841.						

PSEG Services allocated between 62% and 65% of its costs to PSE&G during our review period (see Chapter 3 for further discussion of cost allocations).

Workforce Management

Budgeting and Demand Forecasting

Workforce planning is decentralized within PSE&G. Electric T&D has a dedicated position responsible for workforce planning. The process requires inputs of forecasted work demand such as capital project and program forecasts, planned maintenance work (based on scheduled maintenance plans) and third-party work forecasts. Work planning also uses historical trend data for unplanned maintenance work and nonjob site hours (travel, headquarters time, training etc.). The forecasted work demand is then mapped to the internal workforce capacity based on various factors including headcount, overtime percentage, and availability/unavailability of resources (vacation, illness, etc.). The forecasted work demand and available workforce capacity are then correlated until they are balanced to the extent possible and in alignment with the financial plan. If the capacity of internal resources is not sufficient to meet the planned work demand, external resources are planned and utilized as needed.[35]

There are no material differences in the processes employed in the assessment of workforce requirements for electric operations versus gas.[36] Workforce planning for gas construction, gas distribution and appliance services business units is managed within the Utility Finance organization.

[35] Response to OC-0397.
[36] Response to OC-1920.

Planned demand forecasts are available in the form of blankets, projects, and tariff-based compliance activities. In addition to these activities, unavailable and non-jobsite hours are forecasted to calculate total allowable capacity. The demand and capacity relationship is reconciled to the employee base by category and by location. The gaps in projected demand coverage determine the level of contractor assistance needed to fulfill the demand requirements.

For project management, construction management, design and engineering resources, the Projects & Construction group utilizes historical cost to determine workforce needs.[37]

There were no material constraints to workforce availability due the pandemic. While some impacts to hiring were observed at certain localities, the Company did not implement a hiring freeze or other enterprise wide program to limit hiring in the last few years.[38]

Human Resources has not retained a consultant or performed any formal internal studies specific to workforce staffing levels or organizational design. Staffing levels are determined through PSE&G's 10 year business planning process.[39]

Contractor Workforce

Contractors are preferred to new hires to address peak workloads in Electric T&D and Gas Operations due to the long employee onboarding and training period. The Company plans its internal workforce for the baseload demand rather than the peak. However, there are two categories of Electric T&D construction – civil construction (i.e., substation foundation work) and vegetation management – that are staffed entirely by contractor resources, as internal resources are not currently capable of performing this work.

For project management, construction management, design and engineering resources, the Projects & Construction group analyzes historical cost trends (for internal resources) along with its capital budget and workforce model to make internal versus external staffing decisions within the constraints of the Company's business plan.[40] As documented below, the Company has effectively managed these costs over the period through 2021.

[37] Response to OC-0397.
[38] Interview of Sheila Rostiac and Diane LaRocca on July 6, 2022.
[39] Response to OC-0400.
[40] Response to OC-0813.

Table 20-14 – Independent Contractor Expenditures, 2015-2021

(amounts in $000's)	Independent Contractor Expenditures						
Line of Business	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Electric Operations	$ 1,407,360	$ 1,221,602	$ 1,093,035	$ 1,109,223	$ 980,175	$ 1,014,135	$ 813,880
Delivery Projects & Construction	52,046	74,610	75,297	66,570	49,138	35,034	36,852
Asset Management & Centralized Services	24,044	29,234	39,189	34,729	22,723	56,339	43,246
Gas Delivery	243,810	349,284	442,306	461,991	358,022	382,783	420,536
Customer Operations	29,290	28,281	32,065	37,069	46,160	36,995	36,732
Renewables and Energy Solutions	91,075	68,574	37,495	66,469	75,333	46,061	116,256
Utility Support	1,291	1,300	12,061	4,245	5,210	4,071	23,465
Total	**$ 1,848,916**	**$ 1,772,885**	**$ 1,731,448**	**$ 1,780,296**	**$ 1,536,761**	**$ 1,575,418**	**$ 1,490,967**

Note: The costs above do not include charges or allocations from PSEG Services.

Responses to OC-0426 and OC-1842.

Overtime

Each PSE&G location is responsible for managing its current actual overtime levels for both management and union employees. Overtime levels are planned during the annual business planning process, and are based on such things as workload, outage probability forecasting, and existing or planned headcount. The rationale for the level of overtime is based upon business needs, both historical and projected.[41]

PSE&G tracks planned and actual overtime by department on a weekly, monthly, and year-to-date basis, which is used by the operating departments to identify the source of overtime drivers.[42] However, the Company does not manage overtime at a corporate level, nor perform any benchmarking of overtime with outside parties.[43] Based on Overland's industry experience, the overtime utilization rates in the table below are at or below its utility peers.

Table 20-15 – PSE&G Overtime Rates, 2014-2021

PSE&G Overtime Percentages								
PSE&G Department	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Customer Operations	4.4%	4.5%	3.9%	4.6%	5.1%	4.8%	4.6%	2.6%
Gas Delivery	27.1%	35.2%	31.7%	29.6%	29.3%	23.0%	22.2%	24.6%
Electric Delivery	28.9%	32.0%	31.1%	31.6%	33.3%	23.5%	31.1%	30.4%
P&C	11.9%	16.1%	15.1%	14.9%	12.8%	10.6%	13.9%	13.6%
AMCS	9.0%	9.6%	9.3%	9.5%	10.7%	8.5%	10.8%	2.2%
Utility Support	0.0%	0.0%	0.0%	0.0%	0.4%	4.2%	5.9%	13.7%
Total Utility Overtime %	**19.3%**	**21.9%**	**21.1%**	**21.0%**	**21.4%**	**16.4%**	**18.1%**	**18.3%**

Responses to OC-0402 and 1836.

[41] Response to OC-0403.
[42] Response to OC-0425.
[43] Interview of Sheila Rostiac and Diane LaRocca on July 6, 2022.

While overtime rates increased in 2020 from the prior year, as weather events and the pandemic influenced staffing demand and availability, the recent overtime rates are still below the Company's historical averages.

Performance Management

All PSEG employees are appraised annually with a pre-defined, standardized performance appraisal process that is documented in an HR-administered software platform. The performance appraisal process for non-union employees is titled, "Performance & Accountability Process." It features goal-setting at the start of the performance cycle, performance reviews at mid-year and year-end, and enhancement plans to address underperformance. Union employees are evaluated annually using a standard performance evaluation template that includes a predetermined set of competencies (e.g., availability, safety, job knowledge).[44]

The Company tracks a variety of KPIs at the corporate level, some of which have goals tied to external benchmarks. Some elements of these are included in incentive compensation formulas for management employees. However, while these KPIs may be used in the establishment of individual goals in the performance appraisal process, there is no requirement to use them.[45] Examples of companywide KPIs are shown below.

Table 20-16 – PSE&G Operational and Customer Service Metrics, 2016-2023 (Forecast)

Selected Operational and Customer Service Metrics												
	2016		2017		2018		2019		2020		Forecasted	
Metric	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	2022	2023
Average Speed of Answer	60	68	68	64	60	81	69	126	64	70	40	28
CAIDI	68	78	68	61	67	70	72	73	73	77	77	77
Controllable O&M ($ millions)	1,048	1,049	1,047	1,037	1,064	1,126	1,067	1,094	1,122	1,124	(A)	(A)
Open Leaks	1,710	1,649	1,563	1,481	1,466	1,230	1,218	1,123	1,112	965	946	936
SAIDI	44	64	46	42	47	56	53	44	52	47	51.1	51.1
SAIFI	0.65	0.81	0.68	0.70	0.70	0.80	0.71	0.60	0.71	0.61	0.64	0.64

(A) Not provided.

Response to OC-0399.

There are no corporate KPIs associated with workforce levels and productivity.[46]

Employee Recruitment and Retention

The HR group administers the recruitment and hiring process for both union and non-union openings. Positions descriptions are created, if necessary, then HR notifies its external recruiting firm, Randstad Sourceright Recruiter ("RSR"). Either the HR department or RSR may conduct screening interviews, then

[44] Response to OC-0395.
[45] Interview of Sheila Rostiac and Diane LaRocca on July 6, 2022.
[46] Response to OC-0930.

qualified candidates are forwarded to hiring managers for formal interviews. The selected candidate receives a formal offer letter with employment terms, authorized by the hiring manager. HR conducts external searches for executive positions, when required.

For union positions, HR administers appropriate pre-employment exams for candidates. The RSR recruiter checks to see that the candidate passed the appropriate pre-employment test before the candidate moves forward in the hiring process. Selected candidates receive a formal offer, but the terms are predetermined based on the union agreement and do not require hiring manager approval.

For external hires, both union and non-union, the RSR Recruitment Coordinator initiates the background check process and forwards a link to the candidate to complete electronic onboarding. Non-union external candidates must also sign a mandatory arbitration and confidential agreement.[47]

PSE&G has identified several hard to fill positions in the utility, including linepersons, Service Specialist Technicians, Relay Technicians and Substation Operators. Management has focused on recruiting efforts in these areas and aiding candidates in preparing for technical exams. Furthermore, PSEG Services is seeing hiring challenges in the information technology areas due to high competition for qualified individuals. The company has increased its recruiting resources to attract candidates, while the IT group is staffing critical positions with external consultants as needed.[48] Talent procurement for specialized positions has been identified as a key enterprise risk of the Company.[49]

Open vacancies reached their highest levels of the audit period in 2021.

[47] Response to OC-0407.

[48] Response to OC-0408 and Interview of Sheila Rostiac and Diane LaRocca on July 6, 2022.

[49] Response to OC-0461, Enterprise Risk Management Report to the Corporate Governance Committee, December 21, 2021, page 26.

Table 20-17– Open Vacancies, 2016-2021

Open Vacancies By Department at December 31,						
Department	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
PSE&G						
Asset Management & Planning	58	65	18	32	40	51
Customer Ops	121	41	31	32	208	338
Electric T&D - Operations	18	51	13	4	69	122
Electric T&D - Projects & Construction	98	157	54	17	53	55
Gas Operations	127	234	33	76	161	257
NERC Standards & Compliance	1	1	0	0	1	25
Renewables & Energy Solutions	3	6	6	10	42	30
Subototal - PSE&G	**426**	**555**	**155**	**171**	**574**	**878**
PSEG Services						
Finance, Strategy & Corporate Devel.	10	13	4	3	2	13
Human Resources	6	20	7	7	5	10
Law, Compliance & Claims	8	4	3	6	13	20
Offshore Wind Development	0	0	0	0	3	1
Service Company Operations	44	53	28	17	46	70
State Gov. Affairs	4	8	6	6	8	5
Other	1	0	0	0	0	0
Subtotal - PSEG Services	**73**	**98**	**48**	**39**	**77**	**119**
Grand Total	**499**	**653**	**203**	**210**	**651**	**997**
Responses to OC-0408 and OC-1838.						

While the 2021 increase in open positions at PSEG represents a six-year high for the Company, its turnover rate is consistent with the utility industry.

Table 20-18 – Utility Industry Turnover Rates, 2016-2021[50]

[BEGIN CONFIDENTIAL]

[END CONFIDENTIAL]

Formal succession planning is limited to senior and executive management positions. The succession planning process is facilitated through HR-led meetings with leaders as part of PSEG annual Talent Review process, involving position reviews and successor identification. These meetings were followed by a series of calibration sessions with leadership up to the executive team to evaluate and finalize succession plans.[51]

The Company does not expect current trends in personnel losses to have material work performance consequences for PSE&G or PSEG Services. It relies on its workforce planning, talent acquisition, talent management and succession planning processes to manage risk.[52] However, both PSE&G and PSEG Services are facing increased risk from an aging workforce. The average workforce age, shown below, has remained constant over the past few years.

[50] Reponses to OC-0413 and 1839. Industry rates represent the top quartile of PriceWaterhouseCoopers Saratoga Human Capital Management benchmark analysis for the utility industry.

[51] Response to OC-0410.

[52] Response to OC-0411.

Table 20-19 – Workforce Age, 2016-2021

Workforce Age as of December 31,						
Line of Business	**2016**	**2017**	**2018**	**2019**	**2020**	**2021***
PSE&G						
Asset Management & Planning	45.3	45.0	44.8	46.6	46.9	46.1
Customer Ops	44.8	44.6	45.0	45.6	45.9	44.6
Electric T&D - Operations	46.4	46.2	46.2	46.5	46.7	45.7
Electric T&D - Projects & Construction	45.1	44.8	44.9	45.3	45.8	46.0
Gas Operations	43.9	42.4	42.9	43.3	43.6	43.2
NERC Standards & Compliance	51.0	51.6	51.2	49.8	53.3	49.1
Renewables & Energy Solutions	46.7	46.3	46.7	48.0	46.3	42.7
PSE&G Company Average	**45.0**	**44.3**	**44.6**	**45.0**	**45.4**	**44.7**
PSEG Services						
Finance, Strategy & Corporate Development	48.3	48.7	49.7	50.8	51.4	52.2
Human Resources	49.3	50.1	49.7	48.5	48.5	48.6
Law, Compliance & Claims	50.1	49.3	49.0	48.2	49.0	49.0
Offshore Wind Development					52.8	41.7
Service Company Operations	48.6	47.9	45.8	45.4	45.7	45.4
State Gov. Affairs	48.2	48.2	47.9	49.0	49.8	48.0
PSEG Services Average	**48.7**	**48.5**	**47.4**	**47.2**	**47.5**	**47.3**
* measured at July 31. Response to OC-0918.						

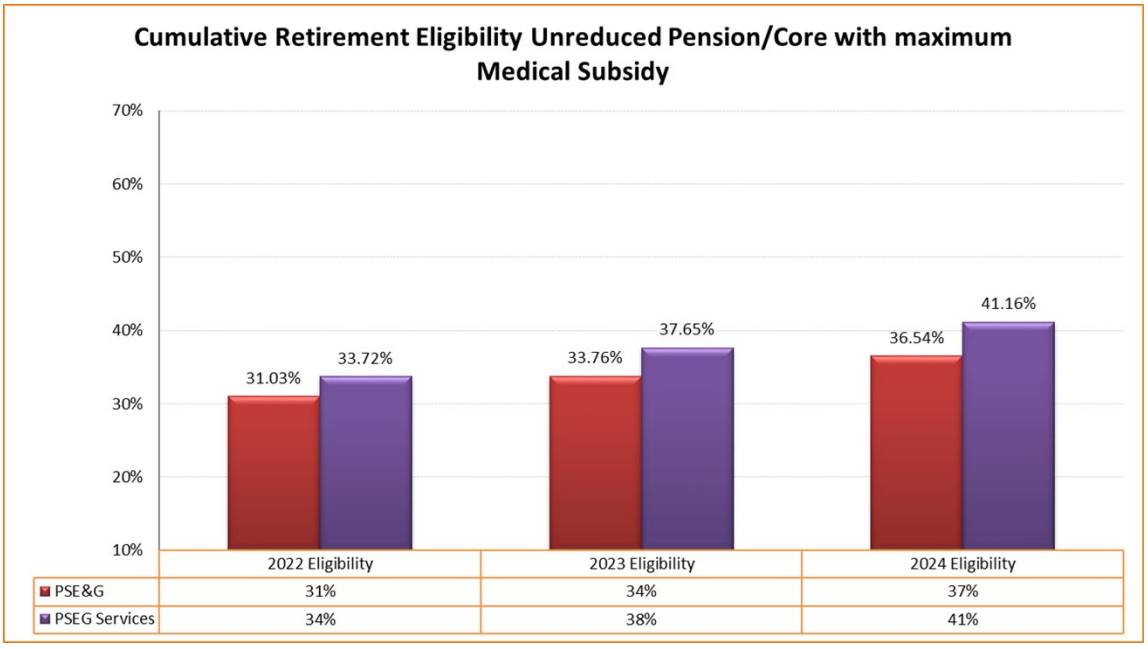
Additionally, the number of retirements, while somewhat variable year-to-year, has not materially changed, as shown on the following table.

Table 20-20 – Employee Retirements, 2016-2020

Employee Retirements					
Line of Business	**2016**	**2017**	**2018**	**2019**	**2020**
PSE&G					
Asset Management & Planning	11	15	9	14	10
Customer Ops	27	42	18	44	42
Electric T&D - Operations	41	100	35	52	78
Electric T&D - Projects & Construction	41	58	28	35	34
Gas Operations	54	113	37	52	51
NERC Standards & Compliance	0	0	1	1	0
Renewables & Energy Solutions	3	0	1	0	1
PSE&G Total	**177**	**328**	**129**	**198**	**216**
PSEG Services					
Finance, Strategy & Corporate Development	4	11	3	7	4
Human Resources	6	3	3	4	3
Law, Compliance & Claims	3	2	1	7	1
Service Company Operations	20	19	9	19	11
State Gov. Affairs	1	2	1	2	0
PSEG Services Total	**34**	**37**	**17**	**39**	**19**
Response to OC-0917.					

However, the workforce demographics indicate that both PSE&G and PSEG Services face increasing eligibility for retirement in the next few years, as indicated below.

Table 20-21 – Retirement Eligibility, 2022-2024[53]



[53] Response to OC-0917.

The Company does not track workforce aging as a separate KPI, but it is a consideration in its workforce planning process.[54]

Training and Development

PSE&G's Technical Training has developed formal policies and procedures for the execution of training throughout the organization (specifically, the Training Core Function document, CM-TR-10 and its associated process documents).

The technical training staff delivers training in accordance with staffing plans, contractual and regulatory requirements, industry standards, and operational and developmental needs. Spreadsheets are used to track required courses for employees. Learning assessments for each technical training course are assigned, scheduled, and completed using an online testing platform named Questionmark On-Demand, which was implemented in 2019. Training scheduling and completion are currently tracked in the SuccessFactors Learning Management System (LMS), a module of SAP.

The Learning and Development team within the HR group manages the catalog of training programs for PSEG. The individual training programs sent by course owners are sent to a central mailbox for LMS upload.[55]

Company-level training and development hours and expenditures are shown below.

Table 20-22 – Training and Development Statistics, 2018-2021

Training and Development Inputs				
	2018	**2019**	**2020**	**2021**
Average hours per FTE of training & development	35	53	39	57
Average amount spent per FTE on training and development	$ 2,304	$ 2,891	$ 683	$ 538
Total amount spent on training and development	$ 30,007,456	$ 37,570,928	$ 8,754,590	$ 6,828,714
Note: Excludes payroll costs of attendees. Response to OC-1840.				

Technical training is determined by apprentice program requirements (course type and frequency), line of business needs (hiring and intercompany transfers between disciplines), and special occurrences such as safety related awareness. The HR team has ongoing dialogue with operating units throughout the year in order to adapt any schedule to changes or additional needs. Individual work locations provide "on the job" training as support to the formal technical training program.

[54] Response to OC-0922.
[55] Response to OC-0414.

In general, training needs and resource availability drive decisions on whether training programs will be offered in-house or contracted out. Relevant factors include:

- training volume,
- instructor and facility capacity,
- availability of subject matter expertise,
- course development cost / lead-time, and
- training frequency and regulatory requirements.

The majority of training is offered in-house using staff instructors supplemented with in-house adjunct instructors and third party consultants. Training courses are also performed on a contract basis for certain technical areas such as Mobile Crane Operator Qualification and Testing, Gas Pressure Regulator Training.[56]

Except as discussed below, technical training content has not materially changed in the last five years. Course curricula are reviewed on a regular basis with input from operational experts and modifications made where required. However, significant adaptations were made due to the COVID-19 pandemic with respect to physical distancing requirements and virus protection. Training programs were suspended in March 2020, with virtual training commencing in the following month, and hands-on training resuming in June 2020.

In its current format, the technical training program features the following:

- All classroom / knowledge based training continues to be conducted virtually.
- Hands-on training continues to be conducted in smaller groups, practicing safe physical distancing either at designated training facilities or in the field.
- Embedded training, where knowledge and hands-on instruction coincide, continues to follow the same protocols as hands-on training in the short term.

The Company benchmarked with peer utilities & educational institutes who have implemented a similar process of virtual classroom training combined with limited hands-on class sizes.

The Gas Operations Operator Qualifications ("OQ") courses were updated in 2019 and 2020 to ensure alignment with all federal, state and local requirements. These revisions included:

- The creation of an OQ-focused administrative team.
- Efforts to develop and implement OQ knowledge training and assessment for Appliance Service and Gas Distribution using LMS.
- The development of OQ checklists for performance evaluations in tablets used by evaluators.

[56] Response to OC-0390.

In addition, the Metering & Regulation group moved their OQ to a third-party vendor, Industrial Training Services ("ITS").

The training hours and related payroll costs for union employees by line of business is shown below (payroll costs represent employee wages for the charged training hours). The 2020 pandemic-related reductions in training hours recovered somewhat in 2021, although the enhancements described above are expected to improve efficiency (i.e., less seat time) in future years.

Table 20-23 – PSE&G Training Costs - Union Workforce, 2016-2021

PSE&G Training Costs - Union Workforce							
PSE&G LOB		**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Appliance Services	Hours	150,469	138,692	184,609	151,838	82,175	109,651
	Cost	$ 7,345,092	$ 6,908,627	$ 10,689,944	$ 9,473,123	$ 5,415,901	$ 8,151,190
Customer Care	Hours				16,082	15,520	44,465
	Cost				$ 952,265	$ 991,026	$ 2,848,338
Electric Ops & Cent. Maintenance	Hours	81,975	92,989	105,649	88,139	47,616	113,791
	Cost	$ 5,861,276	$ 6,982,905	$ 8,696,409	$ 7,191,552	$ 4,234,321	$ 10,841,888
Gas Operatons	Hours	38,991	49,904	72,110	45,213	20,242	33,104
	Cost	$ 2,138,892	$ 2,669,440	$ 4,159,919	$ 2,722,826	$ 1,496,291	$ 2,448,991
Projects & Construction	Hours	44,553	48,882	47,900	39,221	18,099	21,246
	Cost	$ 4,086,724	$ 4,557,018	$ 4,660,786	$ 3,922,969	$ 2,476,785	$ 3,218,883
Response to OC-1917.							

Learning and development programs, designed for entry-level professional employees through the executive team, include digital on-demand learning resources and live, instructor-led workshops.[57] These programs have been redesigned over the past five years based on program feedback. Most notably, one management development program ("Supervisory Academy") was changed from a 4-week program to a 2-week program and incorporated in-person sessions for the first time. Other development programs have been reconfigured to be delivered virtually, using remote meeting applications. In addition, manager-level employees now have access to a "Managers Toolkit" and "Empowering Leadership" program.[58]

Diversity, Equity & Inclusion

PSEG provided three documents in response to Overland's request for policies and procedures relating to its DEI program. Following are highlights of these documents:[59]

[57] Response to OC-0390.
[58] Response to OC-0416.
[59] Response to OC-0394.

- Diversity, Equity and Inclusion (DEI) Program Document – This document states PSEG's DEI vision is to "sustain an inclusive and equitable workplace where employees are engaged, feel psychologically safe and are able to innovate and achieve the Company's business priorities."
- DEI Commitment Statement – This document emphasizes the Company's commitment to diversity among people, ideas and perspectives and inclusion through a culture that "fosters a sense of belonging to all members of the organization."
- DEI Training – This brief training document provides information explaining why DEI is important, the DEI framework (based on recruiting top talent, a culture which promotes high performance, and elevating PSEG's reputation, and various workforce initiatives designed to meet the framework goals).

PSEG's Diversity, Equity and Inclusion (DEI) Program

PSEG maintains a DEI program to ensure an inclusive, equitable and safe workplace and to promote employee well-being and productivity. The components of the DEI program are summarized in the following table.

Table 20-24 - Key Components of PSEG's DEI Program

Key Components of PSEG's DEI Program		
Strategic Pillars		**Key Enablers**
Inclusive Leadership Development	Equip managers with the skills they need to create an inclusive workplace.	1. Focused inclusive leadership development for the top 200 leaders and then all people managers. 2. Local teams to support and customer DEI initiatives. 3. Review & modify policies and practices to promote equity. Review all new P&P for equity prior to implementing. 4. Form a union DEI and Culture Council. Conduct ongoing dialogue with union leadership teams. 5. Communicate with the workforce about the importance of DEI and related initiatives.
Driving Change at the Local Level	Maintain and expand infrastructure to allow for change. This includes Local Inclusion Teams and Employee Business Resource Groups.	
Equitable Policies and Procedures	Ensure equity in all policies and practices to enable recruitment and retention of a diverse workforce.	
Union Partnership	Include unions in DEI and corporate culture efforts.	
Response to OC-0394, Culture, - Diversity, Equity and Inclusion Programs Document.		

The program document also lists the following initiatives designed to advance diversity in management.

- Leadership development programs for specific demographic populations, including Women and Black emerging leaders.
- Reverse mentoring focused on leveraging generational differences in the workplace.
- Diverse talent reviews to support succession planning.
- Accelerated mobility to assist in removing systemic barriers in initial (day one) job requirements (college degree, pre-employment testing).

- Transparency through ESG disclosures.

The following table shows the DEI goals and PSEG-reported results for 2021:

Table 20-25 - 2021 DEI Goals and Results

2021 DEI Goals and Results		
Metric	**Goal**	**Actual**
Management Diversity	Increase year-end 2020 overall percentage of women (15.6%) and people of color (20.6%) in management	* Women in Management - 16.0% * People of Color in Management - 21.0%
Union Diversity	Increase year end 2020 overall percentage of women in union roles (11.9%)	12.2%
Employee Experience Survey	Increase overall participation rate and improve scores in four of five categories (Continuous Improvement, Performance Management, Teamwork and Collaboration, Growth & Development, Diversity & Inclusion.	* Survey participation 58% (increased from 51% in 2020) * Continuous Improvement - 65.7% (improved from 62.5% in 2020) * Teamwork / Collaboration - 73.4% (down from 74.1% in 2020) Growth & Development - 73.8% (down from 74.0% in 2020) * Diversity & Inclusion - 73.5% (up from 72.4% in 2020)
Acts of Inclusion	Local Inclusions Teams will complete 200 "meaningful acts of inclusion" in 2021.	311 "meaningful acts of inclusion" in 2021
Response to OC-0394, Culture, - Diversity, Equity & Inclusion Programs Document and 1807.		

As the table shows, PSEG reported that it met its 2021 goals in all areas except the Teamwork / Collaboration score for its Employee Experience Survey, where it was down slightly. Overland did not attempt to audit the reported results.

Acts of Inclusion

Acts of Inclusion are events or programs implemented primarily by Local Inclusion Teams (LITs) in various district operations groups. PSEG stated that for an LIT initiative to count as an Act of inclusions, it had to fall within one of the following three categories:[60]

- The LIT planned, implemented or directed the activity in 2021 and it was aligned with DEI strategic pillars of talent (recruitment, development and retention), culture (employee, voice, rewards / recognition and engagement), and brand (community outreach, volunteerism and philanthropy).
- The LIT supported or coordinated groups of employees to participate in Company-sponsored DEI events.

[60] Response to OC-1807-B.

- The LIT assisted with the coordination, planning or implementation of an Employee Business Resources Group event.

The table below provides a small sample of the 311 events or programs implemented in 2021.

Table 20-26 - Sample of 2021 DEI Acts of Inclusion

Sample of 2021 DEI Acts of Inclusion		
rogram	Location	Date
Working Mom's Club	CO NEWARK GO	1/26/2021
THe EXOS Experience - Movement and Mindset Break Series	RES NEWARK GO	3/1/2021
Gas Ops DEI/LIT Event: Women in the Workplace	New Brunswick Gas	3/29/2021
Farewell Hallmark, Hellow American Greetings!	South Plainfield	4/26/2021
Difficult Conversations; What they are and how to have them	Nuclear	5/20/2021
Juneteenth Message	CO NEWARK GO	6/18/2021
Lunch n' Learn	Edison Training Ctr	7/22/2021
Self Care Month	Procurement Newark GO	9/7/2021
March of Dimes Vacation Raffle	RES NEWARK GO	10/8/2021
RES Zoom Coffee Break	RES NEWARK GO	11/12/2021
LIFT Holiday Chat n' Learn	Finance Newark GO	12/16/2021
Response to OC-1807, Acts of Inclusion spreadsheet attachment.		

The number and variety of locations and events and their occurrence throughout the year suggest PSEG maintains a robust, on-going company-wide DEI program. The fact that PSEG exceeded its goals is not, in our view, particularly significant, as goals can be set such that conducting the normal, planned events agenda will always exceed the goals.

EEO / AA Policies and Practices

PSEG listed the following policies and practices designed to help ensure equal employment opportunity.[61]

- PSEG maintains an HR Practice Guide, which includes the following written policies: EEO / AA, Sexual and Other Discriminatory Harassment, Reasonable Accommodation for Pregnancy and / or Disability, Reasonable Accommodation for Religious Reasons and Anti-Retaliation.
- PSEG stated that it requires all new hires to attend mandatory training covering Standards of Conduct, EEO and Workplace Harassment Prevention, Safety and Diversity, Equity and Inclusion.

[61] Responses to OC-0394 and 0430.

- PSEG stated that it conducts impact ratio analysis to ensure that hiring, termination and promotion comply with Office of Federal Contract Compliance (OFCCP) and related state requirements.

Pay Equity

PSEG stated that it conducts regression analysis to identify statistically significant pay differences by race and gender.[62] PSEG's DEI Program Document describes an annual review and analysis designed to ensure pay equity. The HR Compliance Team and Law Department conduct an EEO/Affirmative Action (AA) analysis designed to meet regulatory requirements. Compensation discrepancies of 5 % or more within job titles are identified. "Standard factors" (performance, time in the job and experience) are reviewed and discussions are held with business representatives to determine whether pay differences are justified. Pay adjustments are made when differences cannot be justified.

The Human Resources department also conducts a voluntary review focused on employees in the lower third (learning zone) of a salary range to determine whether adjustments are warranted. PSEG states this review is done without respect to gender or ethnicity. A Human Resources department compensation team and HR Business Partners review these employees and compare them with peers of similar pay grades, experience and historical performance. Based on this review, PSEG stated that equity pay adjustments are made when warranted.

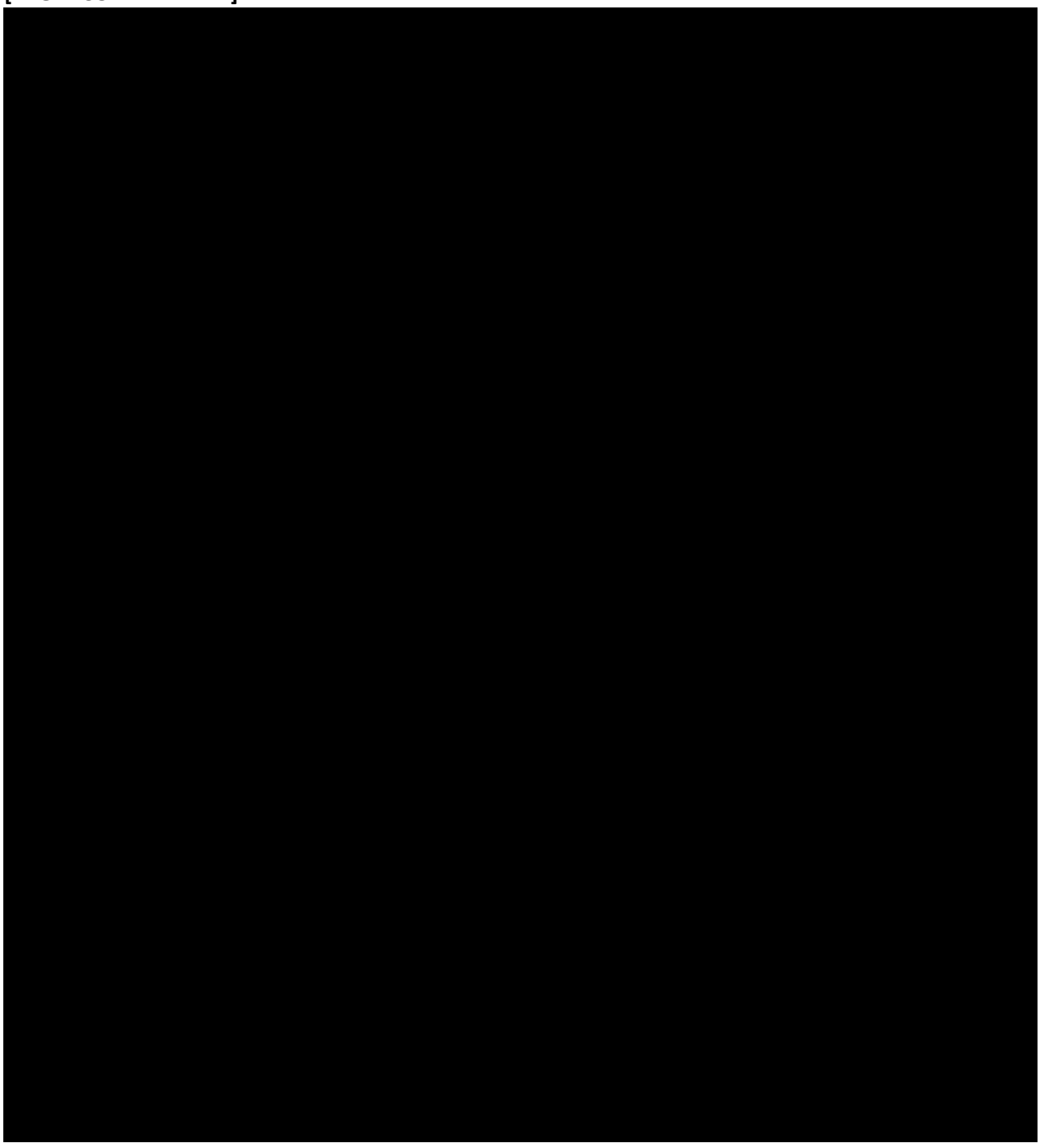
Affirmative Action Plan

PSEG maintains Affirmative Action Plan with hiring goals and results by job group, as required by its status as a federal contractor. The Company stated "[t]his plan includes a job group analysis; the percentage of minorities and women employed in each group; a comparison of the percentage of women and minorities in each group with those women and minorities with requisite skills available in the geographic area for employment; and, where there is a gap, a placement goal."[63] This data for these hiring goals for the four years ending December 31 2021, including actual hiring performed, is summarized in the table below. PSEG notes that progress to goals relates to whether there are opportunities to meet a goal. If there are no opportunities to hire in the job group, the goal cannot be met, or movement within the job group due to attrition can impact progress against goals.

[62] Response to OC-0430.
[63] Response to OC-1809, A, B & F.

Table 20-27 - Affirmative Action Plan Hiring Goals and Actual Hiring by Job Group

[BEGIN CONFIDENTIAL]



[END CONFIDENTIAL]

The following table shows the percentage of hiring goals met during the four years 2018 through 2021.

Table 20-28 - Affirmative Action Plan Percentage of Hiring Goals Met

[BEGIN CONFIDENTIAL]

Affirmative Action Plan Percentage of Hiring Goals Met				
Category	**2018**	**2019**	**2020**	**2021**
Women	[redacted]	[redacted]	[redacted]	[redacted]
Minority	[redacted]	[redacted]	[redacted]	[redacted]
Combined	[redacted]	[redacted]	[redacted]	[redacted]
Calculated from data provided in Response to OC-1806.				

[END CONFIDENTIAL]

As the table demonstrates, the percentage of goals in a given year is relatively low in a normal year (e.g. 2018 and 2019). The percentage of goals met, particularly for women, was significantly impacted by the Covid pandemic in 2020 and 2021. These goals may also be impacted by whether there are opportunities to hire or by movement within job groups.

PSEG also maintains percentages of employees classified as veterans or with disabilities. This is summarized in the following table.

Table 20-29 - Veterans and Disabled Employees

[BEGIN CONFIDENTIAL]

Veterans and Disabled Employees							
Year End	**Total Workforce**	**Veterans**		**Disabled - Not Physically Challenged**		**Disabled - Physically Challenged**	
		Number	**Pct.**	**Number**	**Pct.**	**Number**	**Pct.**
2018	13,438	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2019	13,188	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2020	12,962	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Response to OC-0571 Attachment.							

[END CONFIDENTIAL]

We found that PSEG had a "Disability Inclusion Campaign" among its 2020 DEI initiatives.[64] PSEG stated that it launched the campaign to raise awareness of employees living with disabilities and their contributions to PSEG success, as well as to help employees feel comfortable to self-identify.

There is also an Employee Resources Group for veterans. PSEG stated it has goals for veterans and people with disabilities as required and established by the federal government. There is a 5.8% hiring benchmark for veterans and 7% utilization goal for people with disabilities.

[64] Response to OC-0394 Attachment.

PSEG Workforce Diversity Data (Federal Report EEO-1)

All private sector employers with 100 or more employees must submit data to the U.S. Office of Equal Employment Opportunity showing workforce totals distributed among job categories by gender and race / ethnicity. The data are submitted on annual EEO-1 reports and they represent a snapshot of workforce demographics at a point during each calendar year. We requested the reports for the years 2018 through 2021.[65] PSEG stated that as of May 10, 2022 its 2021 report had not been filed. We reviewed the 2018 through 2020 reports primarily for the workforce trends demonstrated during the period. The table below is a summarized version of the data, showing company totals, for the years 2017 through 2020.[66]

Table 20-30 - Equal Employment Opportunity, EEO-1 Employer Information Report

Equal Employment Opportunity, EEO-1 Employer Information Report Summarized Workforce Data - 2017 through 2020													
Demographic Category	Measure	2017			2018			2019			2020		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
White	Count	8,652	1,509	10,161	8,634	1,436	10,070	8,452	1,385	9,837	8,257	1,343	9,600
	Cat. Pct.	79%	60%	75%	78%	58%	75%	78%	58%	74%	77%	57%	74%
Hispanic or Latino	Count	878	242	1,120	912	231	1,143	914	234	1,148	901	233	1,134
	Pct.	8%	10%	8%	8%	9%	8%	8%	10%	9%	8%	10%	9%
Black or African American	Count	982	581	1,563	991	574	1,565	980	560	1,540	966	554	1,520
	Pct.	9%	23%	12%	9%	23%	12%	9%	23%	12%	9%	24%	12%
Native Hawaiian, Pacific Isl., American Indian, Alaskan Native	Count	34	7	41	32	6	38	34	4	38	32	4	36
	Pct.	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	< 1%	0%	0%	0%
Asian	Count	372	170	542	376	175	551	416	184	600	432	188	620
	Pct.	3%	7%	4%	3%	7%	4%	4%	8%	5%	4%	8%	5%
Multiple Races	Count	84	21	105	100	33	133	109	34	143	108	35	143
	Pct.	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Total All Ethnic Categories	Count	11,002	2,530	13,532	11,045	2,455	13,500	10,905	2,401	13,306	10,696	2,357	13,053
	Pct.	81%	19%		82%	18%		82%	18%		82%	18%	
Source: Response to OC-1808, PSEG EEO-1 reports, 2018, 2019 & 2020.													

Important takeaways from this data include:

- Overall ethnic diversity increased from 25% to 27% non-white during the four-year period.
- Female employment as a percentage of total employment decreased slightly, from 19% in 2017 to 18% in 2020.
- Hispanic and Asian employment, as a percentage of total employment, increased by 1% each, to 9% and 5% respectively, while African-American employment remained stable at 12%.

[65] The data in PSEG's annual EEO-1 reports are based on a snapshot taken for the second pay period in October.

[66] Response to OC-1808, PSEG EEO-1 Reports. Note: 2017 totals are included because they were available from the "Previous Report Total" line of the 2018 report. This allowed an evaluation of trend over four years instead of just three.

21. CUSTOMER SERVICE

Introduction and Overview

This chapter covers Overland's review of PSE&G's Customer Service function and procedures in place during the audit period. It is divided into the following three sections:

- Customer Service Organization and Operations – This section covers the organization and key operations of PSE&G's customer service function.
- Compliance with N.J.A.C. Customer Service Rules – This section covers PSE&G's procedures for complying with the New Jersey Administrative Code in the areas of billing, credit and collection, customer inquiry, customer outreach, revenue protection and marketing. It also covers customer communication procedures with respect to safety and emergency events, and communication with customers who rely on life-supporting equipment.
- Meter Reading and Testing – This section covers PSE&G's meter reading, testing and replacement procedures. It also covers the Company's Advanced Metering Infrastructure program.

Summary of Findings

Customer Service Organization and Operations

1. PSE&G hired a new Vice President – Customer Care in 2021. Prior to this, the Executive Director, Customer Service reported to PSE&G's Senior Vice President and Chief Operating Officer. After June 30, 2021, the Executive Director, who is in charge of day-to-day customer operations, began to report to the new Vice President, Customer Service, who, in turn, reports to PSE&G's President and Chief Operating Officer.
2. At the end of 2021, PSE&G's Customer Operations function included the following key departments, employees and responsibilities:
    - Billing and Revenue Operations (144 employees) – Billing, revenue integrity, revenue cycle and payment operations, third-party billing operations, revenue reporting, customer assessment and communications (marketing & advertising).
    - Customer Contact (465 employees) – Operations at two customer contact centers (Newark and Bordentown) and 16 local customer service centers.
    - Customer Technology (18 employees) -
    - Large Customer / Customer Inquiry (123 employees) – Larger and smaller customer support for utility service extensions, customer utility planning and related support.
    - Field and Metering (District) Operations – (475 employees) – Service area operations consisting of meter reading and testing, and both field and back-office collection operations.

3. PSE&G moved its primary customer contact operations from Cranford to Newark in 2019. As a result of the move square footage increased from approximately 65,000 to 82,000 square feet. Since the Covid pandemic, with most customer contact employees working from home, the new center appears to be significantly underutilized.
4. At the end of 2021 PSE&G had approximately 100 employees distributed among 16 local customer contact centers, including approximately 58 Customer Service Representatives and 34 Tellers and Cashiers. These centers serve as points of contact for a relatively small percentage of customers, and usage appears to be skewed toward customers with bill payment difficulties. Excluding rent, the centers cost approximately $10 million annually, and PSE&G estimates they process between 2 and 3 percent of total utility payments. Relative to other collection and payment activities, the cost effectiveness of the centers as a group is questionable and their efficiency relative to other methods of collecting payments appears low.
5. PSE&G maintains a number of internal customer service operational metrics. Over the seven years we reviewed from 2015 through 2021, some of these improved while others deteriorated. Among the metrics that improved were:

    a. The percentage of calls contained within the Interactive Voice Response Unit (IVR) (improved from 41% to 54%),
    b. The percentage of customers enrolled in paperless billing (12% to 28%),
    c. The percentage of automatic bill payments (19% to 24%),
    d. Agent calls handled per hour (8.5 to 9.1),
    e. Medical Emergency call compliance rate (86.8% in 2018 to 97.7% in 2021).

6. Metrics that have declined were:

    a. Call abandonment rate (3.7% to 4.2%),
    b. Average speed of answer (69 seconds to 77 seconds),
    c. Average call handling time (5 minutes, 32 seconds to 6 minutes, 19 seconds).[1]

7. PSE&G participates in customer operations benchmarking with a group of East Coast utilities. Overall, during 2020 (the year for which metrics were provided), PSE&G's performance was below average (below the 2nd quartile) for nine of the 12 metrics benchmarked, including:

    a. Customer inquiry service level (4th quartile),
    b. Percentage of abandoned calls (3rd quartile),
    c. Average speed of answer (3rd quartile),
    d. Percent of meters read (3rd quartile), and
    e. Rebills per 1,000 adjusted customers (4th quartile).

    In commenting on our draft report, PSE&G stated that items d. and e. were impacted by the Covid pandemic restrictions. These items may be improved with the planned deployment of automatic meter reading infrastructure (AMI). The Company stated that many of its peers outside of New Jersey included in benchmarking already have deployed AMI.

[1] PSE&G notes that calls of greater complexity increased during this period, and a decline in this metric may reflect automation of simpler calls.

8. PSE&G registered above-average performance in net account dollars written off, paperless bill participation rate and the motor vehicle accident rate. The reasons given for above and below-average performance are discussed in this chapter.

N.J.A.C Rules Compliance

Service Application, Service Initiation and Customer Deposits

9. N.J.A.C 14:3-3.2(g) generally requires a utility to initiate service within two business days of receipt of a customer's application for service, or on a date mutually agreed upon by the customer and the utility. PSE&G stated that it complies with this requirement. The Company stated approximately 10% of turn-on requests require a truck roll to the premises. PSE&G stated that if the service scheduling system indicates there are no time slots available during the next 48 hours, the utility overrides the scheduling system to get a truck to the premises, unless the customer agrees to a different time.
10. PSE&G has adopted written procedures which require compliance with the N.J.A.C.'s "two business day" turn-on rule, however, the Company does not currently have an ability to track the time between service request and completion PSE&G cannot know the extent to which it complies or whether its performance needs improvement.
11. Stated procedures comply with N.J.A.C requirements regarding the means to apply for service (at the utility's office, by telephone, on-line, etc.)
12. Stated procedures comply with N.J.A.C. requirements regarding the documents needed to prove identity.
13. Stated procedures indicate that applicants without prior PSE&G service and former customers whose service has lapsed by more than 30 days can obtain service without providing a social security number; however, written procedures and SOX control flowcharts suggest that such applicants are expected to provide social security numbers so that credit checks can be run. If they do not, they are subject to being billed a deposit. They may sign up for Auto Pay to avoid being billed a service deposit.
14. PSE&G stated that Customer Service Representatives "do not have latitude in deciding whether an applicant qualifies for service." PSE&G stated that they must follow an established, documented process. Although there is no practical way to test compliance with this statement, written procedures and process flowcharts contain a specific set of instructions and decision points for compliance and therefore should act as an internal control.
15. PSE&G's stated deposit procedures appear to comply with N.J.A.C. requirements for billing deposits and calculating deposit interest. Stated procedures appear to comply with N.J.A.C. requirements for reviewing and returning residential deposits.
16. For a period during 2020 and early 2021 PSE&G suspended the process of collecting deposits to provide relief during the Covid pandemic. The Company reinstated deposits on new commercial customers in February 2021, and reinstated deposit collection policies for new residential customers in September 2021.

17. PSE&G also stated that it made a business decision to suspend deposit assessments on existing residential customers in 2018, and this policy has remained in effect as of April 2022. The Company stated it made this decision "for efficiency" and in order to refocus resources required for deposit assessment on improving the processes for customers with medical issues.
18. PSE&G's stated procedures for refunding deposits upon maintenance of a good payment history appear to comply with N.J.A.C. requirements. In recent years, PSE&G has gone beyond N.J.A.C. requirements with respect to returning customer deposits.

Customer Account Dunning, Involuntary Service Disconnection and Related Customer Protections

19. PSE&G's stated procedures indicate that it does not generate a disconnect order until unpaid, outstanding amounts are at least $199 for non-residential customers and $400 for residential customers. Both of these exceed the N.J.A.C.'s $100 minimum arrearage required for shut-off which was applicable during the audit period.
20. PSE&G conducts outbound collection call campaigns for both residential and non-residential between the time shut-off notices are sent and disconnect orders are generated.
21. PSE&G's residential and non-residential bills are due 15 days after the bills are generated and sent. Based on these bill due dates, PSE&G's shut off notices and the payment grace periods allowed before physical shutoff exceed N.J.A.C. minimum notice requirements.
22. PSE&G's stated procedures for Field Collectors on the date of disconnection for non-payment appear to comply with the payment confirmation and customer communication requirements of N.J.A.C. 14:3-3A.2.
23. N.J.A.C. rules require service restoration within 12 hours after a customer corrects the conditions which caused an involuntary disconnection. PSE&G maintains a written procedure to manage this reconnection process. In general, the procedure provides that when a Reconnect Non-Payment (RNP) Notification cannot be completed within a given shift, responsibility is transferred to the next shift or overtime is assigned to ensure reconnection is accomplished within the required 12-hour window (which excludes the overnight hours 12AM to 8AM). Although District Operations management can use system queries to generate a list of RNPs and manage their status in real time, PSE&G maintains no metrics or system-generated reports which could demonstrate whether or to what extent its procedures resulted in customers being reconnected within the 12-hour maximum provided in the N.J.A.C.
24. PSE&G's stated procedures for winter (heating season) shut-offs and shut-offs during periods of "extreme heat" appear to comply with N.J.A.C. requirements. The Field Collection Process Lead sends emails to Field Operations Leadership to restrict residential shut-offs in accordance with these requirements.
25. Residential customers receiving social services assistance are notified through bills and other messaging of their eligibility for PSE&G's Winter Termination Program (WTP). WTP customers are identified in the billing system through the use of various tolerance codes. WTP customers are protected from shut-off during the entire November 15-March 15 heating season, regardless of payment status.

26. PSE&G maintains a Critical Care Procedure applicable to customers requiring Life Sustaining Equipment (LSE) or with medical conditions that could be worsened by the loss of utility service. The procedure protects customers with LSE from non-pay shut-off for a full year, significantly longer than the 90 days required by Linda's Law, which went into effect in 2019. Key features of the Critical Care Procedure are discussed below in this chapter.
27. PSE&G maintains an LSE Solicitation and Communications plan to identify and "solicit customers who rely on . . . LSE" so that PSE&G can determine they status as protected customers and communicate with them if their utility service is in jeopardy due to either bad weather or collection activity.
28. PSE&G maintains a Customer Medical Emergency Escalation Procedure which provides customer contact employees with guidance and instruction for handling customer inquiries that may indicate medical emergencies. Responsibility for this procedure is vested in the Executive Director, Customer Operations, and the Vice Presidents, Electric and Gas Operations.
29. PSE&G maintains procedures designed to comply with N.J.A.C. rules applicable to multi-tenant buildings, including a Delinquent Account Escalation procedure applicable to "large industrial, large commercial and special accounts" and a "Building Posting Process" notice procedure applicable to multi-occupancy buildings that may experience service disruption. Among the steps PSE&G takes when service to such buildings may be interrupted are verifying the nature of the customer relationship (tenant vs. landlord) and associated documentation in the customer record, attempts at personal contact, a search of Company records to determine whether there has been a landlord request for notification, a posting procedure, and an escalation process that includes notifying the NJBPU, which is applicable when service interruption may affect multiple tenants.

Customer Contact

30. Relocation and temporary closing among PSE&G's 16 local customer contact centers over the past 10 years were all performed with the prior approval of the NJBPU, as required under New Jersey administrative rules.
31. PSE&G maintains toll free emergency and non-emergency telephone numbers and contact hours consistent with New Jersey administrative rules. The telephone numbers are prominently displayed on customer bills as required by the rules.
32. PSE&G's procedures provide for response to customer emergency and shut-off complaints communicated to the NJBPU within one hour. Ownership of complaints is assigned to a "case owner" within one hour of complaint notification by the BPU.
33. PSE&G's IVR is programmed to identify the word "emergency" and to immediately treat the call as a gas leak, whereupon it is routed to an emergency agent.
34. PSE&G appears to have adequate, specific procedures in place to handle both medical and non-medical emergencies. However, in the area of medical emergencies, the decision process for determining whether the loss of service to a customer might be life-threatening to someone at the premises appears to rely on the judgement of the individual agent handling the communication with the customer. PSE&G stated that its policy errs on the side of caution by

allowing the agent to take the customer's word of an emergency and protecting service so that an application to support the customer's claim can be provided to the customer.

Customer Billing and Payment

35. The content and form of PSE&G's residential and non-residential bills meet or exceed the minimum requirements of New Jersey rules.
36. PSE&G's Equal Payment Plan (EPP) procedures appear to fully comply with New Jersey administrative rules covering budget billing. Specifically, the EPP provides for a predetermined rate for a set period of time (12 months), based on customer usage or a reasonable estimate, which is compared twice during the plan year, and adjusted if usage varies by 10 percent or more at the mid-year point. EPP bills contain the required information comparing budgeted with actual usage and amounts owed. PSE&G appropriately promotes the EPP through bill inserts, customer newsletters and other communication channels, and Winter Termination Program customers are encouraged to participate in an EPP.
37. PSE&G's Deferred Payment Agreement procedures appear to comply with N.J.A.C. requirements. In general, PSE&G's written procedures are restatements of the rules. However, PSE&G has a requirement of limiting customers to one renegotiated DPA per year when the renegotiation is due to a change in the customer's financial circumstances. We note that the applicable regulations make no mention of "one renegotiation per year" under such circumstances.

Meter Reading and Testing

38. Meter read rates deteriorated significantly in 2020, to approximately 82%, down from an average of approximately 90% over the previous five years, primarily a result of the Covid pandemic. PSE&G's 2020 read rate performance placed it at the bottom of the third quartile among Northeast region utilities surveyed by JD Power. Almost one-fifth of PSE&G's meters went unread in 2020 despite the fact that 46% of total meters (23% of electric and 79% of gas) had Encode-Receive-Transmit (ERT) technology providing automatic walk-by or drive-by reads more than 99% of the time. PSE&G expects 99.5% read rate performance for nearly all electric meters once AMI meters (smart meters) are fully deployed at the end of 2024. A similar rate for gas meters should be achieved once ERT technology is fully deployed in 2026.
39. Meters scheduled for reading (which excludes most estimated meters) and reported as being read "on schedule" improved from 97.3% in 2018 to 99.6% in 2021.
40. PSE&G's meter read error rate deteriorated significantly in 2021, to 20.4 per 1,000 meters from an average of 15.6 per 1,000 over the previous six years. PSE&G cited reduced meter reads (both physical and ERT) resulting from the Covid pandemic as a primary causes; however, the read error rate was just 13.3 per 1,000 for the year 2020. The Company also cited automation of the billing exception process as a reason for increased identification of billing errors. This involves automating bill reversals and providing error codes, such as identifying errors as due to meter reads. It appears this is actually the primary reason for the increase in the bill error rate in 2021, given that it did not rise during the lockdowns of 2020. Although the read error rate

became significantly worse in 2021, we expect the ability to identify and correct erroneous reads made possible by automating bill exception processing will improve accuracy in the long run.

41. Long-term estimated meters, also known as "chronics," increased dramatically as a result of the Covid pandemic, from an average of about 45,000 meters at year end 2019 to approximately 140,000 at the end of 2020. Chronics declined to approximately 93,000 meters at the end of 2021. PSE&G expects the implementation of AMI for electric meters and completion of deployment of ERT technology for most gas meters will eliminate most long-term estimated meters.
42. In 2021 PSE&G began implementing its NJBPU-approved plan to replace nearly all electric meters by the end of 2024, at which time it expects to have 2.2 million new meters with Advanced Metering Infrastructure technology in place. The Company stated that it expects these meters will provide a variety of new data points, including daily meter reads, interval consumption data, voltage information, outage and restoration notifications, and conditional alerts. PSE&G stated that it does not expect any immediate changes to residential of commercial rate structures. Along with AMI replacements, PSE&G also expects to convert most remaining older non-ERT gas meters with walk-by or drive-by read technology by 2026. At this point, the need for approximately 260 employees with meter reading responsibilities will be dramatically reduced. In addition to taking advantage of normal employee attrition, PSE&G stated it would provide training and communication to prepare employees for new opportunities within the Company.
43. Approximately 120 of the 68,500 customers (about 2/10ths of 1%) for which PSE&G had attempted to install AMI meters by the end of October 2021 chose not to have the new meter installed. In its Clean Energy Future - Energy Cloud petition to the NJBPU, PSE&G proposed a $20 monthly customer charge for customers who wanted to opt out of having an AMI-based electric meter, based on the Company's estimated cost of sending someone to the customer premises for a manual read. Ultimately PSE&G and the NJBPU agreed to a $12 monthly fee to opt out of AMI. Benchmarking showed that other utilities around the country had monthly opt out fees ranging from $5 to as high as $45 a month. PSE&G stated it was not currently charging its $12 opt out fee to any customers and would not do so until AMI was fully deployed at the end of 2024.
44. PSE&G's Measurement Department consisted of two cost centers and 33 employees at the end of 2021. It is headquartered in Springfield and is responsible for meter operations (purchase, calibration, testing, storage and recordkeeping for all meters). It is also responsible for many aspects of the ongoing AMI deployment, including overall project oversight.
45. Analysis of failed meter group removals showed that as of September 30 2021, PSE&G had 30,328 electric meters from failed groups remaining in service. Of these 27,319 were "delinquent," meaning they had not been removed within the four-year period following discovery of the failed group, as required by the NJBPU.[2] Many of these meters will be removed

[2] Nearly all of these were discovered in the 2011-2020 timeframe and most represent meters that PSE&G cannot access because they are indoors and customers have failed to respond to PSE&G's request for access.

during the next 2 ½ years as deployment of smart meters is completed. PSE&G stated that many of the meters remaining in service from failed groups are delinquent due to inaccessibility and exchanges with smart meters will depend on customers allowing access to the premises. PSE&G also has 327,864 active gas meters from failed groups as of September 30 2021. 98,131 of these, nearly all discovered after 2014, were "delinquent" at the time of our analysis. Covid restrictions on entering a customer premise during 2020 had significant impacts on these efforts. Ongoing ERT device installations should result in the replacement of most gas meters from failed groups by the end of 2026; however, for those that are or will become delinquent, the same accessibility challenges apply.

Recommendations

Customer Operations

21.1 The relatively new 82,000 square foot Newark Customer Contact Center is significantly underutilized considering the annual lease and utilities costs of approximately **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** million and estimated space utilization of only about 15%, due mainly to a continuation of the Covid-era policy of allowing most agents to work from home. As soon as practicable, PSE&G should take steps to reduce its leased space footprint in the new Newark Customer Contact to match the highest utilization the Company expects it will need under its ongoing work-from-home policy.

21.2 Rather than simply having a stated goal of top-quartile or top-decile performance, PSE&G should develop a concrete plan of action to improve, over the medium term (1-3 years), key Contact Center metrics in which it ranks in the third or fourth quartile, specifically the customer inquiry service level and the abandoned call percentage, to at least second quartile performance among peers in the JD Power survey.[3] While the ongoing efforts PSE&G cited in response to our data request concerning performance in these metrics could be part of this plan,[4] we recommend PSE&G document a plan with an overall target performance level for each metric, the timeframe over which it expects to achieve the resulting performance, the specific efforts or projects it expects will bring about the improvement, and assign management accountability for the targeted performance.

21.3 PSE&G's 16 CSCs currently cost approximately $10 million annually to operate, excluding building costs, while processing only about 2% of PSE&G's total payments.[5] As part of the ongoing effort to move customer communication to digital channels, we recommend PSE&G develop a specific plan to better utilize the CSCs or simply reduce their overall cost by closing

[3] As measured by JD Power surveys of Northeastern region utilities. Other important metrics in which PSE&G ranks in the third or fourth quartile include percentage of meters read and the rebill rate. However, Overland believes the Company's ongoing deployment of AMI, as it is completed over the next two years, will provide measurable improvement in these metrics relative to other regional utilities.

[4] Response to OC-1754.

[5] Assuming between 2%-3% of total payments processed, each CSC processes an average of less than 2/10ths of 1% of total utility payments.

the least productive centers, as permitted by employee attrition or reassignment, and considering geography, customer payment alternatives, and historic trends of utilization. Recognizing PSE&G may be constrained by current agreements with union-represented employees, such steps might include utilizing current CSC employees for additional customer service functions or requirements, or simply closing the least utilized centers permanently. Overland recognizes there are additional mitigating factors, such as the social service assistance provided within some of the centers; however, regarding these we believe PSE&G should determine whether digitized customer channels might, in some cases, provide equivalent or even improved social services assistance. This should not be construed as a recommendation to close all 16 local centers.

N.J.A.C. Compliance

21.4 We recommend PSE&G develop a metric to measure the extent to which its procedures result in the establishment of service within two business days of the receipt of a customer's application for utility service, as required by N.J.A.C. Section 14:3-3.2(g). Consideration should include evaluation of processes, systems, and costs required to implement.

21.5 We recommend PSE&G develop a metric to measure the extent to which its procedures result in the restoration of service within 12 hours upon a customer correcting all of the conditions which caused service to be disconnected, as required by N.J.A.C. Section 14:3-3A.9(a). Consideration should include evaluation of processes, systems, and costs required to implement.

Customer Service Organization and Operations

The senior executive responsible for Customer Operations is Kim Hanemann, President and Chief Operating Officer, PSE&G. Customer Operations daily operations are headed by Frederick Daum, Executive Director, Customer Operations. For most of the audit review period Mr. Daum reported to Ms. Hanemann. Three Directors (Billing, Revenue and Controls, Field and Metering (District) Operations and Customer Contact) and two Managers (Customer Technology and Large Customer Operations) reported to Mr. Daum during this period.

In July 2021, Deborah Affonsa was appointed to the new position of Vice President Customer Care and Chief Customer Officer. Ms. Affonsa was new to PSE&G, having previously held the position of Vice President of Customer Service at PG&E in California.[6] Currently, Ms. Affonsa reports to Ms. Hanemann, and Mr. Daum now reporting to Ms. Affonsa. The department Directors who reported to Mr. Daum prior to mid-2021 currently also report to Ms. Affonsa. 2021 changes in Customer Operations management are summarized in the following table.

[6] https://njbmagazine.com/njb-news-now/pseg-names-deborah-affonsa-new-chief-customer-officer/

Table 21-1 — PSE&G Customer Operations Management Organization - 2021 Restructuring

PSE&G Customer Operations Management Organization - 2021 Restructuring			
As of June 30, 2021			
Employee		Supervisor	
Name	Title	Name	Title
Frederick Daum	Executive Director Customer Operations	Kim Hanemann	President & COO - PSE&G
Eric Martinez	Director Customer Contact	Frederick Daum	Executive Director Customer Operations
Jane Bergen	Director Billing, Revenue & Controls	Frederick Daum	Executive Director Customer Operations
Michael Kelly	Director Field and Metering Opns	Frederick Daum	Executive Director Customer Operations
Nicole Swan	Manager Customer Opns (Large Customer)	Frederick Daum	Executive Director Customer Operations
Tracy Kirk	Manager Processing (Customer Technology)	Frederick Daum	Executive Director Customer Operations
As of December 31, 2021			
Employee		Supervisor	
Name	Title	Name	Title
Deborah Affonsa	VP Customer Care & Chief Customer Officer	Kim Hanemann	President & COO - PSE&G
Frederick Daum	Executive Director Customer Operations	Deborah Affonsa	VP Customer Care & Chief Customer Officer
Eric Martinez	Director Customer Contact	Deborah Affonsa	VP Customer Care & Chief Customer Officer
Jane Bergen	Director Billing, Revenue & Controls	Deborah Affonsa	VP Customer Care & Chief Customer Officer
Michael Kelly	Director Field and Metering Opns	Deborah Affonsa	VP Customer Care & Chief Customer Officer
Nicole Swan	Director Customer Solutions	Deborah Affonsa	VP Customer Care & Chief Customer Officer
Tracy Kirk	Manager Processing (Customer Technology)	Frederick Daum	Executive Director Customer Operations
Source: Response to OC-940 and OC-1630.			

Department-level staffing during our review period is summarized in Table 21-2.

Table 21-2 — PSE&G Customer Service Operations Staffing by Department

PSE&G Customer Service Operations Staffing by Department				
Organization	Staffing at End of Year			
	2018	2019	2020	2021
Billing and Revenue Operations	175	149	147	144
Customer Contact	456	467	437	465
Customer Technology		12	16	18
District Operations Collections	64	58	61	64
District Field and Metering Opns.	489	478	465	475
Construction Inquiry	47	45	44	52
Large Customer Operations	73	72	69	71
Customers Operations Support	2	2	2	-
Totals	**1,306**	**1,283**	**1,241**	**1,289**
Responses to OC-0940 & 1680.				

Customer Operations departments include the following functions:

- Billing and Revenue Operations – This department manages revenue cycle operations, which include billing, revenue integrity and payment processing. It is also responsible for revenue reporting and control, third-party billing and customer technology. Functional areas headed by

separate managers are measurement (metering) revenue integrity, process and standards analysis and Sarbanes Oxley controls, billing, marketing and advertising, customer assessment and payments.

- Field and Metering Operations – Field and Metering includes district-based meter reading, field collections district customer service center operations. Its primary responsibility is the meter-to-cash process. The Director of Field and Metering Operations also oversees the Collection organization, including back-office collections.
- Customer Contact – Customer Contact is responsible for call center operations. It consists primarily of Customer Service Representatives, Credit and Collections Representatives, Senior Service Representatives and Customer Operations Supervisors.
- Customer Technology Projects – This department is responsible for customer projects. It also has a group responsible for "social care and digital analytics."
- Large Customer and Construction Inquiry – This department is headed by the Director of Customer Solutions.[7] It includes five cost centers, each with its own Manager. It supports large business customers and smaller customers requiring utility extensions to provide service. The Large Customer organization includes managers in charge of business solutions (new business project consultants, customer consultants and "key customer" advisors), construction inquiry, and large business sales and service. Construction Inquiry consists primarily of union-represented Marketing Assistants and Service Consultants who help customers determine and price out the cost of facilities installations.

PSE&G's Customer Operations organization is large and complex. Within the scope of our audit we confined our operational analysis primarily to its largest components: Billing and Revenue, Field and Metering and Customer Contact, which includes the Customer Inquiry and Customer Service Center functions.

Billing and Revenue Operations

Billing and Revenue Operations, headed by a Director, manages revenue cycle operations, which include billing, revenue integrity and payment processing. It is also responsible for revenue reporting and control, third-party billing and customer technology. Functional areas headed by separate managers are measurement (metering) revenue integrity, process and standards analysis and Sarbanes Oxley controls, billing, marketing and advertising, customer assessment and revenue and payments

[7] The Director of Customer Solutions position was vacant for a time in 2020 and 2021, when the Manager – Processing Front Office ICSP reported to the Executive Director Customer Operations. This individual was promoted to Director of Customer Solutions in 2021.

Table 21-3 — Billing and Revenue Operations Staffing

Billing and Revenue Operations Staffing					
Department	Cost Center	Staffing at End of Year			
		2018	2019	2020	2021
Billing Operations	1562 Customer Services-Billing Staff	98	87	86	86
	2128 Asset Revenue Cycle Services	7	7	7	7
Business Solutions	3025 CO Business Operations Staff	2	2	1	1
	2260 Revenue Integrity Dept. Staff	15	15	15	15
Customer Payment Opns	1542 CPPC - Staff	19	17	17	15
Marketing and Advertising	2196 Campaign Managment Staff	8	6	6	5
Revenue Control & SOX	2126 Revenue Cycle Svc Staff	15	15	15	15
Totals		**164**	**149**	**147**	**144**
Source: Responses to OC-0940 & 1680.					

The responsibilities of the major groups within Billing and Revenue include the following:

- Billing Operations – The Billing Operations group consists primarily of Bookkeepers. It also includes Process Analysts and Special Billing Auditing Assistants. Headcount declined by approximately 17% of its headcount in the two and one-half years between January 2019 and July 2021.
- Business Solutions – This group performs capital budgeting and manages the capital project approval process. They handle real estate facilities and were responsible for the recent renovation of the Springfield CPPC. The group is also responsible for billing third parties for construction work.
- Customer Assessment – This consists of two groups. Customer Relations works with reducing and resolving escalated customer complaints. The Customer Assessment group works on analyzes and evaluates the customer base through various “customer listening posts,” which include an online customer focus group, customer surveys, a Cogent survey and JD Power surveys.
- Customer Payment Operations – This consists of two cost centers, the Customer Payments Processing Center (CPPC) and the Revenue Integrity Department [data request about the RID] – These employees run the CPPC, which was in the process of being moved from Plainfield to Springfield as of March 2022.
- Revenue Cycle Service Staff – This cost center, headed by the Manager, Revenue Controls and SOX, this group is responsible for managing the output of the billing system. They coordinate with the Finance and Information Technology groups to ensure that changes, such as rate updates, are properly reflected in bills. They are also responsible for SOX control testing, and data access and security and they oversee the billing process.

- Marketing and Advertising – PSE&G described this as a customer communications group.[8] They are responsible for outbound customer communication and messaging, on bills, through bill inserts and other means.

Customer Contact

Customer Contact includes the Customer Inquiry (Call Center) function, 16 local Customer Service Centers (CSCs), Credit and Collections call center and a Customer Services Support organization. Customer Contact contains over one-third of PSE&G's total Customer Operations employees.

Table 21-4 — Customer Contact Staffing

Customer Contact Staffing					
Department	Cost Center	Staffing at End of Year			
		2018	2019	2020	2021
Customer Inquiry (Call Center)	1560 Customer Services-Inquiry Staff	267	276	247	275
Customer Service Center	1540 Credit & Collection Staff-Cust. Ops.	61	60	62	63
	3065 Customer Services - Centers	105	105	102	101
	3024 Customer Ops Field Support Staff	9	9	9	9
Customer Service Support	1564 Customer Services Support Staff	14	17	17	17
Totals		**456**	**467**	**437**	**465**
Source: Responses to OC-0940 & 1680.					

Customer Inquiry (Contact Centers)

PSE&G operates two on-premises call centers to handle inbound customer calls, one in Newark and one in Bordentown. In February 2022 the Newark center had 159 employees. It operates around the clock, seven days a week, while the Bordentown, or Southern Inquiry and Accounting Center (SIAC), with 57 employees as of February 2022, is normally staffed 7AM to 5PM, Monday through Friday.[9] PSE&G indicated that since March 2020 approximately 85% of the agent hours for these centers are worked from home, which apparently means that at any given time only about 30 of the 216 (159 + 57) staff work from the call center, with the rest working from home.[10]

Call Center Staffing

In addition to employees working from the Newark and Bordentown centers, PSE&G outsources a portion of its customer inquiry function to vendors. Convergent is the current outsource vendor. Convergent is headquartered in Atlanta but employs agents for PSE&G who work from their homes in

[8] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

[9] Response to OC-1720 and Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022. It should be noted that the figures provided for the Newark and Bordentown call centers do not account for all of the customer contact employees shown at in employee data provided in Responses to OC-0940 and 1680.

[10] Response to OC-1720-A.

New Jersey.[11] Convergent currently accounts for approximately 18% of total agent hours.[12] Approximately 50 agents from Convergent are trained and available to assist with PSE&G's inbound customer calls.

PSE&G stated that the decline in Customer Inquiry staffing during 2020 was due to normal attrition and limited hiring to fill vacancies during the early days of the Covid pandemic.[13] PSE&G noted that at this time call volumes were very low and this reduced the need to immediately fill vacancies. PSE&G stated it began "aggressively hiring" to fill all vacant positions to handle anticipated call volume late in 2021, while at the same time reducing the percentage of agent hours directed to its outsource vendor Convergent. PSE&G stated that its objective is to maintain between 245 and 260 customer contact employees (agents).

Vendor agents are slightly less expensive than employee agents. The cost per productive hour in 2021 for Convergent agents was $63.46, while the cost per productive hour for employee agents was $67.56.[14] However, as discussed below, vendor agents also register somewhat lower post-contact customer satisfaction scores than employee-agents.

Customer Call Routing[15]

Incoming phone calls are sent to PSE&G's Automated Call Distributor (ACD). The ACD routes most calls to the Integrated Voice Response (IVR) system. The IVR is responsible for gathering the caller's intent and attempts to satisfy the caller's request without requiring an agent. If the IVR cannot satisfy the request, the call is sent back to the ACD to be routed to an agent. The call is assigned a call type based on the caller's intent and the call is routed to a queue based on the call type. The queues are staffed by agents that are skilled to handle those call types.

During high volume events such as storms, PSE&G activates a High Call Volume Application (HCVA). All non-emergency calls during high volume events are sent to the HCVA, which is designed to handle key call types such as "No Power" without an agent, and route emergency calls such as "Damage/Wire Down" and "Gas Leak" back to an agent queue. The HVCA deflects calls such as billing inquiries by containing the call and instructing the caller to call back at a later time.

PSE&G stated that the number of calls that can be contained by the IVR has an impact on the average speed of answer (ASA). The more calls that can be contained, the fewer calls routed to agents. This leads to additional available call taking capacity, which reduces ASA.

Call Center Space Utilization

Given the large percentage of agent hours currently worked from home, we asked PSE&G to describe its call center space utilization. The Company stated that prior to Covid pandemic, all agents were required

[11] In 2019 PSE&G outsourced approximately 23% of its total customer inquiry agent hours to Atlantic City Contact Center.

[12] Response to OC-1720-B.

[13] Response to OC-1720-C.

[14] Response to OC-1720-D.

[15] Response to OC-0513.

to work in the office and space utilization was approximately 85%.[16] At the outset of Covid, agents were equipped to work from home and PSE&G maintained about 15% of agent staff in the office. Correspondingly, space utilization was reduced to "less than 15% of capacity." Prior to Covid, agents were assigned their own workstations and these were held in reserve even when the agent was absent (on vacation, sick leave, etc.) In 2021 PSE&G moved to a model where workstations are used by multiple agents, depending on who is in the office.[17]

We also asked the Company to describe any steps being taken to shrinking the space dedicated to call center activities. PSE&G stated:[18]

> Currently, PSE&G is operating within a reduced footprint within the call center floor space given that only a small percentage of the reps are working in the office. The entire workstation space is still available in the event all agents must return to the office which could occur in the event of the loss of remote access connectivity. Longer term, call center floor space requirements will be included as part of larger Company review and planning for the Newark office post Covid.[19]

Given the low current utilization of the space in these centers, we asked PSE&G to provide the rental, utility and maintenance costs of the facilities. It provided the following figures for the years 2019 through 2021:

Table 21-5 — Contact Center Facilities Costs

[BEGIN CONFIDENTIAL]

Contact Center Facilities Costs			
Contact Center Location	**2019**	**2020**	**2021**
Newark (Leased)	[redacted]	[redacted]	[redacted]
Bordentown (SIAC) (Owned)	[redacted]	[redacted]	[redacted]
Source: Response to OC-1758.			

[END CONFIDENTIAL]

Bordentown costs are relatively low but exclude any capital costs.[20] The Newark facility was leased beginning in 2019, when PSE&G moved Contact Center operations from its Cranford location.[21] Newark includes approximately 82,000 square feet of space and is much more expensive than Bordentown. In addition to the Inquiry (Contact) Center, it includes Inbound and Back Office Collections, Billing and

[16] Response to OC-1721-A.
[17] Response to OC-1721-B.
[18] Response to OC-1721-C.
[19] PSE&G also notes that to reduce this footprint, it condensed floor 14 into floor 12, freeing space for hoteling for those formerly on floor 17. Floor 14 has a continued need for disaster recovery for example, if VPN fails or agents lose power during an outage, this space would be utilized.
[20] It is possible the building is fully depreciated, and therefore incurs no capital costs in a utility cost-of-service view.
[21] Response to OC-1758.

Construction Inquiry. With many customer contact employees working from their homes, it is unclear how many employees presently occupy the facility on a typical day. In any event, based on the fact it was leased pre-Covid and the amount of space increased compared with the previously-occupied Cranford center, the Newark center is likely to be significantly underutilized in the current environment. Overland did not inquire about the nature or length of the lease for the Newark space, but assuming PSE&G's work-from-home model for agents continues in the future, it appears advisable for PSE&G to attempt to reduce its Newark Contact Center footprint and cost as soon as practicable.

Customer Service Centers (CSCs) (Cost Center 3065)

PSE&G maintains 16 local customer service centers throughout its territory where customers can pay bills and interact in person with the utility. All 16 CSCs appear to have been closed for a time during the Covid pandemic.[22] Six were reopened in July 2021, including the larger centers in Camden, Newark, Plainfield and Passaic. The remaining centers were reopened in mid-March 2022.

The CSCs are maintained in Cost Center 3065, Customer Services – Centers, which had 101 employees at the end of 2021. The CSCs are headed by a Manager – Operations, a Site Supervisor and seven Supervisors. In addition, as of the end of 2021, the CSCs employed 58 Customer Service Representatives (CSRs) and 34 Tellers and Cashiers. PSE&G stated that call overflow from the call centers discussed above can be routed to the CSRs in the CSCs.[23]

PSE&G described the total percentage of bills paid in person at the CSCs as being between 2% and 3%.[24] However, as shown in the table below, during the years 2020 and 2021 the CSCs processed only a fraction of one-percent of total bill payments. The Company stated that as of mid-March 2022 agents from the CSC cost center handled about 4% of the Company's inbound inquiry calls.[25] When the CSCs are open, the CSRs only take calls "during events of significant call volume, such as during storms."[26]

Total costs incurred by the CSCs, *excluding* rent, is shown in Table 21-6. In 2021, "annual rent, condo fees and miscellaneous operating costs for all CSCs," excluding Newark, which is incorporated into PSE&G's Headquarters charges, was $1,715,627.

[22] Response to OC-1725 Attachment OC_1725_CSC Locations Opening.

[23] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

[24] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

[25] Response to OC-1724.

[26] Response to OC-1724.

Table 21-6 — CSC Cost Center 3065 Total Costs

CSC Cost Center 3065 Total Costs	
Year	**Costs**
2015	10,866,295
2016	10,862,499
2017	8,999,991
2018	8,897,603
2019	9,688,629
2020	9,494,786
2021	9,567,163
Response to OC-1727.	

PSE&G stated that it does not track performance metrics for the CSCs at the individual location level. However, the Company was able to provide payment transactions and customer interviews at the CSC cost center level, as shown in the following table. It shows that even in the CSCs that remained open during the pandemic, very little activity took place after March of 2020 and through 2021.

Table 21-7 — Customer Service Center Payments Processed and Interviews Conducted

Customer Service Center Payments Processed and Interviews Conducted							
Payments Processed (Primarily Cashiers / Tellers)							
Location	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Bayonne	30,245	48,343	56,055	60,119	60,813	14,413	175
Burlington	54,119	47,193	47,829	53,380	52,845	12,264	279
Camden	55,751	53,500	53,198	54,595	51,583	11,082	4,870
Elizabeth	112,131	111,503	108,272	113,628	115,663	26,978	138
Hackensack	71,068	67,823	67,240	67,312	68,634	13,191	58
Hoboken	24,757	23,271	24,962	22,904	22,431	5,381	34
Jersey City	109,330	98,034	104,364	112,516	105,821	24,105	10,657
New Brunswick	52,167	48,927	49,887	53,499	52,101	12,346	174
Newark	99,873	89,751	89,750	93,417	90,306	19,564	6,959
North Hudson	140,944	138,615	136,164	144,592	149,959	33,426	10,541
Passaic	112,796	110,028	109,413	111,843	119,865	25,003	11,403
Paterson	117,015	105,102	108,180	112,034	110,673	24,191	8,975
Perth Amboy	71,790	70,329	67,407	69,290	72,627	16,576	25
Plainfield	84,303	82,711	80,445	81,628	77,684	17,944	7,280
Trenton	78,821	71,873	78,562	80,975	80,863	17,780	6,890
West Orange	111,198	102,376	103,627	110,712	113,162	26,228	333
Totals	**1,326,308**	**1,269,379**	**1,285,355**	**1,342,444**	**1,345,030**	**300,472**	**68,791**
Interviews (Primarily Credit and Collection Representatives)							
Location	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Bayonne	9,302	13,006	12,544	13,720	12,909	2,732	0
Burlington	23,893	19,912	23,430	22,521	21,613	3,763	0
Camden	23,383	27,844	25,899	25,375	23,045	4,453	1,192
Elizabeth	36,560	34,824	34,643	33,516	30,176	6,126	0
Hackensack	26,406	25,058	25,728	24,662	23,027	4,428	0
Hoboken	7,181	6,360	5,984	5,414	5,035	986	0
Jersey City	45,941	40,565	39,805	38,160	34,139	6,369	234
New Brunswick	13,463	13,447	13,131	13,420	13,409	2,570	0
Newark	38,910	38,349	39,914	37,172	34,217	6,767	1,451
North Hudson	41,419	38,458	38,288	36,795	36,639	8,025	1,440
Passaic	26,580	26,881	24,724	24,392	23,571	4,819	483
Paterson	38,392	35,863	37,723	38,263	35,573	6,603	861
Perth Amboy	11,106	13,851	11,830	11,467	10,712	1,935	0
Plainfield	22,715	22,926	21,426	20,220	17,721	3,688	1,991
Trenton	34,901	33,420	34,749	33,815	30,888	5,764	814
West Orange	36,979	34,110	33,863	28,596	25,381	5,012	0
Totals	**437,131**	**424,874**	**423,681**	**407,508**	**378,055**	**74,040**	**8,466**
Response to OC-1725.							

The CSCs are currently responsible for handling a small percentage customer bill payments. During the Covid pandemic, activity at the centers was reduced to a small fraction of normal levels and CSC Customer Service and Remittance Staff were moved to home-based work assignments supporting the Contact Center.[27] Although the centers host certain social service agencies, this is usually for a few hours one or two days a week (as shown below) and it is likely that most of all of the agencies have their

[27] Response to OC-1756-B.

own facilities nearby. We believe PSE&G should perform and submit to the BPU a study of the benefits and costs of maintaining 16 local centers that process very few payments, and consider closing some or all of the centers in the future, unless it is clear that they serve a need that cannot otherwise be met. It also suggests that the Company should consider allowing attrition to reduce the number of Cashiers and Tellers, as customers continue to shift toward online and other means of making bill payments.

Social Service Agencies in PSE&G's CSCs

Most of the CSCs host representatives from social services agencies who are available part time during business hours for periods ranging from four (Bayonne) to as much as 30 hours a week (Trenton). These are summarized in the following table. PSE&G described the benefits of having the agencies on site as follows:[28]

> [A]llowing [the agencies] access to . . . space [in CSCs] creates a one-stop to help our customers address their delinquency and receive help with their bills. For example, a customer can make a Deferred Payment Arrangement if needed, make a payment toward their bill, and stop to see an agency representative to receive an application and assistance processing on site. PSE&G has set up these partnerships with the LIHEAP/USF agencies for decades but in the past 5 to 6 years has been able to secure more agency presence in the CSCs as everyone has seen the benefits of this collaboration. Since the CSCs reopened last year, agencies have worked with PSE&G to secure agencies on-site, and were successful in securing agencies at six out of the eight open CSCs. During the Covid period, the Passaic County CSCs (Paterson and Passaic) were not set up due to additional County Covid restrictions which made it impossible for the Passaic County Home Energy and Weatherization to set up.

Table 21-8 summarizes the agencies and hours they are available at various PSE&G CSCs.

[28] Response to OC-1726-B.

Table 21-8 — Social Service Agencies in PSE&G CSC Facilities

Social Service Agencies in PSE&G CSC Facilities		
CSC	**Payment Assistance Agency**	**Days/Hours**
Bayonne	Bayonne Economic Opportunity Foundation (BEOF)	Monday through Friday from 10:00am to 2:00pm EST
Burlington	N/A	N/A - Energy Assistance material will be onsite
Camden	Camden County OEO	Monday to Thursday, 10:00am to 3:00pm EST
Elizabeth	Proceed Inc.	Monday from 9:00am to 2:00pm EST
Hackensack	Greater Bergen County Community Action (GBCC), Inc.	Thursdays from 9:00am to 1:00pm
Hoboken	N/A	N/A - Energy Assistance material will be onsite
Jersey City	P.A.C.O. (Puertorriqueños Associados for Community Org.)	Tuesdays and Thursdays 9:00am to 4:00pm
New Brunswick	Puerto Rican Action Board (PRAB)	Will be 1 or 2 days a week. Est. start date March / April
Newark	La Casa De Don Pedro	Mon., Thurs, & Fridays from 8:30am to 4:00pm EST
North Bergen	P.A.C.O. (Puertorriqueños Associados for Community Org.)	Tuesdays and Thursdays 9:00am to 4:00pm EST
Passaic	Passaic County Weatherization and Home Energy Division	Tuesdays and Wednesdays, 9:00am to 3:30pm EST
Paterson	Passaic County Weatherization and Home Energy Division	Tuesdays and Thursdays, 9:00am to 3:30pm
Perth Amboy	Puerto Rican Action Board (PRAB)	Will be 1 or 2 days a week. Est. start date March / April
Plainfield	HOPES CAP, Inc.	Monday to Friday from 10:00am to 4:00pm EST
Trenton	Mercer County Hispanic Association (MECHA)	Monday to Friday from 9:00am to 4:00pm EST
West Orange	La Casa De Don Pedro	Tues & Wed from 8:00am to 4:00pm EST
Response to OC-1726.		

Credit and Collection Staff (Cost Center 1540)

This organization, which reports to the Manager of the CSCs, consists of one Site Supervisor, three Supervisors, four Senior Collection Reps and 57 Credit and Collection Representatives. Similar to the Customer Service Representatives in the Contact Center, these associates remain working from home primarily. Among its responsibilities, this group plans and schedules collection activities, attempts collection of unpaid accounts, prepares and sends credit and collection correspondence to customers, "interviews" (conducts interactions and transactions with) customers concerning credit, collection and energy usage, assists field collection employees, maintains and balances customer deposit transactions, maintains credit reference records, reviews credit agency information and prepares various customer credit reports.[29]

Customer Operations Field Support (Cost Center 3024)

This small group provides internal administrative support for PSE&G's approximately 1,300 Customer Services employees. It does not have any "field" responsibilities. At the end of 2021 it consisted of an Office Administrator, two Telephone Operators and six Customers Operations Coordinators. Responsibilities include Customer Operations employee time entry administration, training administration, employee expense approval, supplies sourcing and invoice processing. This group is also responsible for bargaining unit reporting relationships and administration of job posting and hiring for bargaining unit positions. Prior to the pandemic Customer Operations Coordinators worked in PSE&G's Springfield location. Since the pandemic they have been working "remotely on-site," using a

[29] Response to OC-1096.

"collaborative space in [the] Springfield location and working remotely and reporting into their space once or twice a week, as needed."[30]

Customer Service Support Center

This group is a Call Center Workforce Management team that provides back office support services to the Contact Center. They provide technology support for the ACD, IVR, call recording and other systems. They are responsible for workforce, quality and vendor management. Workforce management includes schedule management, handling vacation requests, supporting the shift bidding process and tracking employee training. Quality management includes handling after-call survey reporting, completing gas emergency call evaluations, and assisting with agent announcements and assistance with outbound automated call campaigns for customers on life-sustaining equipment.[31]

Customer Technology

Customer Technology Projects (Cost Center 3021) is an information systems group within Customer Operations that works with the PSEG Service Company's Information Technology department to launch new customer service platforms, enhance existing systems and deploy and improve digital customer channels. PSE&G describes the group as "responsible for the full experience our customers have with the Company through digital channels and for the experience our Customer Service Representatives have with the Customer Relationship Management system through which they serve those customers."[32] Examples of their work include the launching of new Live Chat and Mobile App digital channels (in 2019 and 2020, respectively), and redesigned *My Account* customer website launched in 2018. The growth of this group over the past four years is shown in Table 21-9.

Table 21-9 — Customer Technology Projects Staffing

Customer Technology Projects Staffing				
Cost Center	**Staffing at End of Year**			
	2018	**2019**	**2020**	**2021**
3021 Integrated Customer Service Platform	11	12	16	18
Totals	**11**	**12**	**16**	**18**
Responses to OC-0940 and OC-1680.				

In addition to launching and enhancing customer information systems and channels, PSE&G stated that Customer Technology "works very closely with Corporate Communications on messaging" and "reports on customer activity in each transactional channel."[33] The group also reviews analytical data for trends to identify improvements.

[30] Response to OC-1729.
[31] Response to OC-0170.
[32] Response to OC-1731.
[33] Response to OC-1731.

Maintaining up-to-date systems and customer channels is critical to a successful customer service operation. It was not within the scope of our audit to perform a detailed analysis of customer information systems or technology deployment. However, it is important for an audit of PSE&G's Customer Service to evaluate and take note of technology enhancements made during the past few years, to assess the degree to which the Company is keeping up with the industry. The table below summarizes the significant technology enhancements deployed in the past five years, and those in the pipeline for deployment over the next few years. The formation of a Customer Technology group to act as a bridge between IT and ongoing customer service operations indicates the PSE&G takes up-to-date customer technology seriously. PSE&G's implementation of features common to modern call centers (a customer-friendly website, plans for an IVR with natural language recognition capability, and the use of multiple digital channels and modern analytics), efforts to harness customer information to manage social media and messaging, make outage information more accessible and available, and the Company's planned use of the cloud to increase the capacity and effectiveness of its systems indicate PSE&G is maintaining parity with and may be surpassing the utility industry with respect to customer technology.

Table 21-10 — Customer Technology Projects

Customer Technology Projects			
Year	**System**	**Type**	**Description**
2018 and 2021	My Account website (through Sitecore)	Replacement and Upgrade	PSE&G implemented a new customer website in 2018. In 2020 it was upgraded to a Platform as a Service model, increasing scalability. A Salesforce / Sitecore connector is planned to connect the Saleforce Marketing Cloud with Sitecore content management to "leverage . . . Content across . . . channels for more consistent communications."
2018	Workforce Management System	Upgrade	WFM was upgraded to Computer Automated Dispatching and the system now permits work order information and assignments to be shared across Electric, Gas and Customer Operations.
2019	Live Chat (through Salesforce)	New	New digital channel with case management features. As of late 2021, efforts are underway to move from a purely agent-assisted chat to a chatbot to enable more customer capacity.
2020	Mobile App	New	New digital channel with payment, outage functionality. PSE&G continues to add functionality to this channel.
2020	Storm Center	Upgrade	Upgraded Storm Center, providing an enhanced outage map and added functionality, including crew status information, advanced weather information and a direct link for reporting outages.
2020	Social Customer Care & Social Media Message Management	Upgrade	Upgrade to the system used to manage social media messaging, responses and reporting. New case management capabilities and advanced routing, tagging and analytics.
2022	Contact Center as a Service	New	Cloud-based platform designed for scalability to handle high-volume call events, such as a significant storm. Enable more rapid functional changes with limited need for software development, as well as elimination of lifecycle planning for the internal system it will replace.
Upcoming	Automated Call Dist. & IVR	Replacement	New IVR will replace directed dialog with fully-conversational natural language. PSE&G states it will also provide new IVR self-services.
Upcoming	Interaction Management	New	Will provide quality management capability, enable automated near-time quality reviews of customer interactions
Responses to OC-1639 and OC-1731.			

District Operations

Field Operations

District Field Operations consists of 13 cost centers which include field and metering operational groups distributed over nine local service areas, a measurement (meter testing and integrity group) and the group is headed by the Director, Field and Metering Operations. It consists primarily of the following employee groups.

- Meter Readers and Field Representatives / Collectors - Approximately half of the total employees in District Operations are Meter Readers and one-fourth are Field Collectors or Field Service Representatives. Field Collectors and Field Service Representatives interview customers to collect or arrange to collect unpaid accounts, discontinue service at the meter when required and conduct customer premises investigations when necessary. Some Field Collectors occasionally read meters.

In terms of headcount, the remaining 25% of District Operations includes:

- Measurement and AMI system integration - These functions include various employees (Managers, Process Analysts, Measurement Technicians and Engineers) engaged in meter sourcing, tracking, inventory and testing operations and in deployment of PSE&G's new AMI network.
- District Operations Support - includes a Business Performance Lead, Customer Operations Supervisors and several Health and Safety Coordinators.

As Table 21-11 demonstrates, overall District Operations staffing is relatively unchanged over the past four years.

Table 21-11 — District (Field and Metering) Operations Staffing

District (Field and Metering) Operations Staffing				
Cost Center	**Staffing at End of Year**			
	2018	**2019**	**2020**	**2021**
1487 Measurement	15	16	15	14
1552 Cust. Svcs-Hackensack (North) Staff	91	87	80	84
1553 Customer Services-Roseland Staff	46	40	42	40
1554 Cust. Svcs.-Newark (Central) Staff	60	56	56	58
1555 Customer Services-Cranford Staff	50	51	51	53
1556 Customer Services-Eastgate Staff	40	39	39	41
1557 Customer Services-Princeton Staff	34	35	35	36
1558 Cust Svc Harmon Cove Staff Cost Ctr	61	59	56	57
1559 Customer Services - NewBruns Staff	26	29	28	28
1565 Dist Ops Operational Support Group	7	7	7	7
1577 Customer Services - Burlington	31	32	30	27
2257 Cust Ops System Integration Staff Ctr	19	18	17	19
2387 District Operations Support Staff	9	9	9	11
Totals	**489**	**478**	**465**	**475**
Responses to OC-0940 and OC-1680.				

Overland performed a review of metering, meter testing and AMI, which is discussed in a separate section of this chapter.

District Operations Collections

The District Operations Collections organization is headed by a Manager Operations – Collections who reports to the Director Field and Metering Operations. The primary responsibility of this group is to support district field collection and account shut-off / reconnection activities.

Table 21-12 — District Operations Collections Staffing

District Operations Collections Staffing				
Cost Center	Staffing at End of Year			
	2018	2019	2020	2021
1563 Cust Svc. & Community Relations	4	3	3	3
1801 Backoffice Collections	52	47	50	53
2874 Collections Support	8	8	8	8
Totals	**64**	**58**	**61**	**64**
Responses to OC-0940 and OC-1680.				

This function is staffed primarily by Credit and Collections Representatives (CCRs) and their supervisors. These employees interview customers regarding credit and collection problems, evaluate accounts that have been shut off for non-payment, compile information regarding accounts that have payment problems and prepare related customer correspondence. They assist in collection of unpaid accounts and prepares account information and assignments for field collectors. The Community Outreach function works with social service agencies to assist customers who need bill payment assistance.

Customer Operations Metrics

We reviewed available metrics summarizing the performance of PSE&G's Customer Service function.

Internal Productivity and Quality Metrics

PSE&G provided the following annually-summarized data in response to our request for the most significant Customer Operations productivity and quality metrics.[34]

[34] A few definitions (from Response to OC-1640) may be helpful in interpreting this data. 1) Total Calls Handled is (Calls Handled by the Voice Recognition Unit + Calls Handled by the High Volume Call Application + Calls Handled by CSRs). The Call Abandonment Rate is 1 minus (Total Calls Handled / Total Calls Offered). The High Volume Call Application (HVCA) is a high-volume IVR used during periods of high customer call demand, such as a storm event. Because it is highly event-driven, volumes differ significantly from year to year. 2020 was the year of Tropical Storm Isaias. PSE&G stated that medical emergency calls are reviewed and evaluated to ensure compliance with regulations, policies and CSR skills. The data is used to measure CSR performance. However, it remains unclear what the Medical Emergency Evaluation percentages mean. Service Level Handled represents the percentage of all handled calls answered within 30 seconds. Service Level CSR Handled is the percentage of CSR handled calls answered within 30 seconds. PSE&G stated that the Workforce Management System used this metric to estimate the number of CSRs needed to handle call volume within the service level.

Table 21-13 — Key Customer Operations Quality and Productivity Metrics

Key Customer Operations Quality and Productivity Metrics							
Metric	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Call Center							
Total Calls Offered	6,502,677	6,634,219	6,586,478	7,891,492	7,680,812	7,341,814	6,618,805
Handled by the Voice Recognition Unit	2,429,975	2,422,375	2,563,125	3,423,400	3,617,012	3,447,820	3,322,954
Handled by the High Volume Call Application	332,066	461,025	385,751	709,759	432,488	602,460	175,873
Handled by CSR	3,501,423	3,522,901	3,398,366	3,352,649	3,102,496	3,013,599	2,842,606
Total Calls Handled	6,263,464	6,406,301	6,347,242	7,485,808	7,151,996	7,063,879	6,341,433
Abandoned Call %	3.7%	3.4%	3.6%	5.1%	6.9%	3.8%	4.2%
VRU Containment %	41.0%	40.7%	43.0%	50.5%	53.8%	53.4%	53.9%
Avg Speed of Answer	69	68	64	81	126	70	77
Avg CSR Talk Time	292	286	274	268	289	307	323
Avg Post-Call CSR Wrap Time	40	40	39	36	31	33	25
Total Avg CSR Handle Time	332	326	335	353	362	379	379
Calls Per Hour	8.5	8.8	9.7	10.3	10.0	9.5	9.1
After Call Survey (ACS)	72.4%	74.3%	75.2%	83.1%	86.9%	91.3%	92.4%
Medical Emergency Evaluations	N/A	N/A	N/A	86.80%	98.30%	93.50%	97.70%
Svc Level - Handled (Answered w/in 30 seconds)	79.2%	80.3%	75.4%	73.6%	78.1%	87.5%	83.1%
Svc Level - CSR Handled (Answered w/in 30 seconds)	62.8%	64.3%	54.1%	41.1%	49.4%	70.6%	62.2%
Billing							
Rebills Per 1000 Adjusted Customers	21.1	19.1	19.7	18.3	17.5	23.6	20.9
Avg Days to Complete a Billing Exception	2.7	2.4	2.7	2	2.3	2.3	2.7
Billing Exception Annual Case Volume	926,957	1,208,355	1,056,447	808,139	695,478	617,764	701,307
Pct. of Payments Received via Automatic Bill Pay	12%	15%	16%	18%	20%	22%	28%
Pct. of Customers Enrolled in Paperless Billing	19%	22%	26%	29%	31%	36%	40%
Metering							
Percentage of Estimated Customer Bills	19%	16%	16%	15%	12%	25%	18%
Percent of Actual Meters Read	88.3%	90.7%	91.3%	91.6%	91.8%	82.1%	89.8%
Chronic No Reads (8 or more consecutive estimates)	63,837	56,317	49,336	46,666	44,669	139,959	92,659
Pct. of Daily Assignmts (MRUs) Read on Schedule	N/A	97.0%	98.0%	97.3%	96.2%	98.9%	99.5%
Responses to OC-0512 & OC-1641.							

Notable areas of improvement since 2015 include:

- The percentage of calls contained in the VRU increased from 41% in 2015 to almost 54% in 2021.
- The percentage of customers enrolled in paperless billing more than doubled from 19% in 2015 to 40% in 2021.
- The percentage of automatic bill payments also more than doubled, from 12% in 2015 to 19% in 2021.
- Agent calls per hour improved from 8.5 in 2015 to 9.1 in 2021.
- Medical Emergency call compliance improved from 86.8% in 2018, the first year it was measured to 97.7% in 2021.

However, performance has deteriorated in several areas:

- The Call Abandonment Rate increased slightly, from 3.7% in 2015 to 4.2% in 2021.

- The Average Speed of Answer increased from 69 seconds in 2015 to 77 seconds in 2021. However, PSE&G points to its After Call Survey (CAS), noting that ACS scores improved between 2015 (72%) and 2021 (92%) even as ASA increased.[35]
- Average CSR Call Handle Time increased from 5 minutes, 32 seconds in 2015 to 6 minutes, 19 seconds in 2021.

In addition, PSE&G has not made much progress over the past seven years with overall or CSR-handled service levels, percentage of meters read, the number of meters with eight or more consecutive no-reads, the percentage of billing estimates, average days to complete a billing exception or the number of rebills per 1,000 customers. Overland expects meter-related metrics such as percentage of meters read, consecutive no-reads and percentage of bills estimated will improve significantly once AMI is fully implemented. AMI implementation was just beginning at the end of 2021.

As the benchmark comparisons discussed below demonstrate, PSE&G is behind its peers and below average with respect to its inquiry service level, call abandonment rate, percentage of meters read and performs significantly below its peers with respect to rebills. These results should improve, however, with deployment of AMI, and we note that many utility peers outside of New Jersey already have deployed AMI.

Benchmarked Metrics Summary

Table 21-14 provides a summary of important customer service operational metrics benchmarked against other utilities. The metrics cover call center, metering, collection and motor vehicle safety aspects of the Customer Service operation.[36] Among the 12 metrics, PSE&G's 2020 performance was below average (below the 2nd quartile) for nine.[37]

[35] Response to OC-0513.

[36] Response to OC-1699.

[37] In its summary PSE&G also showed 0.00 rates for OSHA Recordable Incidents and OSHA Days Away, which puts it in the top quartile for these two metrics (and most likely at the top of the companies participating in the survey). We did not include these in the table below primarily because we could not evaluate the meaningfulness of 0% Incidence and Days Away rates in an organization with 1,300 employees.

Table 21-14 — Customer Operations Benchmark Summary for 2020

Customer Operations Benchmark Summary for 2020						
Metric	PSE&G		Top Decile	1st Quartile	2nd Quartile	3rd Quartile
	Result	Perf. Level				
Motor Vehicle Accident Rate	3.2	Top Decile	5.7	7.4	9.1	14.2
General Inquiry Service Level (1)	84.7%	4th Quartile	94.7%	93.4%	91.4%	85.5%
Pct. Of Calls Abandoned	3.6%	3rd Quartile	0.5%	1.3%	2.4%	3.6%
Average Speed of Answer (Secs.)	33	3rd Quartile	7	14	29	36
Pct. Of Meters Read	82.1%	3rd Quartile	98.2%	97.3%	92.0%	82.1%
Pct. Automated Reads (AMR & AMI)	46.1%	3rd Quartile	100.0%	100.0%	99.9%	28.6%
Net Write Off Pct.	0.37%	2nd Quartile	0.20%	0.28%	0.37%	0.52%
Accts. Receivable > 90 Days	27.3%	3rd Quartile	9.8%	12.3%	21.3%	27.3%
Days Sales Outstanding	49.0	4th Quartile	27.7	33.5	35.3	38.0
Paperless Bill Participation Pct.	35.6%	2nd Quartile	49.5%	37.4%	32.5%	25.4%
Rebills per 1,000 Adjusted Customers	23.3	4th Quartile	1.6	1.7	3.9	5.5
O&M Expense / Adjusted Customer	$ 26.22	3rd Quartile	$ 14.24	$ 19.86	$ 25.58	$ 34.89

Response to OC-1699.
Note 1: Per response to OC-1754-A, this is defined as calls handled within 30 seconds as a percentage of total calls handled, includes Voice Response Unit calls as well as calls handled by Customer Service Reps. The benchmark data is based only on companies responding with 30 second target data.

[BEGIN CONFIDENTIAL] [redacted] **[END CONFIDENTIAL].** In general, PSE&G was benchmarked against average of 8-10 other large utilities in the Eastern U.S. We asked PSE&G about the basis for its performance relative to other utilities for several of the metrics.[38]

Motor Vehicle Accident Rate – PSE&G appears to have been top performer among eight benchmarked utilities in 2020 and was second among eight utilities based on a three-year average of 2018 through 2020. The Company attributed its performance to "focus and attention given to motor vehicle safety throughout the organization," including training on topics such as defensive driving and distracted driving.

General Inquiry Service Level – We asked PSE&G to describe the circumstances which it believes placed it in the bottom quartile of performance for this metric, which is often used to measure the overall effectiveness of call centers. The Company stated that it in addition to the inquiry services it provides comparable with the other benchmarked utilities, the Contact Center also "answers calls for a full service Appliance Service Business" which "adds call volume and seasonal peaks that PSE&G's peer utilities do not experience." It further stated "[t]here has not been a specific cause identified to the 84.7% metric; . . . however, PSE&G does expect to improve Contact Center performance over the next five years. It cited the following efforts:

[38] Response to OC-1754.

- The Contact Center WorkForce Management (WFM) team has engaged a vendor to improve workforce planning, scheduling and analytics to identify opportunities for improvement. This effort is expected to improve the WFM team's ability to forecast and plan resources to meet call volumes and seasonal peaks.
- From a systems perspective, the Contact Center is engaged in a major project for 2022-2023 to replace current call center technology with "Call Center as a Service" by NICE. This new system will enhance the contact center operations capabilities with state of the art technology including voice analytics.
- PSE&G is also deploying AMI which will reduce calls related to estimated bills and increase credibility in customer bills based on consistent actual reads.
- Continued expansion of digital options for customers to allow them more choices to transact business with PSE&G while allowing representatives to focus on the remaining more complicated calls that require personal staffed attention

Percentage of Meters Read and Rebills per 1,000 Customers – PSE&G's 82.1% for meters read was 7th among nine benchmarked utilities in 2020. In explaining this metric, the Company noted that its service area includes a high percentage of meters located indoors. PSE&G stated that "barring unforeseen circumstances, [it] expects full AMI deployment to enable a performance of 99% for electric meters in 2025." It also cited the relatively low percentage of meters read (and the related high percentage of estimated meters) as the main driver of 4th quartile performance for Rebills per 1,000 Customers. The Company noted that "over the last several years, in an effort to reduce rebills, the Billing department has analyzed the estimation routine and implemented several billing system projects to improve it," further noting that the statistic improved between 2017 and 2019, until the Covid pandemic caused a suspension in meter reading. The Company expects this metric to improve with the full deployment of electric AMI.

Accounts Receivable Over 90 Days and Days Sales Outstanding - PSE&G was 10th among 13 benchmarked utilities for Accounts Receivable Over 90 Days in 2020. From the data supplied with the data response, Overland noted that PSE&G's relative performance was better (2nd quartile) in the four years prior to 2020. The Company cited Covid pandemic collection restrictions as a cause for deterioration in this metric and stated that it expects to take several years for this to recover. It also cited challenges with indoor meter access and lack of AMI meters with remote shut-off capability as reasons for poor performance relative to peers. PSE&G cited a lack of residential late payment charges in New Jersey as having the most significant influence on Days Sales Outstanding, in which 2020 performance was in the bottom quartile (13th of 13 benchmarked utilities).[39] Reviewing performance for the prior four years, Overland noted that PSE&G's performance averaged about 43 days through 2019 and deteriorated to 49 days in 2020.

[39] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**

Transactional Customer Satisfaction Surveys

PSE&G engages third party vendor Radius to conduct several transactional customer satisfaction surveys each month. We examined two of these which are directly connected with customer operations. In both surveys (general inquiry and collections), the top customer suggestion for improvement is to provide a quicker way to immediately connect with a CSR when working through the VRU does resolve the problem.

Inquiry Customer Satisfaction Survey

The objective of this survey is to measure satisfaction with the inquiry process and identify opportunities for improvement. Surveys are emails to residential and business customers who contact the call center a few days after the customer's interaction with PSE&G. The survey focuses on "information only calls related to billing, starting or stopping service, account changes and account information, and collections." It measures overall satisfaction, as well as satisfaction with the Customer Service Representative, the first call resolution, satisfaction with the automated voice recording unit (IVR) and with call wait time. It provides a "customer effort score" which attempts to measure the amount of effort the customer expended to get an issue resolved (a higher score translates to less effort) as well as measure the percentage of customers claiming first call resolution. The report states PSE&G completed 41,803 customer inquiry transactional surveys in 2021. Customer feedback related to calls about scheduling a field visit and/or reporting an outage that are not captured in the Inquiry transactional survey are collected through other survey modules (appliance service repair, appliance service emergency and electric delivery).

Key survey results and findings of the Inquiry Satisfaction Survey include the following:

- The "Key Measures Dashboard" shows the following satisfaction ratings for the years 2020 and 2021.

Table 21-15 — Customer Inquiry Satisfaction - Key Measures Dashboard

Customer Inquiry Satisfaction - Key Measures Dashboard			
Measure	**Scale**	**2020**	**2021**
Overall Satisfaction	0-10	8.4	8.7
CSR Satisfaction	0-10	8.8	8.9
First Call Resolution Sat.	Pct. Sat.	72%	75%
IVR (VRU) Satisfaction	0-10	7.3	7.5
Wait Time Satisfaction	0-10	6.4	6.7
Customer Effort Score	0-10	6.8	6.8
Source: Response to OC-1701.			

- The amount of time customers had to wait until speaking to a CSR is longer in March, which is connected to a lower wait time satisfaction score, as the heating season ends and PSE&G begins

to shut off delinquent accounts. Similarly, "customer effort" scores dip in March. We note however, that there were no shut-offs for non-payment in March of 2021 due to COVID restrictions; therefore, longer wait times are likely attributable to customers calling about higher bills since heating season comes to an end in March.

- By Reason for Call, satisfaction is highest for transferring service and opening a new account (9.2 and 9.1), and lowest for calls about streetlights (7.4), property issues (6.7) and payments to get service restored (6.5), which has a smaller base size.
- By Call Center, satisfaction is consistent between the PSE&G call centers SIAC (8.3) and NIC (8.2). Satisfaction is lower for the Convergent (vendor) call center, at 7.8.
- First Call Resolution averages around 75% and dips in March, corresponding with higher call volumes the end of the heating season.

Collections Customer Satisfaction Survey

The objective of this survey is to measure customer satisfaction with the Collection Call Center process and to determine opportunities for improvement. The survey focuses on calls related to making a payment to get service restored or to make a payment arrangement. There are significantly fewer surveys (1,004 in 2021) than the Call Center Inquiry survey discussed above, impacted by curtailment of collections activities in 2020 and 2021 pursuant to Covid restrictions. Key findings and results include the following:

- The "Key Measures Dashboard" shows the following satisfaction ratings for the years 2020 and 2021. It is interesting to observe that satisfaction scores for the Collections Call Center are slightly higher than the same measures for the General Inquiry Call Center discussed above. This also could be impacted by the lack of collections activities pursuant to Covid restrictions.

Table 21-16 — Collections Call Center Satisfaction - Key Measures Dashboard

Collections Call Center Satisfaction - Key Measures Dashboard			
Measure	**Scale**	**2020**	**2021**
Overall Satisfaction	0-10	8.7	8.5
CSR Satisfaction	0-10	9.1	9.0
First Call Resolution	Pct. Sat.	77%	77%
IVR (VRU) Satisfaction	0-10	7.4	7.2
Wait Time Satisfaction	0-10	7.5	7.4
Customer Effort Score	0-10	7.2	7.4
Response to OC-1701.			

- In 2021, average call wait time was longest in November, at 9.2 minutes, and shortest in June, at 4.3 minutes.
- Overall satisfaction by Reason for Call is highest for customers calling to make a payment arrangement (9.4) and lowest for customers calling to question or dispute their balance or a "high bill" (6.4).

Compliance with New Jersey Customer Service Rules

PSE&G is subject to customer service rules in New Jersey Administrative Code (N.J.A.C.) Chapter 3. The subchapters and subject areas of the New Jersey rules relevant customer service include the following:

- 14:3-3 Service – Provision of utility service.
- 14:3-3A – Basis for discontinuing service.
- 14:3-4 Meters- Meter testing and replacement.
- 14:3-5 Customer Contact – Provision of office locations and telephone contacts.
- 14:3-6 Records and Reporting – Customer record and bill requirements.
- 14:3-7 Bills and Payment – Provisions for billing, including forms and methods of billing, disconnection notices, budget billing, billing disputes and deferred payment arrangements.

This chapter section discusses our review of the controls and procedures in place to ensure that New Jersey customer service rules other than meter testing are followed. Meter testing is covered in a separate chapter section with other issues relevant to the topic of meters.

New Jersey customer service rules are detailed and complex. Our compliance analysis consisted primarily of a review of PSE&G's procedural controls as described by PSE&G in data responses and accompanying written Company policies and procedures.

Provision of Service

PSE&G's Customer Operations organization is responsible for compliance with New Jersey rules governing the provision of service, service applications, service deposits, customer information and service calls. Overland examined procedures governing the following key areas:

- Application for service, including proof of identify in establishing qualification for service (N.J.A.C. 14:3-3.2(e), (f) and (h)).
- Service initiation (N.J.A.C. 14:3-3.2(g)).
- Provision of information to customers, including the "Customer Bill of Rights" and energy conservation encouragement and messaging (N.J.A.C. 14:3-3.3).
- Customer deposit procedures (N.J.A.C. 14:3-3.4 and 3.5).

Service Application Procedures

New Jersey rules[40] state that service applications may be made in person at a utility's office, by mail, email, fax or telephone. If proof of identity is required with the service application, the utility must accept one of several listed documents, including a driver's license, birth certificate, a US passport, residency card or military ID, or valid state or county IDs. If proof of address is required, the utility must accept a notarized lease, deed of landlord letter, an auto insurance policy, a bank or credit card

[40] N.J.A.C. 14:3-3.2(a), (e) and (f).

statement or a letter of creditworthiness from another utility. Utilities may not require a social security number as a condition for providing service.

PSE&G described its process for qualifying applicants for service as follows:[41]

- PSE&G determines whether there is a balance owed from prior accounts. When a balance is owed, it is transferred to the new account.
- Unpaid balances over $750 or more and overdue by 60 days or more and "vacant" premises with balances over $100 for which the service applicant at the address is not taking responsibility require documentation supporting the move-in date (lease or deed) prior to processing.
- A credit check through Experian's Telecommunications-Energy-Cable (TEC) system determines whether a deposit is applicable, and fraud alert messages are triggered from this process when a name does not match a social security number.[42]
- The service request is not completed if:
    - The credit check fails due to a fraud alert.
    - Premises associated with the customer show unpaid balances of $750 or more and over 60 days unpaid.
    - The premises for which service is being requested shows energy usage of $100 or more unless the customer provides evidence that they are not responsible for the balance.
- Proof of identity is required when any of the above conditions exist (failed credit check, etc.) and the customer is unknown to PSE&G (new to PSE&G service territory). PSE&G stated that proof of identity can be established with a valid driver's license, birth certificate, valid US passport, valid US residency card, valid US military identification card, valid county identification card, valid student identification card, or valid identification card issued by the State of New Jersey.[43]

Proof of identification and other supporting information may be provided by fax or uploaded electronically. Service applicants need not appear in person unless they are unable to provide supporting information either by fax or electronically. PSE&G stated that Customer Service Representatives "do not have latitude in deciding whether an applicant qualifies for service. Either they are qualified or need to follow the process [outlined in bullet format above]."[44]

PSE&G stated that it requests service applicants provide social security numbers, but it does not require them.[45] A Sox control flowchart of the Move-In process appears to allow applicants new to PSE&G to

[41] Responses to OC-1646 and 1647.

[42] The messages "Refer To CSC With ID" or "Fraud Alert – Refer To CSC With ID" are displayed when the identification (name) provided by the applicant does not match the Social Security number provided.

[43] Response to OC-1647-A.

[44] Response to OC-1646-C.

[45] Response to OC-1647-B.

obtain service without the social security number needed for a credit check by either signing up for Auto Pay or by paying a service deposit.[46]

Service Initiation

New Jersey administrative rules require utilities to initiate service within two business days of receiving a customer's application, unless the customer requests another date.[47] Exceptions include cases in which a service line extension must be installed prior to providing service. PSE&G maintains a written procedure describing the MIMO (move in move out) process.[48] The procedure describes a "48 hour administrative code" process for turn-on orders.

With certain exceptions, such as four or more consecutive estimated readings prior to account termination, PSE&G's default process is to perform a soft close, leaving meters turned on at residential service addresses between tenancies.[49] Thus, most service can be initiated by a CSR without rolling a truck to turn on a meter. The Company monitors inactive accounts for usage, and an "unknown contract account" is established to track usage if detected. If the amount of unbilled service reaches $50 or more, PSE&G stated it sends Field Collectors to the premises to attempt to shut off the meter.

PSE&G stated that a premises visit is required to turn-on service approximately 10% of the time.[50] In combined gas and electric territories, District Operations Gas performs both electric and gas turn-ons at the premises unless there is an unusual circumstance such as a safety issue or power disconnected at the pole[51] (Electric Operations performs the turn-ons in Electric only territory). Gas District Operations is responsible for maintaining the matrix of available appointments to manage compliance with the N.J.A.C.'s two-business day turn on requirement.[52] PSE&G's written procedure provides an example indicating that when a premises visit is required, Customer Service Representatives (CSRs) will attempt to schedule it within the two-business day window required by N.J.A.C 14:3-3.2(g). The procedure states that when the scheduling matrix of times available for a premises visit is full during the next 48 hours, CSRs will override the system in order to comply with the N.J.A.C requirement, unless the customer agrees to have service activated at a later date.[53]

Although PSE&G has a procedure that acknowledges the N.J.A.C. requirement to complete requests for new service within two business days, it stated it does not have any metrics which manage or track this process, nor does it know, beyond an approximation, how many or what percentage of customers require a physical process to turn on service.[54]

[46] Response to OC-1647 Attachment Flowchart of the Move-In process.
[47] N.J.A.C. 14:3-3.2(g).
[48] Response to OC-1644, Procedure CO-CC-INQY-01-14, dated July 22, 2021.
[49] Response to OC-1645.
[50] Response to OC-1744-A.
[51] Response to OC-1744-I.
[52] Response to OC-1644-C.
[53] Response to OC-1744-B.
[54] Response to OC-1644-C.

Service Deposits

New Jersey rules for customer deposits state that utilities may require a "reasonable deposit" as a condition of service.[55] The deposit amount must be based on the "average monthly charge" (service rate) for a 12-month period and one month's average bill. The deposit may be changed if actual bills prove the amount is either excessive or insufficient. Existing customers may be billed deposits if they fail to make payment within 15 days of the bill due date. Existing customers who fail to pay a deposit billed to them may not be disconnected for non-payment unless they also have a service arrearage that meets the requirements for involuntary disconnection. When a customer is disconnected for non-payment, any deposit held must be applied to liquidate the amount owed, but the utility may also require restoration of the original deposit amount.

The deposit rules state that the same credit and deposit requirements must be applied throughout the utility's service territory, and the requirements must be posted on the utility's website. When deposits are billed, receipts must be provided and customers must be informed of the interest rate applicable to their deposit. Interest due must be based on the average yield on new six-month Treasury Bills for the preceding 12 months.

Utilities must review residential customer deposits at least once each year and non-residential customer deposits at least bi-annually. If the review indicates the customer has met the standard requirements for establishing credit, the deposit must be refunded. When a refund is made, the customer must be offered the choice of a billing credit or a separate check.

PSE&G's Service Deposit Procedures

PSE&G's deposit requests consist of a line item on the customer bill indicating the deposit is being billed, along with the amount.[56] The Company stated that the same deposit rules apply throughout its service territory.[57] Absent an "extenuating circumstance," PSE&G stated that it requires a deposit when a customer creditworthiness score does not meet the Company's minimum requirement and the customer declines to sign up for Automatic Bill Pay.[58] Residential customers who decline to provide social security numbers to enable a credit check are automatically billed a deposit unless they sign up for Autopay.[59] All commercial customers are billed deposits, although "there is an offer available to lower the deposit based on credit worthiness established in the system."

Deposits are waived, based on one or two months' bills based on the type of customer (residential or commercial) and creditworthiness or credit scores, as follows:

[55] N.J.A.C. 14:3-3.4 and N.J.A.C. 14:3-3.5.
[56] Response to OC-1650.
[57] Response to OC-1747-A.
[58] Response to OC-1649-A.
[59] Response to OC-1647 Attachment Flowchart of the Move-in Process.

- *New residential customer deposits* are based on an internal creditworthiness score or a Telecommunications-Energy-Cable (TEC) credit score from Experian:[60] The customers are given factors of 0 (no deposit – TEC scores above 709)), 1 (one month's deposit – TEC scores between 672 and 709) or 2 (two month's deposit – TEC scores below 671).[61]
- *Existing residential and existing commercial customer deposits* are based on an internal PSE&G creditworthiness score calculated by assigning values to different dunning activities in the customer's prior accounts over the previous 12 months. In this case a lower score is better. Existing residential customers with scores less than 290 are not asked for a deposit. Between 290 and 349 (for residential) and below 349 (for commercial), customers are required to pay a one month deposit. The policy for customers with internal credit scores above 349 is to bill or retain deposits for all existing customers.[62] PSE&G did not explain how its dunning activities determine these scores, however, it stated that residential deposits are held for one year and are returned if customers maintain "a good payment history."[63]
- *New commercial customers* are always charged a deposit based on two times the average bill.[64] Commercial customer deposits may be lowered to one month's bill based on established internal creditworthiness.

If an existing residential customer disputes a deposit request, the Company "reviews the customer's payment history thoroughly," and if the customer is determined to pose a low risk of default, "the deposit can be waived."[65] In addition, consideration may be given that the internal credit score may be the result of a temporary billing or meter reading event. In these circumstances PSE&G makes decisions based on factors such as whether the customer "made regular, significant payments in an effort to reduce the delinquency."[66]

Although New Jersey rules permit deposits to be adjusted as the average bill changes, PSE&G stated that it does not currently change deposit amounts paid by customers.[67] PSE&G stated that the deposit interest rate is based on six-month treasury bill yields for the 12 months ending September 30th of the prior year, as required by N.J.A.C. rules.[68] Interest is applied annually on each deposit payment anniversary date and when the account is closed.

Deposit Refunds

PSE&G stated that residential deposits are held for one year and returned if the customer has maintained "a good payment history within that year."[69] Commercial deposits may be returned if the

[60] Responses to OC-1649-C and 1745-A.
[61] Response to OC-1745-A.
[62] Response to OC-1745-E.
[63] Response to OC-1747-B.
[64] Response to OC-1745-F.
[65] Response to OC-1649-D.
[66] Response to OC-1649-D.
[67] Response to OC-1650-A.
[68] Response to OC-1650-C.
[69] Response to OC-1650-D.

account has maintained a good payment history for 24 months.[70] PSE&G further stated that it conducts a review of each commercial customers' deposit every two years.[71]

Deposit Metrics

PSE&G provided two customer deposit metrics for our review. The deposit dollars held metric shows a 37% decline in deposits held during the years 2020 and 2021 compared with the beginning of 2018. Most of the decline appears to be associated with a change in deposit rules applied by PSE&G during the Covid pandemic.

Table 21-17 — PSE&G Deposit Dollars

PSE&G Deposit Dollars		
Month / Year	**Deposit Dollars Held**	**Pct Change**
Jan-18	91,800,000	-
Dec-18	92,300,000	0.5%
Dec-19	89,500,000	-3.0%
Dec-20	68,500,000	-23.5%
Dec-21	57,800,000	-15.6%
Response to OC-1649.		

Table 21-18 reflects deposit dollars held on delinquent accounts as a percentage of total delinquencies.[72] As the number and total amount of deposits declined, the percentage of delinquent amounts covered by deposits also decreased.

[70] Response to OC-1747-C.

[71] Response to OC-1650-F.

[72] In Response to OC-1746 PSE&G indicated that it also holds deposits on accounts that are not delinquent. These "non-delinquent deposits" are not included in the percentages calculated in this table.

Table 21-18 — Percentage of PSE&G Delinquencies Covered by Deposits

Percentage of PSE&G Delinquencies Covered by Deposits		
End of Quarter / Year	Residential Customers	Commercial / Industrial Customers
2018 Q1	8.9%	7.4%
2018 Q2	9.1%	6.8%
2018 Q3	9.3%	6.7%
2018 Q4	8.5%	6.9%
2019 Q1	7.2%	5.5%
2019 Q2	7.2%	5.5%
2019 Q3	7.3%	5.4%
2019 Q4	6.8%	5.8%
2020 Q1	5.7%	5.9%
2020 Q2	4.3%	2.5%
2020 Q3	3.6%	1.9%
2020 Q4	3.1%	1.7%
2021 Q1	2.4%	1.2%
2021 Q2	2.2%	1.3%
2021 Q3	2.0%	1.2%
2021 Q4	5.0%	3.9%
Response to OC-1649.		

Most of the decline in deposits is correlated with the Covid pandemic. However, the percentage of delinquencies covered by deposits also declined in 2018 and 2019, more than a year before Covid could have been a factor. PSE&G stated that beginning in late 2018 it made a business decision to discontinue assessing deposits on existing customers "in order to reallocate resources to a new process for tracking customers with medical issues, and also to improve overall efficiency, as assessing deposits on existing customers is a manual process."[73]

PSE&G waived deposits for both new and returned deposits to existing customers "for several months" during the Covid pandemic to provide relief during the pandemic.[74] The deposit process was reinstated for new commercial customers in February 2021 and new residential customers in September 2021. However, as of April 2022 PSE&G is continuing its policy of not assessing deposits on existing customers. PSE&G stated it will reevaluate this policy as accounts receivable levels are normalized in the post-pandemic environment and as available energy assistance funds are fully distributed.[75]

Customer Account Dunning and Involuntary Service Disconnection

N.J.A.C. 14:3-3A addresses the utility's right to disconnect service and its duty to disconnect service at a customer's request. The rules give utilities the right to disconnect service for the purpose of making repairs, to comply with a government directive, for non-payment of bills, for refusal to provide

[73] Response to OC-1746-A3.
[74] Response to OC-1746-A1.
[75] Response to OC-1746-A2.

reasonable access to a premises, for tampering with utility facilities, and for fraudulent representation in relation to the use of utility service, among others.

We reviewed PSE&G's procedures regulated by the following New Jersey rules:

- Requirements relating to disconnection for non-payment (N.J.A.C. 14:3-3A.2).
- Notice of disconnection requirements (N.J.A.C. 14:3-3A.3).
- Notice of disconnection requirements for special customers (N.J.A.C. 14:3-3A.4).
- Non-payment disconnections during the heating season (N.J.A.C. 14:3-3A.5).
- Disconnection of service to tenants when a landlord, rather than the tenant, is the customer of record (N.J.A.C. 14:3-3A.6).
- Restoration of involuntarily disconnected service (N.J.A.C. 14:3-3A.9).

Involuntary Disconnection for Non-Payment Rules

N.J.A.C. 14:3-3A.2 states that a New Jersey utility may discontinue service for nonpayment only if the customer's arrearage is more than $100 and / or the customer's account is more than three months in arrears, and the amounts owed pertain to the "actual utility commodity," and not to optional services. Service may not be discontinued until the utility:

- Has met all notice requirements.
- Has confirmed that appropriate payment has not been received at any office or by an authorized agent (third party payment collector).
- At the opening of business on the day of planned disconnection, has confirmed that payment has not yet posted to the customer's account.
- A representative of the utility has "personally" notified an adult occupant of the premises to be disconnected or has left a sealed note with how to reconnect in case no one is on the premises.
- The customer has not made an offer to pay either the full amount or a reasonable portion of the amount due at the time of disconnection.

PSE&G stated that it adheres to the following process on the date of disconnection:[76]

- If, on the day of disconnection, payment has been received, the SAP operating system cancels the collection order that was sent to Field Collection.
- If the amount paid does not satisfy the notice amount due, a new notice / order is created for field collection. PSE&G stated that "in this way, the confirmation that payment has not been received is automated, and the Field Collector only receives an order if payment has not been received. A field collector will try to obtain payment for the remaining notice amount or will disconnect service."

[76] Response to OC-1810.

- If a customer tells a Field Collector that they made a recent payment which does not show up on the collection order, the Field Collector can call their district office to confirm a payment. If confirmed, the collection order will be canceled in SAP.
- PSE&G's Field Collection written procedures stated the following:[77]

> An attempt is made to contact the Customer of Record. Always verify with whom you are speaking. Account particulars, such as the balance owed, may only be discussed with the Customer of Record or another acceptable party, such as the account holder's spouse.

The procedures also state that "if a customer appears to be incapable of comprehending the circumstances and severity of the lack of payment or service interruption, service will be left on. Examples include children or mentally challenged adults."

- If no one is home and the meter is accessible, service is disconnected. PSE&G leaves a notice (Service Off Non-Payment, SONP) on the door for residential customers.
- If a customer communicates with PSE&G prior to shutoff, service will not be disconnected if the customer offers to make a down payment that meets minimum guidelines.

PSE&G's Account Dunning Procedures

Customers may not be disconnected for non-payment until notice requirements have been met. N.J.A.C 14:3-3A.3 requires customers to be notified in writing that a bill has not been paid and that service will be discontinued, prior to disconnection. The notice may not be postmarked any earlier than 15 days after the postmark of the outstanding bill, and it must provide the customer with an additional period at least 10 days to pay the outstanding past-due amount. As shown below, PSE&G's notices of disconnection are sent at day 60, 30 days after the cycle following the bill that is outstanding.

PSE&G's dunning procedures leading to potential disconnection for non-payment have been in place in their current form since approximately 2009, when the current Customer Information System was installed. PSE&G stated the process is carried out and tracked in the SAP system and does not exist in narrative form.[78] However, we found the description and attachments provided in data responses was sufficient to evaluate compliance with N.J.A.C. rules. The dunning and collection processes are detailed and involve a number of steps, including payment reminder notices on bills, "soft" disconnect notices on bills, various other collection campaign steps (calls, emails and letters), and finally "hard" shut-off notices. Table 21-19 summarizes the dunning process.

[77] Response to OC-0069.

[78] Response to OC-1668-E. Although the complete dunning process is not available in narrative form, the Response to OC-1668 does a good job of describing the basic process.

Table 21-19 — Summarized View of PSE&G's Dunning Process

Summarized View of PSE&G's Dunning Process	
Day	**Dunning Step**
Residential	
1	Bill Mailed
15	Bill Due
30	Next Bill with Bill Reminder (If non-paymt dollar threshold met)
60	Next Bill with Shut-Off Notice (if non-paymt dollar threshold met)
66	Calling Campaign (per OC-69 Dunning Process Overview)
73	Disconnect Order Generated per OC-69 Dunning Process Overview)
75	Notification to Field Collection Team to Disconnect
Non-Residential	
1	Bill Mailed
15	Bill Due
30	Next Bill with Shut-Off Notice (if non-payment threshold met)
35	Late Payment Charges Apply
36	Calling Campaign (per OC-69 Dunning Process Overview)
43	Disconnect Order Generated per OC-69 Dunning Process Overview)
45	Notification to Field Collection Team to Disconnect
Responses to OC-0069 and OC-1668.	

Soft shut-off notices (applicable only to residential customers) and hard shut-off notices are sent once internal arrearage triggers are met. A “soft” shut-off notice indicates the customer is overdue for a sufficient amount of time for disconnection and has received notice of such on their bill; however, the dollar threshold for physical disconnection has not been met. A “hard” notice means the customer has received a notice of disconnection on their bill and the dollar threshold for physical disconnection has been met.[79] The dollar thresholds that trigger various dunning steps are summarized below.

[79] Response to OC-1668-B.

Table 21-20 — Customer Dunning Levels, Descriptions and Bill Notices

[BEGIN CONFIDENTIAL]

Customer Dunning Levels, Descriptions and Bill Notices				
Level	Description	Minimum Arrearage		Billing Message
		Prior to March 2021	Starting March 2021	
Residential				
10	[redacted]		[redacted]	** * PAST DUE REMINDER * * 1-800-357-2262 (Mon-Fri, 7:30 AM - 8:00 PM) Our records indicate your account is past due. If you recently made a payment or plan to pay by the Due Date, disregard this reminder. If you cannot pay the bill in full, a payment arrangement may be possible.*
20	[redacted]		[redacted]	
21	[redacted]		[redacted]	** * SHUT-OFF NOTICE * * 1-800-357-2262 (Mon-Fri, 7:30 AM - 8:00 PM) Your bill is now past due. Payment of $XXXX must be received by XX/XX/XXXX or service may be shut off. An additional security deposit may be required if late payments continue. A statement of customer rights and fees is shown on the reverse side.*
22	[redacted]		[redacted]	** * SHUT-OFF NOTICE * * 1-800-357-2262 (Mon-Fri, 7:30 AM - 8:00 PM). Your bill is now past due. Payment of $XXXX must be received by 11/20/2021 or service may be shut off. An additional security deposit may be required if late payments continue. A statement of customer rights and fees is shown on the reverse side.*
30	[redacted]		[redacted]	Not applicable
40	[redacted]		[redacted]	Not applicable
Non-Residential				
10	[redacted]		[redacted]	** * SHUT-OFF NOTICE * * 1-800-357-2262 (Mon-Fri, 7:30 AM - 8:00 PM). Your bill is now past due. Payment of $XXXX must be received by 11/20/2021 or service may be shut off. An additional security deposit may be required if late payments continue. A statement of customer rights and fees is shown on the reverse side*
20	[redacted]		[redacted]	Not applicable
30	[redacted]		[redacted]	Not applicable

Responses to OC-0069, OC-1660 and OC-1668.

[END CONFIDENTIAL]

Overland's review of PSE&G's procedures indicates they meet or exceed N.J.A.C.'s minimum notice and dollar thresholds for involuntary disconnection. Based on PSE&G's stated procedures, both residential and non-residential customers have 15 days from the date shut-off notices are mailed to pay an overdue bill before PSE&G sends a disconnect order to field collectors, who then make an additional attempt to collect in person prior to disconnection. The dollar arrearage triggering a disconnect order is **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** for non-residential customers.

Disconnect Notice and Grace Period Procedures

The N.J.A.C. requires shut-off notices be sent no earlier than 15 days after the "original postmark date of the outstanding bill."[80] Shut-off notices must provide at least 10 additional days to pay the bill before the account is disconnected. Applying these rules to PSE&G's utility bills requires some interpretation. For example, we have assumed that a bill become "outstanding" the day after PSE&G states that it is due, not when the next month's bill is generated. For non-residential customers this is just six days after the bill is sent.

Both Residential and Non-Residential bills are due 15 days after bills are sent. As shown in the dunning timeline in the table above, PSE&G sends shut-off notices to residential customers at 60 days, 45 days after the "outstanding bill" is due. This is substantially longer than the N.J.A.C.'s 15 day minimum requirement. Residential disconnect orders are generated at day 75, providing residential customers 15 additional days to pay after receiving a shut-off notice. This is five days longer than the N.J.A.C.'s 10 day minimum requirement. Non-residential disconnect orders are generated at day 43, providing the customer 13 days to pay after the shut-off notice is sent, and complying with the N.J.A.C.'s minimum 10 day grace period for payment.

Rules Restricting Disconnection for Non-Payment

Conditions under which a utility may not involuntarily disconnect service include:

- When the high temperature is forecast to be 32 degrees or below in the next 24 hours.
- Anytime between November 15 and March 15 for customers enrolled in the Winter Termination Program.
- For customers meeting the conditions for a medical emergency that would be aggravated by discontinuance of service, disconnection for non-payment is prohibited for up to 90 days.
- When a charge is in dispute, when the customer has requested that the NJBPU investigate the charge.

Elderly Customers and Customers with Life-Sustaining Equipment (Linda's Law)

Utilities are required to make good-faith efforts to identify customers over 65 years of age and make efforts to notify such customers by phone prior to involuntary disconnection.[81] Utilities must solicit information from residential customers about the presence of life-sustaining equipment on a quarterly basis. Utilities must maintain customer outreach plans that educate the public and customers about the requirements to qualify and apply for medical certification status and distribute this information quarterly.[82]

[80] N.J.A.C. 14:3-3A.3(b).
[81] N.J.A.C. 14:3-3A4(c).
[82] N.J.A.C. 14:3-3A4(d) & (e).

In addition, Linda's Law, signed into law in 2019, prohibits disconnections for non-payment for 90 days for customers who rely on medical equipment that uses electricity. We asked PSE&G to describe changes in written policies associated with Linda's Law. The Company provided the following response:

> PSE&G had addressed many of the items included in Linda Law's prior to its passing. The PSE&G Critical Care Procedure was updated August 23, 2018 to update prescribing physician to a licensed medical professional. On October 7, 2018, the length of time that the customer's account would be locked was changed from a 60 day lock to a 90 day lock. On January 24, 2019, the PSE&G Medical Emergency Escalation Policy was updated to include a procedure around unknown customers. PSE&G has kept a detailed communication plan since the second half of 2018 as detailed in the document 'LSE Communication'.

PSE&G's Critical Care Procedure - PSE&G invokes its Critical Care Procedure when a customer notifies PSE&G of a medical condition or emergency that would be worsened by a loss of utility service.[83] For customers who apply and qualify based on the need for Life Sustaining Equipment (LSE) in the home, the procedure protects the customer from disconnection for non-payment for a full year, significantly longer than the 90 day period required by Linda's Law. Following are some the highlights of PSE&G's Critical Care Customers Procedure:

- PSE&G invokes its Critical Care Procedure when a customer notifies PSE&G of a medical condition or emergency that would be worsened by a loss of utility service.
- PSE&G issues a Critical Care Letter including an application for Life Sustaining Equipment (commonly referred to as the Critical Care Program (CCP) Application) which will automatically generate a lock on the account that prevents disconnection for non-payment while providing 30 calendar days for a customer to submit proper paperwork. The customer can apply for the Critical Care Program online, in person or via mail.
- Based on documentation provided, PSE&G makes a determination regarding protection that should be provided to a customer.
- Every year in May PSE&G conducts a review of medical equipment and makes decisions regarding equipment not listed in documentation or when a customer or doctor dispute a Company decision to deny acceptance into the CCP. When applications are not approvable for program participation, United Review Services, a contractor with medical professionals, reviews the applications and contacts doctors and patients when necessary to ensure that the request can safely be denied, or approve the applications with requests for further information.
- Once a CCP application is approved, a field employee (such as a Meter Reader or Field Collector) will visit the premises and place a white seal and medical sticker on the meter.
- If a customer notifies PSE&G's Customer Contact Center that they have a medical emergency that would be affected by a shut-off, but do not have life-sustaining equipment, their service

[83] Response to OC-0070 Attachment Critical Care Customers Procedure.

may be protected from shut-off by submitting a doctor's note or hospital discharge papers to PSE&G's Critical Care Coordinators. If approved this will cancel any active dunning on the account. Such customers are asked to submit CCP applications and a 30 day lock is placed on the account to prevent disconnection.

- Critical Care Coordinators review all "paperwork" submitted by customer applicants to determine whether the customer should be approved for the CCP.

LSE Solicitation and Communications Plan - PSE&G maintains a Life Sustaining Equipment (LSE) Solicitation / Communications Plan to "solicit customers who rely on electricity to operate LSE to notify PSE&G so that [the Company] an determine, verify and approve their state as a [protected] customers and proactively communicate with them should their electric service be in jeopardy due to severe weather or collection activity."[84] The Plan contains key messages and lists communication channels, including the PSE&G website, storm press releases, bill messages, newsletters and inserts, and emails, designed to impart messaging to customers.

Utility Customer Medical Emergency Escalation Procedure - The Company states that the purpose of this procedure is to provide Customer Contact employees (CSRs, etc.) and Utility Field Employees (Appliance Service Technicians, Electric Troubleshooters and others) with instructions for handling customer inquiries that indicate medical emergencies, which include:[85]

- A person in the home requires LSE and electric service has been disconnected.
- Electric and / or gas service has been disconnected and the customers indicates an existing medical condition will likely worsen to the point of becoming life-threatening.
- The customers indicates that they have lost full or partial power and indicates an existing medical condition will likely worsen to the point of becoming life-threatening.

The procedure vests overall responsibility in the Vice Presidents of Customer Operations, Electric Operations and Gas Operations. Customer Operations directors, managers and other employees also have designated responsibilities. The procedure contains detailed instructions for the reconnection of service to customers whose service has been disconnected and who have communicated any of the medical escalation criteria noted above. The reconnection process stated in the procedure does not appear to be dependent on an assessment of the customer's eligibility for medical certification.

Winter and Extreme Heat Restrictions on Involuntary Disconnection

Utilities may not disconnect residential service for non-payment when the high temperature is forecast to be 32 degrees Fahrenheit or below during the next 24 hours.[86] Similarly, utilities may not disconnect utility between November 15 and March 15 (the heating season) for customers enrolled in the Winter Termination Program (WTP).[87] Customers enrolled in various social assistance programs (LIHEAP, USF,

[84] Response to OC-0070 Attachment LSE Communication Plan.
[85] Response to OC-0070 Attachment Medical Emergency Escalation Policy.
[86] N.J.A.C. 14:3-3A.2(e)(1).
[87] N.J.A.C 14:3-3A.5(a).

Lifeline Credit, Temporary Assistance to Needy Families and Federal Supplemental Security Income recipients) are eligible to enroll in the WTP. Utilities are also prohibited from disconnecting residential WTP customers when the summer temperature is forecasted to be 95 degrees Fahrenheit or higher over the following 48 hours.[88]

We requested PSE&G describe the procedures in place to assess weather and determine whether shut-offs should be curtailed in order to ensure residential customers are not improperly disconnected during periods when temperatures are such that New Jersey rules prohibit involuntary service disconnections. PSE&G summarized its procedures as follows:

> Statewide temperatures are monitored throughout the year by the Field Collection Process Lead/Support Group which is part or the Field & Meter Operations organization within Customer Operations. This group is responsible to make decisions regarding weather-related shutoff curtailments for all of PSE&G as a whole. The decision related to temperature restriction is communicated by the Field Collections Process Lead/Support Group to the field operational departments and the back office. The field operation departments will ensure the restrictions are followed in the field.[89]

The Company provided written procedures that described the process and responsibilities in more detail.[90]

- Field Collection Support Staff extract and monitor daily temperatures from AccuWeather online. Based on this they provide notification and instruction to the field. Support staff are also responsible for various tasks related to restricted disconnections.
- The Field Collection Process Lead sends emails to Field Operations Leadership to restrict residential shut-offs prior to expected temperatures and notifies other business areas of the restriction.
- Field Collection Supervisory Staff ensure that work assigned to Field Collectors are aligned with restricted and non-restricted conditions and that appropriate work is available and assigned for the next workday.

PSE&G's WTP procedure indicates that during "temperature restricted periods" (when high temperatures fall below 32 degrees), all residential customers are protected from disconnection, and that during the heating season, when WTP rules apply, customers with the appropriate Tolerance Codes are protected from disconnection. The process is controlled through the CIS, through which accounts are tagged with various tolerance categories, as shown in Table 21-21.

[88] N.J.A.C. 14:3-3A.2(e)(3)
[89] Response to OC-1661.
[90] WTP Notification Process, Procedure CC-FMS-FC-16-13, March 7, 2022 (Response to OC-1661 Attachment).

Table 21-21 — Tolerance Coded Customer Categories - No Involuntary Disconnection During the Heating Season

Tolerance Coded Customer Categories - No Involuntary Disconnection During the Heating Season	
Code	**Description**
AFD	Aid to Families with Dependent Children
HDS	Inability to Pay Hardship
HEA	Home Energy Assistance Program
MS	Military Service
NJSH	New Jersey Shares
PAA	Pharmaceutical Assistance for the Aged
PVCH	Pending Voucher
SCIT	Senior Citizen
SNJL	Senior NJ Lifeline
SSI	Supplemental Social Security
TEMP	Temporary Crisis
USF	Universal Service Fund (several categories)
WEL	Welfare
WF	Worry Free Contracts Only
ZCIA	Z CIAC
ZSGI	ZZ SGIIP Smart Growth
Response to OC-1661.	

Disconnected residential customers who have not been reconnected as of November 15 and are otherwise eligible to participate in the WTP may make a down payment of no more than 25% to have service reconnected for the remainder of the heating season. All residential customers who seek protection under the WTP must enroll in budget billing and make "good faith payments" equal to their budget billing plan amount if they have the ability to do so. The NJBPU mediates and resolves disputes over the amount of the down payment or disputes about whether customers who do not make good-faith payments have the ability to do so.

Involuntary Disconnection in Multi-Occupancy Buildings

New Jersey Administrative Rules require utilities to make reasonable attempts to determine when a landlord-tenant relationship exists in the premises they serve.[91] Special rules and landlord notice requirements apply to disconnection for non-payment when tenants receiving the service are not customer of record, but only end users of the service (when utility service is included in their rent).

PSE&G's Multi-Occupancy Account Procedures

PSE&G stated procedures designed to comply with New Jersey rules in tenant-occupied buildings are as follows:[92]

[91] N.J.A.C. 14:3-3A.6.

[92] Response to OC-1662.

- PSE&G stated that it verifies the nature of a customer relationship and whether the caller is the customer of record during any phone contact. Field collectors attempt contact on every field visit. Prior to disconnect, PSE&G follows an internal posting procedure in certain circumstances as documented in the Customer Operations Building Posting Process procedure. Prior to any disconnection, field collectors make one more attempt at personal contact. In accordance with N.J.A.C. 14:3-3A.6(c), based on a search of Company records and recollection by Company employees there has never been a landlord request for written notification.
- PSE&G uses the posting procedure when disconnection of service may impact a broad base of customers/tenants or in certain other situations. If a customer is delinquent and the service interruption is going to affect other tenants, an escalation process is followed. The customer is subject to this escalation process when they meet the following criteria: more than two months delinquent, past due balance of more than $5,000 and no payments in 45 days. If attempts to collect are unsuccessful, the escalation process begins. A field visit is made in an attempt to resolve the delinquency. If unsuccessful in the field, the field moves forward with posting the property. The BPU is notified of the posting and potential for disconnection. Throughout the process, all attempts at collection and correspondence with the customer are noted in the customer system on the interaction record.
- If a landlord-tenant relationship exists, the landlord account is marked accordingly in PSE&G's customer system. The account could be identified as a house meter account or as a master meter.

Service Restoration After Involuntary Disconnection

New Jersey Administrative Rules require that utility service be restored within 12 hours when all of the conditions causing the disconnection are corrected and payment of charges due has been received.[93] If a deposit is required as a condition of service, it may not be required prior to service restoration, and the customer must be given at least 15 days to pay the deposit after it is billed.

PSE&G's Service Restoration Procedures

Service restoration following involuntary disconnection is usually performed by District Operations Gas employees. PSE&G has a procedure designed to help ensure compliance with New Jersey Rules regarding reconnection following non-payment.[94] It contains the following important provisions:

- The procedure notes that the 12 hour response time requirements does not include the eight-hour period between 12AM and 8AM but does include all other hours. Thus, when a Reconnect Non-Payment Notification (RNP, a reconnection order) is received at 3PM, reconnection must occur by 11AM the next day (12 hours, excluding 12AM to 8AM).
- RNPs are assigned during the day shift when possible. If no day shift technicians are available, assignment reverts to technicians on the 1 PM to 9 PM shift. If a 1-9PM technician is not

[93] N.J.A.C. 14:3-3A.9.

[94] Response to OC-1751 Attachment Managing Appointments for Reconnect Non-Payment Notifications.

available, assignments revert to either technicians working overtime or those working on a 4PM-12AM shift.

- District Operations assesses the next day's AM workload to determine whether it is necessary to assign overtime technicians to RNPs after 3PM.
- When RNPs are left over from the previous day, the procedure states that they will be assigned "to ensure all notifications can be worked before the 12-hour response time expires."

PSE&G has the ability to query RNPs, which helps District Operations manage the reconnection process for efficiency and compliance with the 12-hour reconnection timeframe.[95] The Company provided a query example which included the start and end of the 12-hour window applicable to individual orders, as well as reconnection completion time. However, PSE&G stated that it does not maintain any metrics to track or report on reconnections following non-pay disconnection over time; as such, there is no way to determine the extent to which the Company actually complies with the 12-hour window permitted by New Jersey rules.

Customer Contact

New Jersey rules require utilities maintain physical office locations where applicants may apply for utility service and pay bills. PSE&G must provide the location of in-person offices to the NJBPU and furnish the NJBPU notices of proposed changes in office locations, such as closures or relocations, and apply for NJBPU approval of the changes. With respect to customer contact, utilities must maintain phone numbers and contact personnel which permit customers to contact during normal business hours, and permit emergency contact at all times. Contact phone numbers must be displayed on customer bills. Utilities must respond to the NJBPU within one hour of the NJBPU receiving an emergency or shut-off complaint from a customer. Overland performed the following procedures in reviewing PSE&G's compliance with these Customer Contact rules:

- We obtained a list of in-person customer service locations that were opened, closed or relocated within the past 10 years and we confirmed that PSE&G had provided the NJBPU with the proper notices and obtained the proper approvals.
- We determined that customer bills comply with the requirement to "prominently display" emergency contact numbers.
- We examined PSE&G procedures for addressing customer complaints to the NJBPU's Office of Customer Assistance in cases involving emergencies or shut-offs.

PSE&G's Customer Service Centers

PSE&G maintains 16 local payment centers at which customers may pay bills in person.[96] As of June 30, 2021, PSE&G maintained approximately 103 office employees (CSRs, CSR Supervisors, Cashiers and

[95] Response to OC-1751 Attachment Reconnection Query Example.

[96] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

Tellers) in the department responsible for these centers.[97] As discussed in the Customer Operations section of this chapter, the Executive Director Customer Service estimated that these 16 centers and 103 non-management employees[98] were responsible for processing approximately "two to three percent" of the Company's payments. In addition to processing payments, the centers facilitate customer applications for utility payment assistance. PSE&G stated that social service agency representatives operate from certain centers.[99]

PSE&G stated that it relocated the following payment centers during the 10 year period ending December 31, 2021:[100]

1. Trenton (BPU Docket No. EO11010036) relocated from 15 West State to 28 West State Street, Trenton in 2012.
2. New Brunswick (BPU Docket No. EO12020189) relocated from 1 Penn Plaza to 317 George Street, New Brunswick in 2013.
3. Jersey City (BPU Docket No. EO12080787) relocated from 3 Path Plaza to 35 Journal Square, Jersey City in 2013.
4. Perth Amboy (BPU Docket No. EO16100982) relocated from 313 Madison Avenue to 271 King Street, Perth Amboy in 2017.
5. North Hudson (BPU Docket No. EO20020110) relocated from 4808 Bergenline Avenue, Union City to 5665 John F. Kennedy Boulevard, North Bergen in 2021.

A sixth center, at 606-608 Broadway, Bayonne, was closed for five months for renovation. PSE&G stated that all of the above changes and the renovation closure were approved by the NJBPU.

In addition, PSE&G closed and reopened various centers across New Jersey in response to the Covid pandemic. As of early March 2022, PSE&G stated eight of the 16 centers were open and more were expected to open after March 16, when the moratorium on non-payment shut-offs ended.[101]

Customer Service Emergency Contact Availability

New Jersey administrative rules require a utility to make itself accessible to customers by maintaining, among other things, the following:[102]

[97] Response to OC-0940, Customer Service – Centers cost center.

[98] As of June 30 2021, the "Customer Services – Centers" department included 58 Customer Service Representatives (CSRs) and Senior CSRs, 37 Cashiers and Tellers, and 8 Supervisors. In addition, PSE&G stated that approximately 20 Field Service Representatives from the District Operations organization were also based in the centers.

[99] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

[100] Response to OC-1651.

[101] Interview of Frederick Daum, Executive Director Customer Service, and Jane Bergen, Director Billing, Revenue and Controls, on March 3, 2022.

[102] N.J.A.C. 14:3-5.2.

- A toll free emergency telephone number at which the utility is quickly accessible and a utility emergency contact available to the NJBPU staff, both around the clock, 365 days a year. Emergency numbers must be prominently displayed on customer bills.
- A toll-free non-emergency number at which customer service representatives can be reached during normal business hours.
- A utility's automated telephone system must inform the caller it is an automated system and provide an escape options to allow the caller to speak with an individual.
- Emergency telephone numbers must be listed in appropriate phone directories and filed with appropriate first responders and municipal agencies.
- Utilities must respond to a customer emergency or shut-off complaint to the NJBPU's Division of Customer Assistance within one hour of receiving the complaint. The utility must acknowledge receipt of the complaint.

PSE&G maintains a toll-free number (1-800-436-PSEG) for both 24/7 emergency and business hour customer service communications. The business hour communications service is available from 7AM to 8PM Monday through Friday and Saturday and Sunday is closed, but handles emergencies only. The phone number is prominently displayed on the first page of customer bills.[103]

We requested that PSE&G describe the procedures in place to respond to customer emergency or shut-off complaints to the NJBPU Division of Customer Assistance. The Company stated that when such a complaint is received it is transmitted electronically by the BPU and PSE&G gives it priority, as follows:[104]

- The PSE&G Customer Relations Supervisor acknowledges the complaint within an hour in the BPU portal and assigns the case to a Customer Relations "case owner."
- Emergency and shut-off complaints are acknowledged immediately.
- The customer is contacted and the case owner provides the customer with their direct contact information.
- For shut-off cases, reconnect terms and payment arrangements are discussed and addressed in accordance with the New Jersey Administrative Code. For emergency cases an investigation is conducted when appropriate and the customer is contacted concerning resolution, a summary of which is entered into the BPU portal based on case priority.

Safety and Emergency Call Routing Procedures

PSE&G stated that safety / emergency related calls are handled based on the nature of the call. PSE&G described the procedure as follows:[105]

> The IVR system recognizes the word, "emergency." Within the IVR there are two main emergency branches for routing: gas leaks and damage to equipment. Emergency utterances

[103] Response to OC-1652 Attachment Sample of Actual Customer Bill.
[104] Response to OC-1652.
[105] Response to OC-1664-B.

("emergency service," "I have an emergency," "report an emergency" etc.) are treated as gas leak emergencies and immediately routed to an emergency agent. Wire down, damage to poles and/or transformers too are immediately routed out to an emergency agent in a different queue. Ambiguous utterances by the caller such as "Gas Outage," "Gas Problem," "Wire problem" are disambiguated further to identify if they fit into the two main emergency branches where they will be immediately routed to an agent. All others are either further disambiguated in attempt to identify the customer's true intent or treated as a general repair order and given an appointment to address the caller's situation. If multiple attempts to disambiguate the situation fail, the customer is routed to a general inquiry agent. These processes are the same during normal operating hours and outside operating hours.

PSE&G stated that its IVR recognizes over 150 different variations of utterances related to emergencies.[106] The list indicates that the IVR recognition list is composed of sentences that include the following words and terms:

- Emergency
- Medical Emergency
- Fire (in the house)
- Gas Smell, Odor, Leak
- Carbon Monoxide
- Furnace, Heater, Boiler (won't turn off)
- Leaking Transformer
- Powerline, Wires (down, sparking)
- Damaged (pole, lines)
- Smoke Smell
- Strange Odor

Emergency agents are a specific category of Customer Service Representative (F308 Service Representative) trained to handle an emergency. PSE&G stated it has "over 200" such agents. PSE&G also noted that all Customer Inquiry organization agents have the skills to handle electric, gas and medical emergencies. As such, once the IVR determines the likelihood of an emergency, it routes the call to the next available agent in the queue, regardless of whether they are job classification F308.[107]

PSE&G also has a specific script, in the form of a flowchart, to guide agents through gas emergency calls.[108] The current script is dated June 28, 2017. Finally, PSE&G provided a PowerPoint document that indicates the Company conducts gas emergency refresher training for agents. The training includes

[106] Response to OC-1752-A.
[107] Response to OC-1752-C and D.
[108] Response to OC-1664 Attachment Gas Emergency Call Script.

questions to ask in order to screen gas odor calls, emergency notification definitions, and a gas emergency interactive script.[109]

Non-Medical Emergency (Safety) Communication Procedures

In the case of non-medical electric emergencies, CSRs create an emergency electric trouble order. Once created, the CSR or a Supervisor contacts the appropriate operational department to ensure they received the trouble order. Once confirmed, Electric Operations takes ownership of the order.

PSE&G has a detailed call script and detailed emergency handling procedures for gas. These documents contain detailed instructions on how an Emergency Agent should handle gas leak calls, including the screening questions to be asked, which include "Are the pilots lit?" and "Is gas odor only present when the appliance is turned on?" The Emergency Call Script contains a decision tree that, depending on the caller's answers to the agent's questions, may lead to instructions to evacuate the premises, and either leads to a call by the agent to notify Dispatch to roll a truck, or the creation of a gas odor notification.

Medical Emergency Communication Procedures

PSE&G has a written Customer Medical Emergency Escalation Procedure and a Medical Escalation Checklist.[110] The Checklist states it is applicable to the Customer Inquiry and Collections employees, while the procedure is more broadly applicable to customer inquiry as well as field employees, such as Field Collectors and Appliance Service Technicians. The Checklist describes "how to handle inquiries that indicate a medical emergency," when the customer identifies one of the following:

- A person in the home requires LSE and electric service has been disconnected.
- Electric and / or gas service has been disconnected and the customer indicates an existing medical condition will likely worsen to the point of becoming life threatening.
- A person recently passed away at the premises, or any fatality.
- Any other customer interactions where the customer expresses a medical concern.

Among the instructions in the Procedure are for CSRs to advise customers to call 911 for all situations involving medical emergencies. When CSRs determine there is a medical emergency, a reconnection order is generated in SAP-Customer Records Management.

A screen popup appears as a reminder of the steps that should be followed. CSRs are instructed to notify Supervisors "immediately upon completion of the customer interaction." Supervisors are instructed to ensure there is a 30-day Life-Sustaining Dunning Lock on the account and that a Life Sustaining Application form (which if approved prevents disconnection for up to 12 months) is sent. The Supervisor is then instructed to notify a "MAST Podium Supervisor" who is instructed to ensure "an escalated call is made to the appropriate regional dispatch office to gain assistance in resolving the issue." At this point, ownership is turned over to the Electric or Gas Dispatch departments, which are responsible for

[109] Response to OC-1664 Attachment Gas Emergency Notification Refresher 2020 Revised.
[110] Response to OC-1664 Attachment MEP Checklist Revised 7-30-2020.

prioritizing reconnection to ensure arrival at the customer's premises within 90 minutes, regardless of time of day.[111]

Customer Billing and Payment

New Jersey administrative rules covering the utility billing process are documented in N.J.A.C 14:3-7. Important rules include the following topics:

- Bill form and content.[112]
- Budget billing plans for residential accounts. [113]
- Deferred Payment Agreements.[114]

Bill Form and Content

The New Jersey rules require metered utility service bills include the following information:

- Meter readings for the beginning and end of the billing period.
- Meter reading dates.
- Number and kind of units measured (e.g., kWh, therms).
- Applicable rate schedule.
- Gross and net amount of the bill.
- If gross and net billing amounts are shown, the date on which payment must be made to qualify for the net bill amount.
- Applicable taxes.

Overland reviewed samples of PSE&G's current residential and non-residential bills.[115] The bills contained the information required by the New Jersey rules.

Budget Billing Plans

Utility budget billing plans must be filed with the NJBPU. The major provisions of New Jersey administrative rules governing budget billing include the following:[116]

- The plan must allow the customer to pay a predetermined monthly rate for a set period of time known as the budget plan year, determined by monthly usage during the past year, actual weather conditions encountered during the past year, base rate increases and levelized energy

[111] Response to OC-1664, PSE&G Utility Customer Medical Escalation Procedure, Version 5, Procedure – Reconnection of Electric & Gas Service (Confidential).
[112] N.J.A.C 14:3-7.2.
[113] N.J.A.C 14:3-7.5.
[114] N.J.A.C 14:3-7.7 .
[115] Response to OC-1655.
[116] N.J.A.C. 14:3-7.5(c),(d), (f), (g) & (i).

or gas adjustment charges granted by the NJBPU, and projected changes in these adjustment charges.

- Winter Termination Program customers are encouraged to be on a budget billing plan.
- Budget bills for customers with insufficient history of utility use must be based on a reasonable estimate of likely usage.
- The utility must adjust ("true-up") the budget billed amount by making comparisons at the beginning and at least once during each plan year. Comparisons at the beginning of the plan year become the basis for the year's budget bill amount.
- Budget billing amounts must be adjusted if comparisons during the plan year indicate a change of 25 percent or more in the monthly budget amount.
- A final bill must be issued at the end of each plan year which contain the difference (either an additional billing or refund) to reconcile the year's actual usage and rate with the budget-calculated usage and rate.
- The budget bill must show the monthly budget amount, the budget balance, the budget billing to date during the plan year and the actual cost of service to date during the plan year.

PSE&G's Budget Billing Procedures

PSE&G described its Equal Payment Plan (EPP) procedures as follows.[117] EPP customers include all Winter Termination Plan customers, as required by New Jersey rules. The EPP monthly budget amount is calculated based on 12 months usage history at the premises. PSE&G stated it does not use projected pricing or rate changes in monthly budget calculations due to "the variability and uncertainty of future price changes." When 12 months of usage history is unavailable for a premises, as in the case of new meter installation, the monthly budget calculation is based a table of average consumption for the applicable rate class. EPP accounts are reviewed halfway through the budget year, with test calculations looking back 12 months from the time of review. Test calculations that deviate from the current budget amount by more than 10 percent are adjusted and the customer is notified through an on-bill notice. A true-up calculation is performed at the end of the EPP plan year, resulting in a credit or additional amount owed on the bill. As with mid-year adjustments, the customer receives an on-bill notice.

PSE&G stated that eligible customers are notified of the EPP through on-bill messages, bill inserts, newsletters, email campaigns, new customer welcome letters, the IVR, the PSEG.com website and the PSE&G mobile app.[118] In 2021 PSE&G indicated it promoted its EPP once in bill inserts, twice in newsletter articles, four times in targeted bill promotions and in one email campaign. Customers are also informed of what their EPP amount would be on their monthly bills. Since 2020 PSE&G emails existing EPP customers a customer-customized video at six months and the end of the plan year. The six month video shows the usage trend compared with the prior year and, if applicable, how the EPP budget amount was adjusted at mid-year. The 12 month video provides information about the remaining balance or credit due, compares the budget payment amount with the amount based on

[117] Response to OC-1656.
[118] Response to OC-1656.

actual usage, and includes the EPP payment amount for the next plan year. The Company also sends customized videos to targeted customers who are deemed to potentially benefit from EPP enrollment.

PSE&G provided a sample bill for an EPP customer that demonstrates the utility meets New Jersey requirements for budget bill content. As required by the rules, the sample bill included the monthly budget amount, the budget billing to date during the plan year and the actual cost of service provided for the most recent month and the actual cost to date for the plan year.[119] In response to Overland's request for written procedures, PSE&G provided what appears to be an employee training document covering the EPP and various tasks related to EPP bills, such as displaying them in the CIS, corrections to a customer's EPP plan, and cancelling or modifying an EPP plan.[120]

Deferred Payment Agreements

Rules covering deferred payment agreements (DPAs) are found in N.J.A.C. 14:3-7.7. The important provisions of the rules include the following:[121]

- Utilities must make a good-faith effort to provide residential customers with "an opportunity to enter into a fair and reasonable deferred payment arrangement which takes into consideration the customer's financial circumstances."
- Utilities may not require down payments exceeding 25 percent of the total outstanding bill due at the time the agreement is executed.
- Utilities must be willing to renegotiate residential DPAs if the customer demonstrates a significant change in financial circumstances due to factors beyond their control.
- If the customer has both electric and gas service and both are in arrears, utilities must offer a separate DPA for each service based on the outstanding balance for each service.
- Overland's understanding of the N.J.A.C is that utilities must offer non-residential customer at least one DPA per year.[122] DPAs may cover no longer than three months, with down-payments up to one half the past due amount.
- Service may be discontinued in accordance with the rules set forth in N.J.A.C. 14:3-3A.3 if the customer defaults on the agreement.

PSE&G's Deferred Payment Agreement Procedures

PSE&G provided a copy of its current procedure (DPA Guidelines) for employees to follow in negotiating DPAs.[123] Significant directives in the procedure include the following:

- The maximum DPA duration that employees may negotiate without supervisory approval is seven months.

[119] Response to OC-1656 Attachment PSE&G Bill – Equal Payment Plan Sample.
[120] Response to OC-1656 Attachment PSE&G Budget Billing Plan Overview.
[121] N.J.A.C 14:3-7.7(a), (b) & (c).
[122] N.J.A.C. 14:3-7.7(d).
[123] Response to OC-1657 Attachment DPA Guidelines.

- Employees are encouraged to collect "as much money as possible." Toward this objective, employees are instructed to attempt to collect the total unpaid balance on the account. From there they are instructed to negotiate down to 25% of the amount on the shut-off notice, and then only as a last resort from the 25% of balance to a lower amount offered by the customer.
- The DPA Guideline notes that the "Minimum Regulatory Standard" down payment is "up to 25%" of the shut-off notice balance if the customer has not broken a DPA within the past year.
- The Guideline notes that if the customer currently remains connected but has broken a DPA within the past year, the "Minimum Company Standard" for collection is 75% of the shut off-notice balance, and if the customer is currently disconnected and has also broken a DPA in the past year, the "Minimum Company Standard" to restore service is 100% of the notice balance.
- If the customer has a voucher for payment from a social service agency they may make a single payment equal to the promised amount, with a 45-day DPA for the account balance. If the promised amount does not cover the shut off notice balance, customers may, as a last resort, pay nothing and not agree to a DPA, in which case the Guideline states that service is subject to disconnection.
- DPA Guidelines state that commercial customers are entitled to one 90-day DPA in a 12-month period. However, they also note the "particularly during the [heating season], some latitude is acceptable for commercial accounts with residential end-use."

Notwithstanding these directives, the DPA Guidelines state that "good judgement is often required," taking account of various customer-specific factors, including meter access and reading problems, the amount and frequency of payments, returned checks, whether the account is a multi-family dwelling, and whether past DPAs have been broken. Further, the DPA Guideline notes:

- New Jersey rules "permit customers to renegotiate one DPA renegotiation within a 12-month period if financial circumstances have changed."
- A single promise to pay is not a DPA. A DPA requires at least a two-month repayment period.
- DPA terms should be reviewed with the customer to ensure they understand what has been agreed upon.
- The repayment specifics of a DPA should be "fully documented in the [account's] interaction Record.

Our review of the DPA Guidelines shows they are consistent with New Jersey rules. However, we can find no limitation in the rules that permits utilities to limit renegotiation of a DPA due to a change in financial circumstances[124] to "one DPA within a 12-month period," other than a disconnect reference in a separate rule which states: "While a deferred payment agreement for each separate service need not be entered into more than once a year, the utility may offer more than one such agreement in a year."[125]

[124] N.J.A.C. 14:3.7(b)(5).
[125] N.J.A.C 14:3-7.7(d).

Meter Reading and Testing

This section covers PSE&G's meter reading, testing, and replacement procedures, including assessing whether failed meter groups were replaced during the appropriate time frame, whether retirement tests were performed and customer accounts were credited when appropriate. This section also provides information about PSE&G's AMI program.

Meter Reading

Meter reading is performed by the District Operations organization within Customer Services, headed by the Director, Field and Metering Operations. PSE&G stated that it had approximately 4.1 million meters in service as of June 10, 2021 (2.2 million electric meters and 1.9 million gas meters). Of this, approximately 2 million are read through automation, and approximately 2.1 million are manually read by approximately 350 Meter Readers.[126] PSE&G stated that key meter reading metrics include the read rate and errors per 10,000 reads.

At the end of 2020 PSE&G had encode-receive-transmit (ERT) devices on about 46% of its meters.[127] ERT devices permit meters to be read by a reader walking or driving by a premises. As of May 2021, 23% of electric meters and 79% of gas meters were read using ERT technology.[128] PSE&G's Energy Cloud plan indicates that the majority of the 76% of electric meters being read manually as of 2021 will be converted to AMI (smart meter) technology by 2024. As a result of the conversion to AMI, ERT devices are no longer being installed on electric meters.[129]

Meter Reading Performance Metrics

Meter reading performance metrics as summarized in the Table 21-22.[130]

[126] Response to OC-0077.
[127] Based on benchmarking summary statistics provided in Response to OC-1699.
[128] Response to OC-0077 Attachment "OC_00077_Read Method for electric and gas meters read."
[129] Response to OC-0510.
[130] Metrics were provided to Overland for combined electric and gas meters.

Table 21-22 — PSE&G Meter Reading Performance Metrics - 2015 through 2021

PSE&G Meter Reading Performance Metrics - 2015 through 2021							
Meter Read Rate (Visual, ERT and Customer Reads)							
District	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Newark	76.2%	79.2%	80.2%	80.1%	82.2%	73.8%	77.7%
Roseland	87.4%	89.6%	90.6%	89.8%	91.6%	85.8%	86.5%
Harmon Cove	82.5%	86.9%	86.9%	86.5%	87.5%	71.1%	81.7%
Hackensack	88.9%	92.3%	92.0%	91.7%	92.0%	81.3%	87.5%
Cranford	91.3%	93.0%	89.0%	91.0%	92.4%	79.4%	86.8%
New Brunswick	92.4%	93.9%	94.9%	93.8%	96.3%	89.7%	92.7%
Audubon	88.1%	89.1%	90.7%	91.3%	92.9%	88.1%	91.3%
Lawrenceville	91.2%	91.7%	92.5%	91.4%	93.1%	87.7%	92.4%
Burlington	92.9%	94.1%	94.8%	94.0%	95.3%	91.5%	94.6%
Total	**87.6%**	**90.1%**	**90.1%**	**89.9%**	**91.2%**	**81.9%**	**87.2%**
Reading Error Rate per 10K Meters (Manual Reads Only)							
District	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Newark	25.4	23.8	25.3	22.1	14.8	15.0	22.9
Roseland	20.6	19.9	26.4	17.7	16.6	13.6	21.2
Harmon Cove	13.6	12.1	12.3	11.6	10.1	11.4	19.5
Hackensack	14.0	14.0	14.0	12.0	11.9	12.9	21.1
Cranford	16.5	16.0	16.2	14.7	11.4	11.0	18.0
New Brunswick	22.4	20.0	16.4	18.3	15.7	15.7	24.2
Audubon	18.4	15.5	16.9	18.7	14.8	13.6	14.9
Lawrenceville	25.3	22.6	20.0	17.8	16.2	14.9	24.9
Burlington	20.5	15.1	14.9	15.6	13.2	15.0	19.1
Total	**18.3**	**16.6**	**16.9**	**15.4**	**13.2**	**13.3**	**20.4**
MRUs Read "On Schedule" (Calendar Year) (All Meters)							
District	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Newark	Not Available or Not Provided			98.5%	98.9%	99.7%	99.5%
Roseland				97.0%	95.2%	99.8%	99.6%
Harmon Cove				98.0%	98.0%	98.5%	99.1%
Hackensack				98.3%	98.0%	98.5%	99.1%
Cranford				95.6%	94.3%	97.9%	99.5%
New Brunswick				95.7%	95.6%	99.5%	99.8%
Audubon				97.3%	95.4%	99.6%	99.9%
Lawrenceville				97.8%	97.6%	99.4%	99.7%
Burlington				97.0%	94.1%	99.6%	99.9%
Total				**97.3%**	**96.2%**	**98.9%**	**99.6%**
Long-Term Estimated Meters (Chronics) (At Year End)							
District	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Newark	Not Available or Not Provided			13,652	12,845	29,973	24,514
Roseland				4,886	4,132	10,672	9,409
Harmon Cove				7,756	9,412	37,103	22,941
Hackensack				9,095	8,432	30,172	17,709
Cranford				2,273	2,256	9,904	5,181
New Brunswick				1,317	908	3,337	1,707
Audubon				3,567	3,081	9,395	4,969
Lawrenceville				3,318	3,077	6,980	4,651
Burlington				802	526	2,423	1,578
Total				**46,666**	**44,669**	**139,959**	**92,659**
Response to OC-1681.							

It is difficult to evaluate the trend in PSE&G's meter reading performance over the past few years given the Covid pandemic in 2020 and 2021 and the implementation of AMI beginning in 2021. The basic facts evident from the metrics above include:

Meter Read Rates

As the statistics in the table above demonstrate, PSE&G has not made progress improving its meter read rate over the past seven years. PSE&G stated that once AMI is fully deployed it anticipates 99.5% read performance for 2.2 million electric AMI meters and similar performance for 1.9 million gas ERT meters.[131] Despite the issues with the manual meter read rate, PSE&G managed to improve its percentage of MRUs read on schedule, from 96.2% in 2019 (prior to the pandemic) to 99.6% in 2021. MRUs include all meters, including manual, ERT and AMI meters).

Meter Read Error Rates

The meter reading error rate is based only on manually-read meters.[132] After making progress from 2016 through 2020, in 2021 the error rate increased by more than 50% to a rate higher than in 2015. PSE&G explained the increased rate as follows:[133]

> Both 2020 and 2021 presented unforeseen challenges to the manual meter reading operations. Several pandemic related work restrictions were implemented to comply with State mandates and to ensure the safety of PSE&G customers and meter readers; however, this resulted in a reduction of premises visited and actual meter reads obtained. Actual meter reads include physical reads by a meter reader, as well as ERT reads. During this time, Meter Reading also experienced significant attrition within the meter reading workforce which led to a large hiring of new meter readers. A less experienced workforce could have contributed to an increase in meter reading errors. In addition, the introduction of a process improvement in Billing Operations (described in part C, below) increased the likelihood of identifying meter reading errors that previously may have been harder to detect.

PSE&G also indicated that the customer billing function began to use robotic process automation to process a portion of billing exceptions. It noted:[134]

> While processing billing exceptions, the BOT performs bill reversals, which are noted with reversal reason codes that are used to identify meter reading errors. While the majority of meter reading error reversal codes in the past were identified by Billing bookkeepers, they are now also identified by the BOT according to established rules. This automated method increased identification of meter reading errors that were previously more difficult to capture.

Given that pandemic conditions, beginning with lockdowns, began in late March 2020, and that 2020 showed essentially no increase in the billing error rate compared with 2019, it appears that billing exception process automation is largely responsible for the increase in the read errors reported in 2021.

[131] Response to OC-1377.
[132] Response to OC-1378-B
[133] Response to OC-1782-A.
[134] Response to OC-1782-C.

PSE&G stated that once AMI is implemented the error rate will be based on a relatively small subset of total meters (non-ERT gas meters and a few AMI opt-out electric meters).

Long-Term Estimated Meters (Chronics)

The Covid pandemic caused a near tripling in long-term estimated meters (meters estimated for eight months or more), from about 1% to 3% of all meters. PSE&G was still recovering from the spike in 2021, when its average rate was still around 2% of all meters.[135] PSE&G described the pandemic as "an extraordinary circumstance where meter readers were unable to enter customer premises to read meters" and that "many customers during this period began working from . . . their homes . . . [increasing] home energy usage [which] estimated usage did not fully capture."[136] PSE&G was not able to provide an estimate of total chronics for year-end 2022, however it stated that chronics totaled 93,821 as of March 31, 2022.[137] However, the Company stated that it was "reasonable to estimate that the long term estimated meters will reach pre-Covid levels by 2024 or earlier.[138]

Impact of the Covid Pandemic on Chronics, Customer Bills and Customer Complaints

As noted above, PSE&G was prevented from entering customer homes to read indoor meters during the early months of the pandemic (from late March until the fall of 2020.) PSE&G stated that this resulted not only in a significant increase in the number of long-term estimated meters, but also an increase in the number of underestimated accounts caused by more customers staying home and using more energy that was not accounted for by the Company's bill estimation algorithm.[139] Chronics increased from approximately 1% of total meters in 2019 to approximately 3% in 2020.

PSE&G stated that collection activity was also suspended during the early part of the pandemic, leading to both higher delinquent balances in some accounts, and in a reduction in collection-related customer complaints. Complaints related to estimated meters increased, rising to 77 in 2020, 54% higher than in 2019, as PSE&G began in the fall of 2020 to true up estimated accounts that absent the pandemic would have been read in the earlier months of that year, leading to large catch-up bills.

Advanced Metering Infrastructure

PSE&G first installed AMI for approximately 15,000 of its largest customers in 2014. Most of the meters installed were electric. On October 11, 2018, PSE&G filed its Clean Energy Future – Energy Cloud (CEF-EC) proposal with the BPU.[140] The CEF-EC filing proposed deployment of 2.2 million smart meters throughout the Company's electric service territory. In January 2020, the New Jersey Governor issued an Executive Order calling for the full conversion of the State's energy to renewable sources by 2050. The accompanying Energy Master Plan (EMP) document described AMI as a "foundational component of a

[135] Based on an estimated 4.1 million meters in service.
[136] Response to OC-1380.
[137] Response to OC-1782-D.
[138] Response to OC-1381.
[139] Response to OC-1381.
[140] Response to OC-0078 (Confidential).

modernized electric distribution grid" and "a prerequisite of many additional clean energy objectives."[141] Shortly thereafter, the BPU directed New Jersey electric utilities to file updated AMI proposals, which PSE&G did on April 1. After public hearings and settlement discussions a stipulation of settlement was filed in December 2020. The BPU approved the stipulation on January 7, 2021. The stipulation provided:[142]

- Installation of 2.2 million AMI meters at an estimated investment of $707 million for the meters ($660 million), network infrastructure ($23 million) and associated information technology ($24 million). The implementation will also cause an estimated $71 million in incremental O&M expenses.
- Completion of procurement for expansion of the Energy Cloud network by mid-2022.
- Phase I deployment of 80,000 AMI meters in 2021 and 300,000 meters in 2022.
- Phase II deployment of 900,000 AMI meters each in years 2023 and 2024.

As of early June 2021 PSE&G had mailed letters communicating AMI installations to 225,000 customers and had installed approximately 17,500 meters.[143] As of October 28, 2021 it had installed 68,500 meters and approximately 120 customers had opted out of an AMI meter.[144]

New Data and Benefits Available from Smart Meters

PSE&G indicated that the additional data available from the switch to smart meters will include, but not be limited to:[145]

- Daily meter reads.
- Interval consumption data.
- Voltage information.
- Power outage and restoration notifications.
- Various conditional alerts from the meters.

PSE&G stated it intends to use power outage and restoration notifications from smart meters to improve storm outage response and better identify nested outages. The hope is that this will result in a reduction of days to restore, a reduction in outbound discovery calls and a reduction in truck rolls. They expect remote daily meter reading will reduce or eliminate estimated bills and the use of interval data will improve the accuracy of calculating the capacity and transmission obligation of commercial and industrial customers. Voltage data should permit the Company to identify and address problems and better monitor and operate the distribution grid. Customers will have next-day access to their usage and

[141] 2019 New Jersey Energy Master Plan – Pathway to 2050, Goal 5.3.1 – Evaluate a strategic and coordinated rollout of Advanced Metering Infrastructure, page 184.

[142] Decision and Order Approving Stipulation, Docket No. EO18101115, Stipulation A-12, 13 & 14.

[143] Response to OC-0077.

[144] Response to OC-1376.

[145] Response to OC-1382.

will be able to view month-to-date usage and utilize this information to modify their usage or the timing of their usage.

Rate impacts from AMI Deployment

PSE&G stated there will be no immediate changes to residential or commercial electric rate structures resulting from AMI implementation. PSE&G already offers a residential time-of-use rate. The data available from smart meters is expected to enable the design of customer-focused and tailored rate design options in the future, subject to NJBPU consideration and approval.[146]

The Innovation Rate Design Use Case, Release 2 (part of the CEF-EC road map) includes a plan which will use smart meters to measure commercial and industrial demand more accurately based on each customer's share of overall summer peak load assigned in the PJM transmission region. Currently, these obligations are calculated using an average of the previous summer's demand. Release 4 includes a Real Time Pricing Case that could allow PSE&G to offer differently structured time of use rates to encourage off-peak usage more effectively.

AMI Capital Budget

The Decision and Order in Docket EO18101115 states that PSE&G's planned investment in AMI is $714 million. The most recent available AMI capital budget at the time of our audit is slightly lower, as shown below.

[146] Response to OC-1383.

Table 21-23 — AMI Capital Budget as of November 2021

AMI Capital Budget as of November 2021	
Item	**Amount (Millions)**
Project Management Costs	27.5
Meter and Deployment Costs	
Meters	241.4
Deployment Support	8.1
PS Training at the Meter	1.5
Installation Contractor Labor	142.2
PSE&G Employee Install Labor	66.7
Total Meter and Meter Deployment	460.0
Network and Deployment Costs	
Network Material	1.1
Network Labor	5.4
Total Network and Deployment Costs	6.6
IT Systems Implementation Costs	
IT- Network	1.1
IT - CAD Enhancements	17.1
Total IT Systems Costs	18.3
Total Capital Base	**512.3**
Total Capital Base Plus 38% Contingency	**706.9**
Response to OC-1374.	

The O&M budget, which includes staffing and training, SAP enhancements, project management labor and customer communications, is basically unchanged from amount in the NJBPU Order. It is $52 million before contingency and $71.7 million including a contingency.

AMI Impact on District Operations Staffing

At the end of 2021 PSE&G had 268 employees with at least some meter reading responsibilities. Of these, 229 were employed solely as meter readers, while 39 had both field collection and meter reading responsibilities.[147] Under its contract with the Utility Workers of America, PSE&G is required to maintain the permanent meter reading staffing level equal to the average daily number of meter reading assignments plus five percent.[148] PSE&G stated that in accordance with this requirement, as AMI meters are installed, remaining lower levels of manual meter reading assignments will be reviewed for potential consolidation to maintain efficiency.

We requested the most recent available forecasts for meter reading full-time equivalents over the next five years. PSE&G stated that "[t]he reduction of meter readers will depend on a number of variables which are unknown at this time. As the project progresses, PSE&G will gain clarity into some [of] these unknowns and providing a forecast will become more feasible."[149] PSE&G did not provide examples of the types of variables that might prevent it from forecasting, however, we believe it is reasonable to

[147] Evaluation of employee data, Response to OC-1680.
[148] Response to OC-1372.
[149] Response to OC-1372.

assume that once both AMI and gas ERT meter deployment programs are complete (by 2026, according to PSE&G), the number of meter reader FTEs needed will be a small fraction of the number employed at the end of 2021.

With respect to the issue of mitigating the employee impact of automating most of its meters, PSE&G stated that "[m]eter readers currently have the opportunity to apply for other job opportunities with the Customer Operations Department and the Gas and Electric lines of businesses."[150] The Company also stated it would provide training and communication in various areas to prepare employees for these opportunities and would periodically communicate with employees as these opportunities arise.

AMI Opt-Out Fee

In its Clean Energy Future – Energy Cloud petition PSE&G proposed a $20 monthly customer charge to opt out of AMI. PSE&G stated its $20 this was calculated by multiplying the anticipated time required for travel to the customer premises and contact and interaction with the customer. PSE&G benchmarked its proposed fee with other utilities. The benchmarking data shows:[151]

- In several states opt out is not permitted (all meters are converted to AMI).
- For 14 utility-jurisdiction combinations with opt out fees, the monthly fees range from $5.00 to $45.00, with an average of $14.82.[152]

The Company noted that some utilities add costs based on customer class, but that it decided to use a single flat fee for simplicity and ease of customer presentation. Finally, PSE&G stated that utilities that charge an opt out fee charge between $5 and $36 per month.[153]

PSE&G stated that a $12 monthly customer fee for opting out of an AMI meter was ultimately agreed upon as part of a Stipulation and Settlement approved by the NJBPU. As of October 28 2021, approximately 120 of the 68,500 customer meters (2/10ths of 1%) PSE&G had attempted to replace with AMI meters had opted out of having the new meter installed.[154] PSE&G stated that it plans to begin charging this fee prospectively beginning near the end of 2024 and that no customers are currently being charged.[155]

[150] Response to OC-1372.

[151] Response to OC-1376 Spreadsheet Attachment OC-1376_EEI_AEIC Utilities AMI Opt-Out 2018-11-06.

[152] Although the spreadsheet does not indicate, these appear to be residential opt out fees. They also include "up front" fees ranging from $43.00 to $150.00.

[153] Response to OC-1376-D.

[154] Response to OC-1376-B.

[155] Response to OC-1376-C.

Meter Accuracy, Testing and Replacement

Meter Testing Organization & Responsibilities

Meter and energy measurement is headquartered in Springfield and consists of two cost centers, Customer Operations System Integration and Measurement. It is headed by the Manager – Measurement System Operations and is responsible for purchase, installation, testing, repair, calibration, storage and recordkeeping for PSE&G's energy measurement equipment, which include meters and auxiliary devices. In addition to responsibility for meter inventories, the measurement function is also responsible for collecting data and settling around $1 billion annually in billings for large customers, PSEG's generation plants, non-utility generators, utility interconnections and metering stations.[156]

The Measurement function is also in charge of AMI deployment and project oversight. Among its responsibilities are the collection, processing, editing and validation of AMI data, and the distribution of this data internally and externally to customers. Positions in the organization are shown in the following table.

[156] Interview of Robert Jarvis, Manager Measurement System Operations, on October 14, 2021.

Table 21-24 — Measurement and Customer Ops System Integration Staffing by Position

Measurement and Customer Ops System Integration Staffing by Position				
Position	Staffing at End of Year			
	2018	2019	2020	2021
Customer Ops System Integration (CC 2257)				
Business Support Spec - Customer Ops			1	1
Customer Operations Spv				1
Data Services Administrator	1	1		
Data Systems Administrator	3	3	3	3
Engineer		1	1	1
Measurement Product Specialist	2	1		
Mgr Measurement System Operations	1	1	1	1
Mgr Measurement Systems	2	3	3	3
Principal Staff Engineer	1	1	1	1
Process Analyst - Customer Operations	2	2	2	3
Sr Materials Control Assistant	1	1	1	1
Sr Staff Method Analyst	4	3	3	3
Staff Engineer	1	1	1	1
Technical Support Specialist	1			
Total CC 2257	**19**	**18**	**17**	**19**
Measurement (CC 1487)				
Manager Measurement Systems	1	1		1
4500 Chief Measurement Tech	1	1	1	1
4501 Measurement Tech Specialist	5	5	5	5
4502 Measurement Tech	4	3	3	3
4503 Measurement Tech Assistant	2	3	3	1
Measurement Product Specialist		1	1	1
Process Analyst	1	1	1	1
Technical Support Specialist	1	1	1	1
Total CC 1487	**15**	**16**	**15**	**14**
Total Measurement & System Integration	**34**	**34**	**32**	**33**
Responses to OC-0940 and OC-1680.				

Meter Testing Metrics

PSE&G maintains a number of operating metrics in the areas of meter accuracy, testing and replacement, including both Company and customer-requested testing. PSE&G stated that all of these metrics are reported to the NJBPU in quarterly reports. One metric maintained by the Company that is not mandated by the NJBPU is the cycle time from meter removal to meter test for a customer high bill complaint test.

Failed Meter Groups

PSE&G uses meter classification taxonomies for both electric and gas meters based on manufacturer, model and purchase year. Depending on defects found, electric and gas meters may be further grouped by meter number ranges or other attributes.[157] A failed meter group is a group of meters that sampling and analysis determine do not meet regulatory performance standards according to the sampling

[157] Response to OC-1682-A.

analysis methods specified by the NJBPU. PSE&G notifies the NJBPU when its sampling and analysis identify a failed group of meters. It has four years following this notification to replace the meters. PSE&G stated that the internal control to monitor and ensure compliance with the failed meter group replacement requirement is its quarterly report to the BPU.

On March 29 2019 the BPU issued orders in Dockets EO18101159 and GO18101190 establishing standardized electric and gas meter sampling programs for the State's electric and gas utilities. The electric order required utilities to use ANSI Z1.9 and related BPU Staff forms and instructions to select samples and report quarterly test results for both electric and gas meters, finding that "the newly adopted standard will hold meter accuracy to a stricter, nationally recognized standard" and that "groups of nonconforming meters will more easily be identified and repaired or replaced."[158] The orders gave the utilities until January 1, 2020 to implement the new sampling programs.

In addition to new sampling programs, the orders require PSE&G to take corrective action when it finds, based on testing a sample, that 10% or more of the meters do not conform with an Acceptable Quality Limit (AQL). Corrective action may include expanding the sample or further dividing the meters in the group into sub-groups and sampling the sub-groups to better identify failed meters. When a group or sub-group is found to be out of conformance with the AQL PSE&G is required by the applicable electric or gas order to remove the meters from service within five years from the date the group or subgroup was reported as failing to meet performance standards.[159]

We performed an analysis of the replacement of PSE&G failed meter groups reported to the NJBPU. We analyzed Table IV from PSE&G's quarterly meter report to the BPU from the first quarter of 2019 (the first report that had detailed failed meter group replacement data) and the third quarter of 2021 (the most recent report available at the time of our review). Data from this analysis is summarized in Table 21-25.

[158] Decision and Order, Docket No. EO18101159, Discussion and Findings, page 2, and Decision and Order, Docket No. GO18101190, Discussion and Findings, page 2.

[159] Decision and Order, Docket No. EO18101159, Discussion and Findings, page 5, item 7 and Gas Meters General Information and Data Compilation Using ANSI z1.4, page 3, item 6.

Table 21-25 — Status of PSE&G's Meter Removal in Failed Meter Groups

Status of PSE&G's Meter Removal in Failed Meter Groups									
Rejection Dates	# of Rejected Meters from Failed Groups	Meters Remaining in Service as of BPU Rept. Date				Meters Reported as Delinquent as of BPU Rept. Date			
		3/30/2019	12/31/2019	12/31/2020	9/30/2021	3/30/2019	12/31/2019	12/31/2020	9/30/2021
Electric									
Prior to 1991	87,344	52 0.06%	50 0.06%	28 0.03%	28 0.03%	52 0.06%	50 0.06%	28 0.03%	28 0.03%
1991-2000	-	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%
2001-2010	33,932	324 0.95%	134 0.39%	290 0.85%	279 0.82%	324 0.95%	134 0.39%	290 0.85%	279 0.82%
2011-2020 (1),(2)	162,229	42,152 25.98%	32,795 20.22%	30,010 18.50%	27,012 16.65%	4,094 2.52%	0 0.00%	4,994 3.08%	27,012 16.65%
Total All Eras (2)	283,505	42,528 15.00%	32,979 11.63%	30,328 10.70%	27,319 9.64%	4,470 1.58%	184 0.06%	5,312 1.87%	27,319 9.64%
Gas									
1998 - 2014	107,315	2,526 2.35%	2,093 1.95%	1,722 1.60%	1,503 1.40%	0 0.00%	0 0.00%	1,722 1.60%	1,503 1.40%
2015-2019	1,081,005	671,204 62.09%	525,811 48.64%	437,134 40.44%	326,361 30.19%	0 0.00%	0 0.00%	59,301 5.49%	96,648 8.94%
Total All Eras	1,188,320	673,730 56.70%	527,904 44.42%	438,856 36.93%	327,864 27.59%	- 0.00%	- 0.00%	61,023 5.14%	98,151 8.26%

Response to OC-1682.
Note 1: No delinquent meters (highlighted) appears incorrect as reported in the December 31, 2019 report.
Note 2: 11,894 meters from a group rejected on March 31, 2015 were removed from the Q3 2021 BPU report. We included these meters in the rejected meter total, as they were included in all of the other BPU reports we reviewed.

From the data, we observed:

- According to reports filed with the NJBPU, between 2015 and 2019 PSE&G classified an extraordinary number of gas meters – over a million – as belonging to failed meter groups. The Company stated that "once a group of meters is rejected, the group is removed from the sampling process such that retirement test results . . . are not used for further analysis in the sampling program."
- PSE&G noted that the "rejection rationale" for the nearly 1.1 million gas meters removed from rejected between 2015 and 2019 was "fast." Of the approximately 1 million of these meters that have been tested, 31.6% (about 320.000 meters) appear to have been classified as fast. In a follow-up request we asked PSE&G how many of the 1 million meters that had been tested by the end of 2021 were found to be "out-of-tolerance fast," requiring billing adjustments. It appears the percentage stated in the response identifies fast meters, but not *out-of-tolerance* fast meters.[160] As such, it remains unclear at the time of this report how many of the 1 million gas meters rejected as fast between 2015 and 2019 required refunds to customers; however,

[160] Response to OC-1783-C. We asked PSE&G "were all 1 million meters actually tested and found to be out-of-tolerance fast, or were they assumed to be fast as a result of sampled meters from each meter group having found to be fast?" PSE&G responded as follows: "Not all meters in groups rejected via the sampling program during the referenced time period (2015-2021) have been removed and tested at this time. . . . A portion of the meters removed from service tested out-of-tolerance while most meters tested were within tolerance. Of the one million gas meters tested between 2015 and 2022, 31.6% were fast. Meters tested and found to be out-of-tolerance fast are provided to the Billing Department for any billing adjustments."

PSE&G asserts that a meter is characterized as fast when it exceeds the threshold of 102% accuracy, and any meter that exceeds this threshold is referred to billing for action. Unless there is some underlying mitigating factor, each of these fast meter referrals should result in a credit to the customer.

- At the end of 2020, 61,023 gas meters, equal to 5.1% of rejected gas meters, were classified as delinquent, meaning they were out of compliance with the NJBPU requirement that rejected meters be removed from service within five years of being rejected. As of September 30 2021, 98,151 (8.3%) of rejected gas meters remained in service after five or more years of being rejected.
- A majority (around 110,000) of the electric meters from failed groups in the 2011-2020 era were classified as such between 2011 and 2015. 97% percent of these had been removed from service by the end of 2020 and 98% had been removed by the end of the third quarter of 2021.
- An additional 39,607 electric meters were reported as rejected during the first quarter of 2016. Of these, about 22,000 had not been removed from service as of September 30, 2021 and were classified as delinquent. It is likely that nearly all of these meters will be removed over the next few years as PSE&G implements AMI.
- Less than one percent of the electric meters classified as belonging to failed groups prior to 2011 remained in service in early 2019. Less than two percent of the gas meters classified as belonging to failed groups prior to 2015 remained in service at the end of 2020. It is likely that many of the small percentage of failed group meters from these eras that remain in service are in service because of the Company's inability to access them.

We also asked why some of the meters reported as rejected from the 1998-2014 era were not reported as "delinquent" in the year-end 2019 NJBPU report. According to PSE&G, it takes six years from the year of discovery for meters that have not been replaced in a failed group to become reportable as delinquent. PSE&G provided the following schedule of reporting as an example:[161]

Failed Group Detected (e.g. 2015)	Sampling detects a failed meter group.[162]
Year +1 (2016)	Sample is reported to the NJBPU as rejected.[163]
Years +2-5 (2017-2020)	Failed group meter replacement period.[164]
Year +6 (2021)	Meters remaining (not replaced) become delinquent.

PSE&G also stated that during the first year of using the new gas reporting format, it listed the delinquent meters in the wrong column.[165]

[161] Response to OC-1784-C.
[162] This is the year in which the actual sampling and testing occurs.
[163] This is the year in which the rejected meter report is submitted.
[164] This is the 4-year window in which the replacement effort is performed.
[165] Response to OC-1784-A.

Meter Testing at Retirement

We requested PSE&G provide the results of all retirement tests performed on electric meters removed as part of the AMI program. Nearly 2.2 million electric meters in service at the beginning of 2021 will be removed and tested between February 2021 and the end of 2024 in connection with the program. PSE&G provided data for 52,645 meters removed and tested between February 1 2021 and March 9 2022.[166] About 97% of these were removed as a result of AMI replacement, and the remaining 3% were removed for other reasons. All of the meters removed are listed with a testing date; however, 11.3% showed a "0" in the accuracy column, suggesting they were either not working or not tested. Below are the retirement test results:

Table 21-26 — PSE&G Electric Meters Removed and Tested February 1 2021 through March 9 2022

PSE&G Electric Meters Removed and Tested February 1 2021 through March 9 2022	
Category	**Quantity / Pct.**
Total Removed and Listed as "Tested"	52,645
Tested, Zero Read (Non-Working?) (1)	5,953
Tested with a Non-Zero Accuracy Reading	46,692
Tested Working, Slow or 100.00% Accurate	24,896
Tested Working, Fast	21,796
Average Accuracy of Tested, Working	100.08%

Source: Response to OC-1690, Meter Removed Test Data 2-1-21 to 3-9-22.
Note 1: Meters with a zero test result were either not registering or not able to be tested due to damage. PSE&G states it replaces a considerable number of meters each year due to damage.

[166] Response to OC-1690.

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22. EXTERNAL RELATIONS

Introduction and Overview

This chapter addresses Public Service Enterprise Group's (PSEG) external relations activities, and the procedures employed to serve the interest of Public Service Electric and Gas Company's (PSE&G) customers, shareholders, and other stakeholders.

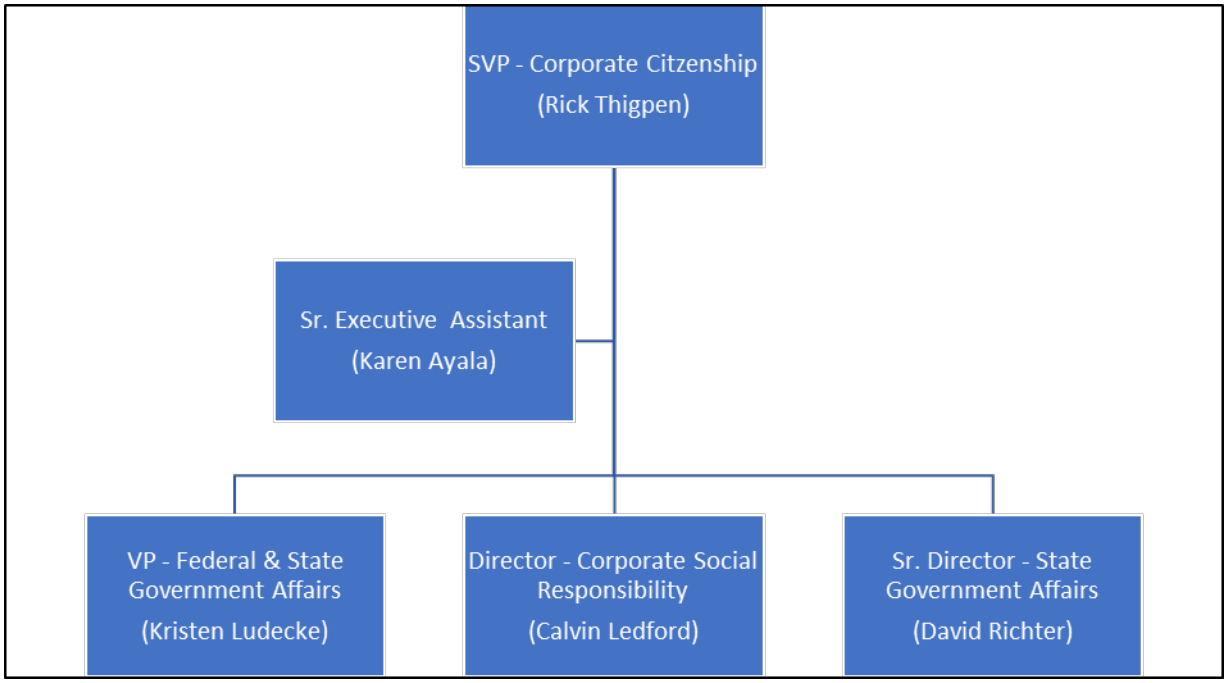
Summary of Findings

- In recent years, PSEG's lobbying activities have focused to a large extent on the advocacy in support of nuclear power, including its designation as a "green" energy source (due to the lack of carbon emissions) and the necessity for New Jersey's Zero Emission Credit (ZEC) program.
- PSEG has incorporated environmental, social and governance (ESG) awareness and promotion into its strategic planning and corporate objectives and developed numerous public reports to communicate these objectives with its stakeholders.

Organization

External relations are managed by PSEG's Corporate Citizenship Department, which was formed in 2018. Previously, the functions that now reside within Corporate Citizenship were located in several different areas of the Company. The department is led by the Senior VP of Corporate Citizenship, Richard Thigpen and who now reports directly to PSEG's Chairman & CEO, Ralph Izzo. The management structure of the Corporate Citizenship department is shown below.

Table 22-1 – PSEG Corporate Citizenship Department Organization Chart[1]



The department's functions are assigned to management employees and their direct reports as follows:[2]

VP Federal Affairs & Sustainability – manages issues at the federal level, including before Congress and the Executive Branch including the White House and federal agencies. The group also manages relationships across the industry, the broader business community and with other influencers such as national environmental NGOs and interest groups. Recent changes in responsibilities have resulted in this position also being responsible for PSEG's environmental, social and governance ("ESG") activities, but no longer having any involvement in state government affairs.

Senior Director – State Government Affairs – interacts with the state legislatures and governors' office and staffs, as well as associations and organizations in all states where PSEG operates. In addition, this position oversees a large group of public affairs managers and specialists that serve as liaisons with local elected officials, businesses, and community leaders within the municipalities in PSEG's service territory.

Director – Corporate Social Responsibility – presides over the PSEG Foundation while coordinating corporate citizenship initiatives. Leads charitable and philanthropic efforts through partnerships with the nonprofit community, this includes employee volunteerism and the matching gift donation programs.

Until late 2021, the external relations and government affairs functions of PSEG-LI were also part of the Corporate Communications Department. The function was moved entirely within the PSEG-LI organization in connection with the implementation of the revised Operating Services Agreement

[1] Response to OC-1826.
[2] Response to OC-0324.

("OSA") with LIPA. As set forth in the OSA, the Long Island subsidiary is solely responsible for all engagement with LIPA, local municipalities, and state government officials. PSEG-LI's VP of External Affairs now reports directly to the PSEG-LI Chief Operating Officer.[3] However, a "dotted line" relationship exists between the SVP of Corporate Citizenship and the PSEG-LI VP of External Affairs, to maintain communication on issues that could impact PSEG and its subsidiaries.[4]

A critical element in the formation of the Corporate Citizenship Department was the elevation of the corporate sustainability function, and its importance in the Company's government and public outreach efforts. Resources have been added to address decarbonization and ESG initiatives in the last five years.[5]

Lobbying Activities

Lobbying efforts are designed to promote the interests of PSEG's stakeholders. The Company has identified a series of goals with respect to its government affairs operations:[6]

- Develop and execute advocacy strategies to advance company initiatives, manage risks in the public policy arena, and support key state and federal policies.
- Provide Public Affairs Support through direct engagement with public officials and staff at all levels of government for PSEG operations and investments.
- Communicate, educate, and engage with key stakeholders in New Jersey to build a broader understanding of PSEG initiatives and stakeholder needs in support of our state-level regulatory agenda.
- Manage, advise and guide the engagement of senior corporate leaders with government officials at all levels.

The Company has focused a considerable amount of effort to promote the benefits of nuclear power. At the federal level, PSEG lobbied for nuclear production tax credits that were included in the Inflation Reduction Act. PSEG has also been engaged with New Jersey officials, advocating for nuclear power as one method for achieving the State's carbon-free goals, as well as promoting the issuance and extension of zero emission certificates ("ZECs") for its Hope Creek and Salem plants. The Company is also engaged with public stakeholders at the federal, state and local level regarding offshore wind issues.[7]

Certain employees have been designated as PSEG's representatives to communicate directly with the NJBPU, the legislature, and the governor's office, as shown on the following table.

[3] Response to OC-1826.
[4] Interview of Richard Thigpen on July 22, 2022.
[5] Interview of Richard Thigpen on July 22, 2022.
[6] Response to OC-0324.
[7] Interview of Richard Thigpen on July 22, 2022.

Table 22-2 – PSEG Registered Government Affairs Agents

Registered Government Affairs Agents	
Name	**Title**
Ralph Izzo	Chairman of the Board, Pres & CEO, PSEG, PSEG Services Corp.
Tamara Linde	EVP & General Counsel, Law, Compliance & Claims
Kim Hanemann	President & COO - PSE&G
Richard Thigpen	SVP Corporate Citizenship, State Gov Affairs
Josie DiRienzo	Dir State Government Affairs
David Richter	Sr Dir State Government Affairs
Joseph Accardo	VP Regulatory & Deputy Gen Counsel, Law - Regulatory
Matt Weissman	Managing Counsel - State Regulatory, Law - Regulatory
Response to OC-1825.	

Furthermore, the Corporate Citizenship Department works with third-party lobbying and public relations entities to support its advocacy programs. External spending is summarized below.

Table 22-3 – Lobbying and Public Relations Expenditures, 2018-2021

[BEGIN CONFIDENTIAL]

Lobbying and Public Relations Expenditures					
Firm	2018	2019	2020	2021	Total
Lobbying Expenditures					
Mercury, LLC (NJ)					
Florio Perrucci	120,000	-	-	-	120,000
Public Strategies Impact	67,500	97,500	90,000	90,000	345,000
Princeton Public Affairs Group	99,996	99,996	99,996	99,996	399,984
1868 Public Affairs	83,330	87,497	91,663	108,329	370,819
Tonio Burgos (NJ)					
New Jersey Subtotal	**$ 1,285,288**	**$ 386,993**	**$ 383,659**	**$ 401,280**	**$ 2,457,220**
Tonio Burgos (NY)	90,000	90,000	90,000	102,500	372,500
Mercury, LLC (NY)	60,348	60,000	60,000	120,000	300,348
New York Subtotal	**$ 150,348**	**$ 150,000**	**$ 150,000**	**$ 222,500**	**$ 672,848**
Jay B Levin Government Relations	157,930	119,963	102,096	102,596	482,585
Connecticut Subtotal	**$ 157,930**	**$ 119,963**	**$ 102,096**	**$ 102,596**	**$ 482,585**
ByrdGomes					
Delaware Subtotal					
Perry White Ross Jacobson	-	-	70,000	48,000	118,000
Alexander and Cleaver	-	5,500	-	-	5,500
Maryland Subtotal	**$ -**	**$ 5,500**	**$ 70,000**	**$ 48,000**	**$ 123,500**
Total - Lobbying Expenses	**$ 1,634,081**	**$ 702,452**	**$ 745,751**	**$ 814,372**	**$ 3,896,656**
Public Relations and Other Expenditures					
Bgill Group					
Zinn Graves					
Open Door Media					
Thorough Planning					
Bullypulpit					
Jack Collins					
Butler					
PR and Advocacy Subtotal	**$ 175,299**	**$ 147,000**	**$ 326,900**	**$ 2,390,000**	**$ 3,039,199**
Jenner & Block Law Firm	1,563	-	-	-	1,563
Northbridge Consulting Group	-	-	18,563	-	18,563
MJ Bradley					
Other Services Subtotal	**$ 1,563**	**$ 199,530**	**$ 120,016**	**$ 213,798**	**$ 534,907**
Grand Total	**$ 1,810,942**	**$ 1,048,982**	**$ 1,192,667**	**$ 3,418,170**	**$ 7,470,762**

[END CONFIDENTIAL]

New York lobbying costs in the table above were incurred to support PSEG-LI advocacy and were directly charged to PSEG-LI.

PSEG contracted with Mercury, LLC to perform the following activities New Jersey:[8]

[8] Response to OC-0728.

- Provide strategic advice and direction regarding political issues impacting PSEG and advocacy strategy and support as needed.
- Assist the Corporate Citizenship Department with the preparation of briefing materials, memos, PowerPoint presentations, analysis of public policy issues, etc., and report writing.
- Manage media and campaign management and strategies.

Payments to Mercury were elevated in 2017 and 2018 due to PSEG's media and public education efforts associated with the Company's "New Jersey Needs Nuclear" campaign. This campaign was active during the debates over ZEC legislation. Mercury was paid in excess of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** in 2017.[9]

More recently, expenditures totaling over **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** paid to Bgill Group have supported a public relations and media campaign that also advocated for nuclear energy. This was a limited-duration effort due to the program's renewal. Moving forward, nuclear energy and decarbonization are topics that may be addressed by the Company, but there are no material contracts in place with lobbying or public relations firms for such campaigns at this time.[10]

Stakeholder Communication

The responsibilities for major announcements are shared among several PSEG departments. The Corporate Communications group works closely with the operating companies, HR, finance, and other relevant internal groups to communicate major events and announcements to various internal and external stakeholders. Actions may include external press releases, website postings, newswires and social media.

The Company revised its storm communications approval process after Tropical Storm Isaias. Corporate Communications obtains outage data from Operations groups, drafts media updates, and circulates the document internally to designated individuals within Operations, Corporate Communications and Legal. In addition, PSE&G has a pre-storm checklist that includes a process for media updates with storm preparedness guidance, if necessary. The level of pre-storm communication is guided by a "Storm Impact Threshold," a predetermined set of criteria that considers, among others, modeling against past storms, manpower numbers and mutual aid requests.[11]

ESG Initiatives

PSEG is among the best in class of utility companies with respect to ESG performance. Internally, the Company has embraced the State's enhanced Renewables Portfolio Standard targets through strategic capital programs (discussed in Chapter 13). Additionally, PSEG's development and communication of its

[9] Response to OC-0728.
[10] Interview of Richard Thigpen on July 22, 2022.
[11] Response to OC-0539.

ESG programs helps mitigate for one of its top risks – "Changing Investor Preferences." PSEG's 2021 balanced scorecard included a number of "green" metrics, including:[12]

- Energy Efficiency – Electric (MWh)
- Energy Efficiency – Gas (MMBtu)
- Key Project Milestones – RES (% complete)
- Open Leaks
- Nuclear Generation (Gwh)

PSEG participates in numerous external ESG benchmarking groups and has received widespread recognition for its ESG programs. Recent citations include: [13]

- PSE&G named the 2022 Edison Award recipient, the electric utility industry's highest honor
- Named to Dow Jones Sustainability Index – North America 14 years in a row
- Highest ranked Utility on Newsweek's America's Most Responsible Companies 2022
- PSE&G named as a 2022 ENERGY STAR® Partner of the Year - Energy Efficiency Program Delivery
- PSEG Long Island named as a 2022 ENERGY STAR® Partner of the Year - Sustained Excellence Award

PSEG's corporate website prominently features ESG, with an entire section devoted to describing environmental stewardship, social responsibility and governance. The environmental stewardship webpage outlines the Company's initiatives in areas such as its climate vision, biodiversity, waste prevention and water resources. The social responsibility webpage features PSEG's DEI, outreach, philanthropy and volunteer programs. The governance webpage provides links to its standards of conduct, EHS group and Corporate Security.

The website also includes comprehensive ESG reports, as summarized below:

[12] Supplemental Response to OC-0304.
[13] PSEG July 2022 Investor Update, page 6.

Table 22-4 – PSEG ESG Report Summary

Sustainability and Climate Report	PSEG's major report on sustainability. The report describes in detail Company's ESG programs, benchmarked against criteria including the U.N.'s Sustainable Development Goals, GRI Index, SASB, and the Task Force on Climate-related Financial Disclosures (TCFD).
Carbon Disclosure Project Report	The report provides PSEG's emissions data, climate-related risks and opportunities, and emission reduction strategies in a standardized format.
EEI and AGA ESG & Sustainability Report	Provides a summary of ESG initiatives in a narrative report and quantitative environmental and employee data in EEI and AGA prescribed formats.
PSEG ESG Data Matrix	A self-published data set of financial, environmental and social metrics for the years 2018 through 2021 in a spreadsheet format. The report also includes Dow Jones Sustainability Index metrics.
Employer Information Report (EEO1)	An annual report to the EEOC showing the number of employees in various job categories by ethnicity.
PSEG Sustainable Financing Framework	PSEG benchmarks its sustainable financing program to the core components of the International Capital Markets Association.

PSEG has established the ESG Sustainability Council - a cross-functional ESG team that steers, coordinates and executes the company's multiple streams of ESG disclosure, many of which are described above. The Council is comprised of members from Law, Corporate Communications, Investor Relations, Environmental Project and Services, Corporate Social Responsibility, Human Resources and Corporate Secretary departments. The Sustainability Council evaluates potential ESG disclosure platforms and templates; reviews peer company disclosures for best practices; collects internal ESG data and drafts disclosure documents in consultation with relevant business units; and incorporates input from management and board reviewers.

Performance Measures

As mentioned in other chapters, PSEG migrated from department-level scorecards to corporate-wide metrics in 2019, the same year that the Corporate Citizenship Department was created.[14]

The PSEG scorecard tracks quantifiable metrics across the organization (referred to as "Part A" and "Part B"), none of which are directly attributable to the performance of the Corporate Citizenship Department. However, the scorecard also includes an "Initiatives" component ("Part C") that contains

[14] Response to OC-0725.

number of programs for which the Corporate Citizenship group plays a significant role. These initiatives include the following:[15]

- *PSEG Filings* - Obtain BPU approval consistent with key business plan assumptions and/or other factors as determined by senior management. The goal was deemed "mostly achieved" in 2020, with the filings considered successful from the Company's perspective, but with an acknowledged delay in the Energy Strong Program filing.
- *Nuclear ZEC's* - Submit the application in accordance with requirements of BPU order and continue to advocate for a long-term solution that recognizes the value of nuclear power. The goal was "partially achieved" in 2020, with the ZEC extension filing under review and the advocacy for a long-term resolution with the legislature delayed while the BPU decision remained pending.
- *Environmental, Social and Governance - Climate and Sustainability Matters* – Tasks included issuance of the first PSEG Climate Report under the TCFD framework, increased scores relative to peers on the Bloomberg ESG Disclosure, creation of a centralized data template for all relevant ESG metrics, and better leveraging of the Company's ESG Council. The Company concluded that these initiatives were fully achieved in 2020.
- *New Jersey Hiring* - Improve on previous years' results in supporting the Newark 2020 initiative which is aimed at reducing unemployment in Newark. The initiative was deemed to be "significantly achieved" in 2020.

[15] Supplemental Response to OC-0304, *2020 Scorecard Initiatives and Results*.

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23. SUPPORT SERVICES

Introduction and Overview

This chapter covers PSEG's management of the following support functions:

- Insurance and Claims
- Law Department
- Facilities and Land Management
- Materials Management
- Transportation

Summary of Findings

1. PSEG corporate insurance premiums increased 6% annually between 2018 and 2021, although the fossil asset sale reduced the 2021 property insurance premium by a substantial amount. Premium increases were below peer averages.
2. Using actuarial studies, the Insurance Department has made reductions to certain coverage limits that optimized premium costs without significant risk increase.
3. Third party claims payments increased in 2020 in connection with Tropical Storm Isaias, but otherwise have been trending lower since 2018. Claim reserves have increased since 2018 due to several discrete incidents, while the number of reserved claims has remained stable.
4. Outside legal expenses increased 57% in 2021 over the prior three-year average. The increased spend was attributable, in large part, due to fees associated with the fossil asset sale, a review of the compliance investigation process, and FERC enforcement matters.
5. With the exception of the Newark downtown headquarters building and the Cragwood office in South Plainfield Borough, the most significant employee-occupied facilities are owned. The Newark downtown headquarters building is leased through 2030 and has 2 five-year renewal options. The Cragwood office is leased through 2023 and has 1 five-year renewal option.
6. PSE&G owns relatively little vacant land, and most parcels not classified as held for future use were less than one acre in size.
7. The usage of the Newark downtown headquarters building has decreased dramatically since the onset of the COVID-19 pandemic in early 2020. Average daily usage as of the end of 2021 is less than 10 percent of what it was prior to the pandemic, and PSEG has considered options at the site which would allow it to "go dark" on 7 of 21 floors it leases to realize savings associated with utilities, janitorial services, security, etc.
8. Inventory balances for electric equipment have increased in recent years due to upgraded components being used in new transmission and renovated transmission construction, which are being stocked in addition to existing transmission material.

9. PSE&G's Materials & Logistics Management group has not analyzed its material throughput to determine optimal inventory stock levels. As a result, the Company may have higher risk of parts shortages, or excessive working capital tied up in inventory assets.
10. PSE&G manages most of the costs associated with its predominantly-owned fleet on an in-house basis. While this arrangement has permitted PSE&G to reduce its fleets cost between 2018 and 2020, it has also minimized the downtime associated with these assets since repair work can be scheduled either after-hours or over the weekend at management's discretion.

Recommendation

23.1 PSE&G should implement the inventory optimization analysis currently in development and update the SAP system with optimal material quantities.

Insurance and Claims

Insurance

The corporate insurance function is located within PSEG's Treasury Department, led by Brad Huntington, Vice President & Treasurer. There are two positions that oversee insurance operations:[1]

- Manager Insurance Risk: Key responsibilities include designing insurance programs using cost/benefit analysis and benchmarking, managing insurance brokers and direct placement of all PSEG insurance programs including the development of insurance renewal strategies, representing PSEG's risk profile with insurance markets at due diligence meetings, and negotiating insurance premiums/policies with underwriters.
- Senior Risk Management Consultant: This position supports insurance renewals for PSEG (and its subsidiaries), supports development of PSEG risk profile information to be shared with insurance markets at due diligence meetings, works with internal stakeholders to identify risk, and assists in development and forecasts of the insurance budget and verification of billing information.

PSEG's insurance program is designed to economically manage risk through the assumption of self-insured retentions ("SIRs") and insuring against significant losses. In addition, the program seeks to utilize mutual insurers where possible, with one of the largest being Nuclear Electric Insurance Limited ("NEIL"). Major corporate policies are shown on the following table.

[1] Response to OC-1764.

Table 23-1 – PSEG Corporate Insurance Policies[2]

Policy	Description
Directors & Officers	Breach of fiduciary duties and security claims for Directors & Officers
Fiduciary Liability	Breach of fiduciary duties and security claims for any insured person
Nuclear Liability	Public indemnity and worker exposure to radiation
Nuclear Property	Physical loss to nuclear site
Nuclear Accidental Outage	Protects against lost revenue/replacement power costs due to physical loss to a nuclear site resulting in an outage
Excess Liability	3rd party and automobile liability
Excess Workers Compensation	Employee accidents and illness (PSEG is a qualified self-insurer and does not participate in New Jersey's workers compensation insurance program)
Cyber	1st and 3rd party losses associated with electronic data risks
Non-Nuclear Property	All-risk property

Insurance Coverages

The department conducts annual insurance reviews for each major policy, supported by its insurance broker, Marsh Consulting. Marsh provides in-depth analysis of the insurance market to determine the mix of carriers and the policy coverage terms. PSEG has made several changes to its policy limits over the past few years, as follows:[3]

- 2018 – increased limit of cyber policy to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** in order to align limits with industry peers.
- 2020 – reduced property limit to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. After a review it was determined that PSE&G did not have any locations with insurable values above **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, while the fossil portfolio had only two, with far lower probable loss estimates.
- 2020 – lowered the excess liability limit to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** due to the relatively high pricing of that $15 million tranche, electing to self-insure the **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**exposure at the higher end of the insurance tower.
- 2021 – Eliminated statutory excess workers compensation insurance coverage that exceeded the primary insurance layer of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. After an actuarial review, the Company determined the pricing to be excessive, based on the likelihood of loss.

[2] Response to OC-1858, Report on PSEG's Insurance Program Including Directors and Officers Insurance, September 9, 2021.

[3] Responses to OC-1858 and 1861.

PSEG participates in annual benchmarking with the Edison Electric Institute ("EEI"). Data from the 2020 benchmark study indicated that, with the exception of property insurance, the Company's SIRs and policy limits were generally consistent with its peers.

Table 23-2 – EEI Risk Management Survey Comparison, FY 2020

	Excess Liability		Property		D&O		Cyber	
(amounts in $000's)	Deductible	Limit	Deductible	Limit	Deductible	Limit	Deductible	Limit
PSEG	10,000	400,000	10,000	200,000	(B)	200,000	2,500	85,000
Peer Group (A)	3,833	393,000	8,250	825,883	4,583	181,667	3,250	69,167

(A) Comprised of six public utility companies in the eastern and midwestern region of the U.S. with both gas and electric operations, comparable revenues and employee base.

(B) Ranges from $0 (Side A) to $10M (Side C)

Response to OC-0470.

PSEG's reduction in its property limit resulted in the Company falling below its peer group (whose limits ranged from $250M to $2B). However, PSEG reported a lower insurable asset base relative to peer companies.

Insurance Premiums

Premiums have increased approximately 6% from 2018 - 2021, as summarized below.

Table 23-3 – PSEG Insurance Premiums, 2018-2021

[BEGIN CONFIDENTIAL]

Policy	Annual Premiums 2018	2019	2020	2021
Corporate Property (A)	[redacted]			
Corporate - Excess Liability				
Corporate - D&O				
Corporate - Cyber				
Other				
Total	**$ 15,135,368**	**$ 16,825,717**	**$ 18,657,816**	**$ 16,050,616**
YOY Increase (B)	**-**	**11.2%**	**10.9%**	**(14.0%)**

(A) Property insurance on fossil assets was transferred out of PSEG in 2021 in connection with the pending sale.

(B) Excluding corporate property, the 2021 premium increase was 8.3%.

Source: Response to OC-1765.

[END CONFIDENTIAL]

Cyber insurance is becoming more prominent in the Company's portfolio, as the risks across the industry increase. The IT Department is heavily involved in the annual renewal of the cyber policy, such as completing a detailed questionnaire and assessment that covers its cybersecurity programs. The Company has also seen the focus of its coverages expand beyond data theft exposures (which was the main concern five years ago) to infrastructure protection and ransomware now.[4]

PSEG's participation in mutual insurance organizations, which are owned by its members, have benefitted the company in the last several years. These insurers have issued substantial premium refunds to its membership, which have reduced PSEG's annual premium expense by nearly $20 million on average over the past three years. Nuclear property insurance, provided by NEIL, accounted for over 90% of refunds between 2018 and 2021.[5]

The company believes that its ongoing review and analysis of the insurance market, and its modifications to the policy SIR's and limits over the past few years has led to superior cost performance. The EEI benchmarking data appear to support this assertion.

Table 23-4 – 2020 Premium Increases (EEI Risk Management Survey)

(amounts in $000's)	Premium Increase in FY 2020			
	Excess Liability	Property	D&O	Cyber
PSEG	15%	7%	13%	5%
Peer Group	19%	25% (A)	19%	4%

(A) Excluding one peer utility that reported a 67% premium increase, the average was 16%.

Response to OC-0470.

High double-digit premium increases were seen across nearly all sectors of the market while PSEG's increases were notably lower in every area except cyber.

Insurance Claim History

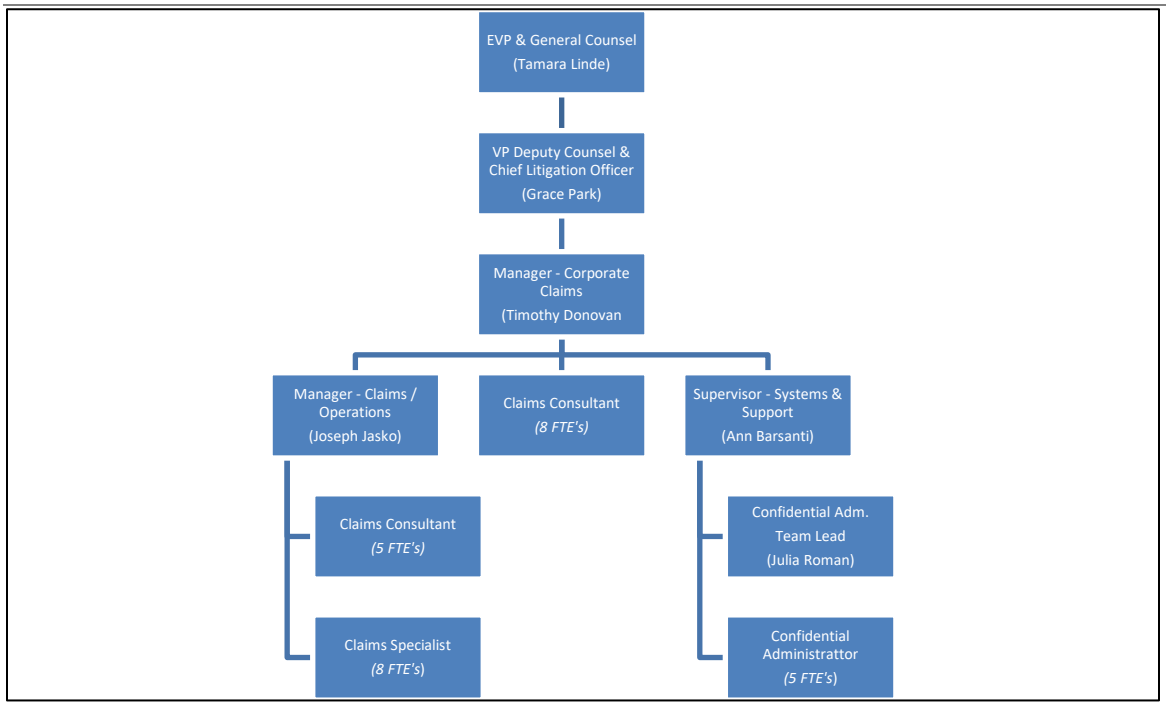
Only one claim has been paid out by insurers to PSEG since 2018. A fire at the Waldwick substation in 2015 caused damages to equipment and surrounding homes and required a substantial remediation effort. Total costs associated with the incident were $16.4 million, of which **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** was recovered in 2020 after the deductible was applied.[6]

[4] Interview of Brian Sassano on May 24, 2022.
[5] Response to OC-1860.
[6] Response to OC-1767.

Claims Management

The claims function resides within the Legal Department in the PSEG Services organization, under the direction of Grace Park, VP, Deputy General Counsel & Chief Litigation Officer. The day-to-day investigation and review process for third-party claims is led by Timothy Donovan, the Manager of Corporate Claims. This does not include workers compensation claims from PSEG employees, which are administered through the Human Resources department. An organization chart of the Claims group is shown below.

Table 23-5 – Claims Management Organization Chart[7]



The key claims management functions are assigned employees within the Claims group as follows:[8]

- Manager – Corporate Claims: responsible for overall management of the daily operations of the Corporate Claims Department. Also provides direct oversight of non-litigated claims consultants assigned to the northern regions of PSE&G and litigated claims consultants who administer litigated claims throughout the state.
- Manager - Claims/Operations: responsible for the daily operations of several practice areas within the Claims group, including the claims specialists located in the corporate office and the non-litigated claims consultants assigned to the Central and Southern regions of PSE&G.

[7] Response to OC-0418.
[8] Response to OC-1768.

- Supervisor Systems & Support: responsible for managing the Corporate Claims administrative staff and the administration of the department's claim management system, known as ROXI.

Claims Consultants act as claims case managers, who home base report, are assigned claims within their assigned territory. They perform investigations and interact directly with field employees, customers and other parties. Claims Specialists review and process lower dollar claims involving property damages that do not require field investigations.
The Company receives claims from numerous sources. Members of the public can file a claim using a web page, emailing the Claims Group directly, or filling out a Property Damage Claim Form (an Adobe Acrobat document). All of these can be accessed through the Company's main website. Claims are also initiated by operations employees and technicians (in cases such as vehicle accidents or appliance damage).[9]

Claims processing has been automated through the ROXI system. The software was internally developed and implemented in 2011. It serves as the case management system, document repository, and system of record for financial reserves. ROXI also interfaces with PSEG's payment system for authorized claims payouts. Approval to pay claims is formally documented in Practice 680-1, "PSEG Delegation of Authority." While the policy grants approval authority to Claims Specialists ($10K) and Claims Consultants ($100K), the software is designed to permit only the Manager of Corporate Claims or his supervisors to post reserve amounts or release claim payments. The system approval limits are consistent with the formal delegation of authority.[10]

Claim Payments

The majority of third party injury and property damage claims are resolved through direct interaction with claimants and are therefore not litigated. Claim payments are summarized on the following table.

Table 23-6 – PSE&G Claim Payments, 2018-2021

	2018	2019	2020	2021
Claims	4,242	4,191	8,703	3,946
Amount Paid	$ 19,407,963	$ 11,850,668	$ 12,742,552	$ 8,493,341
Response to OC-1863.				

The amounts paid per year can fluctuate considerably due to the timing of litigation activities. For example, the Company paid settlements of **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** or

[9] Interview of Timothy Donovan on May 25, 2022.
[10] Interview of Timothy Donovan on May 25, 2022.

more in two litigated cases during 2018, whereas no settlements of more than **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** were paid in 2019.[11]

In 2020, PSE&G agreed to pay claims related to **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. The Company received in excess of 5,000 claims, with payments totaling approximately **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.[12] Otherwise, claim payments have trended lower in recent years.

Litigated Claims

Liability reserves are placed on third party claims when the Company has determined a loss is probable and reasonably estimable. The reserves are captured in the ROXI system and, as with claim payments, require approvals consistent with the delegation of authority to be processed. There is no floor amount for which a reserve may be recorded; however, the reserve balance is primarily comprised of claims in some state of litigation. These cases typically have higher reserve valuations and can take years to resolve.[13] The reserve balances are summarized below.

Table 23-7 – PSE&G Third Party Claim Reserve Balances as of December 31, 2018-2021

[BEGIN CONFIDENTIAL]

Incident Type	2018	2019	2020	2021
Electric Contact - Non Fatal	[redacted]			
MV Accident - PS At Fault				
Explosion Gas				
Falldown				
Asbestors				
Other				
Total				

Response to OC-1769.

[END CONFIDENTIAL]

The change in balances were largely attributable to the addition of large case reserves for discrete incidents, including a **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**. The number of reserved claims has remained stable over the past three years.

[11] Response to OC-1865, New Jersey Litigation and Claims Metrics: Analysis of 2015-2020 Data, page 4.
[12] Response to OC-1865, New Jersey Litigation and Claims Metrics: Analysis of 2015-2020 Data, page 1.
[13] Interview of Timothy Donovan on May 25, 2022.

Claim Recoveries

The Claims group is responsible for coordination and collection from third parties of property damages and losses incurred by PSE&G where the other party is at fault. Examples include infrastructure damage from unauthorized excavations, vehicle collisions and pole damage. Collections have declined slightly, as shown on the following table.

Table 23-7 – Claim Recoveries, 2018-2021

	2018	2019	2020	2021
Claims	1,795	1,750	1,538	1,472
Amount Recovered	$ 11,839,954	$ 13,521,076	$ 11,523,833	$ 10,238,560
Response to OC-1864.				

The Company attributed the decline to the pandemic, which reduced vehicle traffic and construction activity, which represent the most frequent incident types.[14]

Key Performance Indicators

The Claims group tracks several metrics to assess the efficiency and effectiveness of the claims process on both the payment function and the recovery function:[15]

- Settled vs. Demand – compares the final settlement amount to the amount demanded by the claimant (for property claims only).
- Paid vs. Reserves – measures the difference between the settlement amount on litigated claims and the amount reserved on the claim report from the prior quarter.
- Electric Accident Billing Cycle – measures the timing for the Confidential Administrators to send a third party bill when a final damage cost report has been received from the operating division. The goal is to send the bill within 20 days.
- Recovered Metric – identifies the amounts PSE&G recovered compared to its initial demand. It excludes claims that are referred to counsel and some cases where allowances were made due to the other party's ability to pay (e.g., lack of insurance).

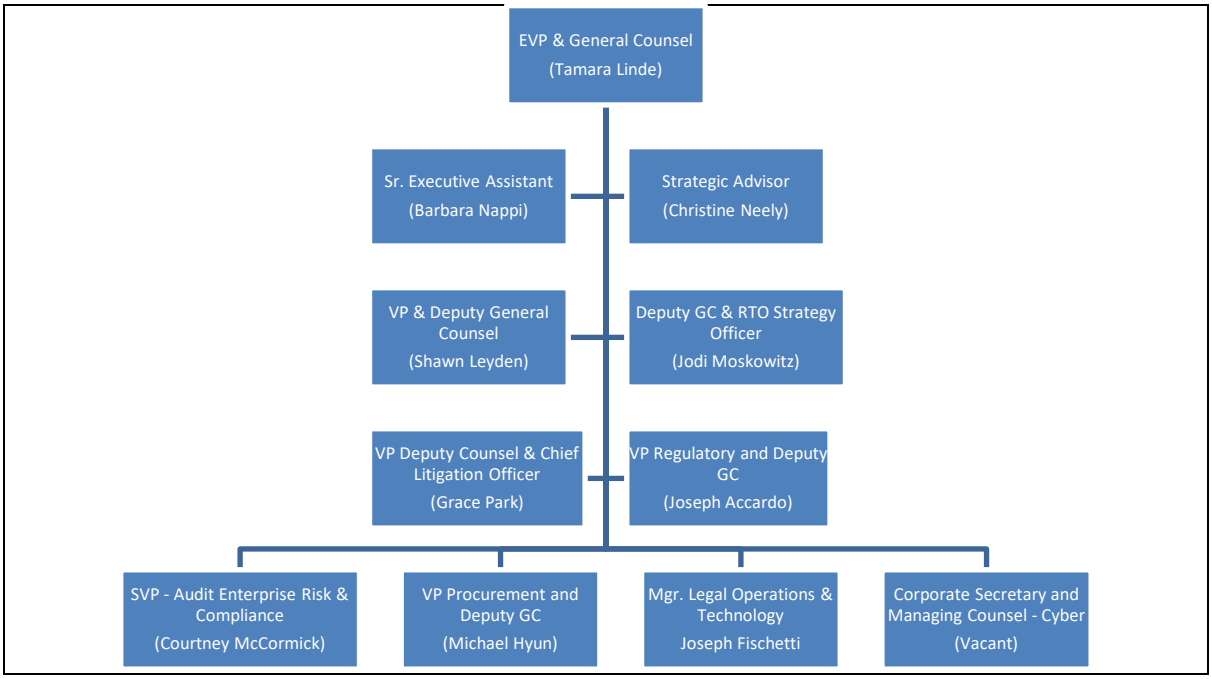
[14] Response to OC-1864.
[15] Response to OC-1866.

Law Department

Organization

PSEG's Legal Department resides organizationally within PSEG Services. The Legal Department is led by Executive Vice President and General Counsel Tamara Linde, who was previously responsible for Government Affairs and Corporate Security, both of which have since moved from the Legal Department Organization. Ms. Linde reports to Ralph Izzo, PSEG's Chairman and CEO. Below is an organization chart of the department as currently constructed.

Table 23-8 – PSEG Legal Department Organization Chart as of August 2022[16]



Legal functions are managed within the following divisions:

- VP & Deputy General Counsel – is responsible for commercial transactions and manages the PSEG LI legal group.
- Deputy GC and RTO Strategy Officer – supports the nuclear and power operations, including regulatory and environmental matters.
- VP Deputy Counsel & Chief Litigation Officer– is responsible for third party claims, torts, collections, and bankruptcies.

[16] Response to OC-0439 (Update).

- VP Regulatory & Deputy General Counsel – manages regulatory proceedings at the state level, including filings with the NJBPU. Also has responsibility for labor and employment matters.
- Corporate Secretary and Managing Counsel – Cyber – provides legal support to the board, manages policy and corporate governance.
- Legal Operations & Technology – provides administrative and technical support to the Legal Department.

In 2021, two major organizations that had existed elsewhere within PSEG Services were transferred to the Legal Department: the procurement function and internal audit. Previously reporting to the President of PSEG Services, the rationale for moving the purchasing group to the Legal Department was the synergy in vendor contract creation and management.[17] The purchasing function is led by an attorney and is responsible for vendor selection, vendor management and accounts payable, but not materials management or logistics (which reports to the President of PSE&G).

PSEG's internal audit function, under the direction of Courtney McCormick, previously reported to the EVP & CFO. The company undertook a strategic review of its audit, risk and compliance functions and elected to create a new senior executive position with responsibility for all of these of these areas. Enterprise risk management had previously been assigned to Laurence Pommier Chief Risk Officer, who reported to PSEG's CFO. Ms. McCormick is now designated as Chief Risk Officer and Chief Audit Executive. Many of the compliance functions (i.e., health and safety, ethics, records management) that had been scattered throughout the company were centralized into this department. The oversight of the compliance activities within the Legal Department was a key factor in its organizational placement.[18] The reorganization of the risk management and internal audit functions are discussed further in Chapters 13 and 14, respectively.

A number of changes to the Legal Department have been occurred over the last several years. While the headcount today is roughly the same as the beginning of 2018, there have been several material changes to the department during this time period, as shown on the following table.

[17] Interview of Tamara Linde and Joseph Accardo on May 20, 2022.
[18] Interview of Tamara Linde and Joseph Accardo on May 20, 2022.

Table 23-9 – Legal Department Staffing Changes, 2018-2022 (through May)

Legal Department Staffing Changes, 2018-2022 (May)	
Legal Department Employees at 12/31/17	**235**
Transfer of Nuclear Security to Corporate Security within Legal Department	275
Transfer of Federal and State Governmental Affairs to new Corporate Citizenship organization	(49)
Other personnel changes	(6)
Legal Department Employees at 12/31/18	**455**
Consolidation of NERC compliance and oversight functions in Ethics & Compliance within Legal Department, including transfer of PSE&G and Power employees to the Legal Department	6
Other personnel changes	(6)
Legal Department Employees at 12/31/19	**455**
Transfer of Corporate Security to new Corporate Security and Properties organization	(313)
Consolidation of Regional Transmission Organization (RTO) within Legal Department, including transfer of PSE&G employees to the Legal Department	13
Other personnel changes	(3)
Legal Department Employees at 12/31/20	**152**
Transfer of Procurement to the Legal Department	99
Transfer of Employee Relations investigatory function from HR to Ethics & Compliance within the Legal Department	4
Creation of new assurance senior leadership position with accountability for Enterprise Risk Management, Ethics & Compliance and Internal Audit reporting into Legal Department	17
Other personnel changes	(20)
Legal Department Employees at 12/31/21	**252**
Transfer of Procurement (Long Island only) from Legal Department to Long Island Business Services	(21)
Other personnel changes	6
Legal Department Employees at 5/31/22	**237**
Response to OC-1855.	

Law Department Management

PSEG employs a larger number of staff attorneys than peer utilities, as the company prefers more direct control over legal matters. However, outside counsel is used for major corporate initiatives (such as the recent fossil asset sale) and in areas which the company lacks specific expertise.[19] External law firm expenditures by litigation subject area are summarized on the following table.

[19] Interview of Tamara Linde and Joseph Accardo on May 20, 2022.

Table 23-10 – PSEG External Legal Spend, 2018-2021[20]

Legal Category	2018	2019	2020	2021	Total
Environmental Law	$ 4,802,043	$ 3,912,812	$ 4,027,898	$ 4,618,311	$ 17,361,064
Torts/Liability	4,720,547	2,736,599	2,956,488	4,647,135	15,060,768
Regulatory/Compliance	1,859,199	2,129,241	2,957,314	3,963,811	10,909,566
Corporations/Business Entities	527,160	768,590	2,362,569	6,831,348	10,489,668
Real Estate	2,737,830	1,979,229	2,243,048	2,832,020	9,792,127
Contracts/Commercial Law	2,619,409	1,106,363	663,184	2,384,945	6,773,901
Employment/Labor	435,087	1,413,501	1,243,281	1,291,234	4,383,103
Other	1,594,316	1,747,950	2,528,540	1,734,247	7,605,053
Grand Total	**$ 19,295,592**	**$ 15,794,285**	**$ 18,982,323**	**$ 28,303,051**	**$ 82,375,250**

Outside legal expenses increased 57% in 2021 over the prior three-year average. The increased spend was attributable, in large part, due to fees associated with the fossil asset sale, a review of the compliance investigation process, and FERC enforcement matters.

The department identifies and selects preferred outside counsel firms to support emergent matters through a competitive request for proposal (RFP) procedure every three years.[21] The procurement cycle is currently underway, with the next group of external firms to be selected by December 2022.

The Legal Department began using Legal Tracker software from Thomson Reuters in 2018 for matter management and e-billing. A new document management system, iManage, was implemented in August 2020 that includes interfacing capability with Legal Tracker.[22]

Board Communications

The EVP & General Counsel is responsible for updating the board on material litigation. A litigation report is a standard agenda item for every Audit Committee meeting. Meeting materials contain written summaries of significant legal matters, but discussion is usually limited to updates since the last meeting. The full board obtains information though Audit Committee read-outs, CEO communications, and, when appropriate, a formal update at a board meeting.[23]

Benchmarking

In 2020, the Legal Department retained Ethisphere, LLC ("Ethisphere") to evaluate and benchmark the Company's ethics and compliance program. The report concluded that PSEG was very engaged in

[20] Response to OC-1857.
[21] Response to OC-0605.
[22] Response to OC-0605.
[23] Interview of Tamara Linde and Joseph Accardo on May 20, 2022. Ms. Linde indicated that an update on the Passaic River litigation is on the Board's agenda for later this year.

implementing a best practices ethics and compliance framework, had support for the programs at the leadership team and board levels, and had a strong safety culture.[24]

Ethisphere used six assessment categories in their examination of PSEG's compliance programs and provided scoring metrics ranging from "Solid" to "Very Strong" in each category, representing the midpoint to highest score on Ethisphere's scale. All areas were deemed to have met or exceeded expectations, but the report did make four key recommendations:[25]

- Deploy a survey dedicated to measuring employee perceptions of ethical culture. PSEG was deemed to be behind its peers in the mechanisms it used to assess corporate culture.
- Consider additional opportunities to differentiate learning by function, region or level and review metrics to track training effectiveness. Training improvement suggestions included providing risk-specific training for employees by function and using additional metrics to measure training effectiveness.
- Review current policy deployment and language level. Policies were found to be written in dense language with high reading comprehension levels required. They were also found to be located at multiple places within the company, decreasing the ability to track engagement (click metrics).
- Review current system for monitoring activities related to gifts and entertainment. The existing system relies on manual tracking, whereas best practices include system-supported processes requiring preapproval and disclosure.

The company is still working to implement the recommendations from the benchmarking study.

Facilities and Land Management

The following section discusses the organization that is responsible for oversight of PSEG's facilities and the utility's land.

Organization

PSEG's facilities and PSE&G's land are overseen by a group within PSEG Services Corporation. The organization is headed by Stephen Kelly, Senior Director – Corporate Real Estate and Facilities Management. Mr. Kelly heads a group of approximately 70 individuals that is responsible for strategic planning, asset investment, facility construction and management, real estate taxes, and organizational

[24] Response to OC-0608, Compliance Leader Verification Assessment Findings Report, May 18, 2020, page 8.
[25] Response to OC-0608, Compliance Leader Verification Assessment Findings Report, May 18, 2020, pages 10-11.

performance management among other things. Prior to 2016, facilities management was decentralized and handled at the local level.[26]

Facilities

In mid-2021, PSEG employees and contractors occupied 84 different facilities.[27] The most significant of these facilities is summarized in the following table:

Table 23-11 – PSEG Facilities Summary June 2021

PSEG Facilities Summary June 2021						
Facility	Primary Use	Owned / Leased	Assigned Occupancy			
			PSE&G	Power	PSEG Svcs	Total
Newark General Office	Executive / Administrative HQ	Leased	867	86	870	1,823
Nuclear	Nuclear Generating Station	Owned	-	1,329	365	1,694
Hadley Road	Warehouse / Engineering	Owned	571	-	27	598
Palisades Electric Div HQ	Office / Service Garage / Warehous	Owned	389	-	1	390
Central Electric Div HQ	Administrative	Owned	374	-	4	378
Clifton Gas District HQ	Office / Warehouse	Owned	372	-	2	374
Metropolitan Electric Div HQ	Office / Warehouse	Owned	362	-	-	362
Southern Electric Div Moorestown Sub HQ	Office / Service Garage / Warehous	Owned	303	-	3	306
Southern Electric Div Lawrenceville HQ	Office / Service Garage / Warehous	Owned	290	-	1	291
Jersey City Gas District HQ	Office / Warehouse	Owned	266	-	-	266
Burlington Gas District HQ	Office / Service Garage / Warehous	Owned	249	-	-	249
Plainfield Gas District HQ	Office / Service Garage / Warehous	Owned	244	-	-	244
Summit Gas District HQ	Office / Service Garage / Warehous	Owned	234	-	-	234
Cragwood - Delivery Projects and Constructio	Office	Leased	104	29	88	221
Audobon Gas District HQ	Office / Service Garage / Warehous	Owned	218	-	1	219
Other Facilities			2,476	-	5	2,481
Total			**7,319**	**1,444**	**1,367**	**10,130**

Sources: Derived or obtained from Responses to OC-0482 and OC-1742 , the interview of Stephen Kelly, Senior Director - Corporate Real Estate and Faci Management on April 26, 2022, and an informal clarification received May 5, 2022 (headcounts were obtained from OC-1742).

As can be seen in the preceding table, the most significant employee-occupied facilities are generally owned by one of the PSEG entities. The two primary exceptions to this rule are: 1) the PSEG headquarters building in downtown Newark which is leased through September 30, 2030 and has 2 five-year renewal options and 2) the Cragwood office located in South Plainfield Borough which is leased through January 31, 2023 and has 1 five-year renewal option.[28] A discussion of the Newark headquarters facility is addressed later in this chapter.

Transactions involving real estate are governed by Section 11 of PSEG Practice 930-1 (PSEG Practice for Transaction Review). This practice calls for functional area expert (FAE) review of transactions prior to contract closing so that a thorough evaluation of the transaction and its associated risks are performed.

[26] 2021 PSEG Services Corporation organizational data, pages 142-157, provided in Response to OC-0418 (Confidential), and Interview of Stephen Kelly, Senior Director Corporate Real Estate and Facilities Management, on April 26, 2022.

[27] This excludes an additional 17 facilities that were solely occupied by PSEG Long Island employees and contractors.

[28] Response to OC-1743.

FAEs can include the Law Department, Enterprise Risk Management, Accounting, Tax, and Business Unit Finance among others depending on the nature of the contract, counter-party post-closing obligations, dollar amount involved, etc.[29]

Land

According to the company, there are no known restrictions that apply to PSE&G with respect to land ownership with the exception that the utility must first obtain approval of the New Jersey BPU before selling land.[30] Internally, all land sales are subject to guidelines set forth in PSEG's Enterprise Financial Risk Management Practice, which requires any land sales to private third parties must be approved by the Utility Real Property Committee. As noted in the chapter addressing Non-Rate Related Revenues, sales of property by PSE&G have been relatively insignificant in the years 2019 and 2020. Based on data provided by the company, gains on the disposition of real estate in those two years cumulatively totaled less than $500,000.

As of June 2021, PSE&G identified 93 parcels of vacant land that it owned or leased and that it did not classify as held for future use. Only six of these parcels were estimated to be in excess of 10 acres with the largest one being approximately 96 acres in size. It is located in Andover Township. The vast majority of the land parcels (62 in total) are estimated to be less than one acre in size.[31]

In addition to this property, the Company classified another ten parcels of land as held for future use. These included approximately 43 acres in Eastampton Township adjacent to the Double Circuit 5038 from New Freedom to Deans right-of-way in Westhampton which will be needed to expand the right-of-way from 250 feet to 350 feet to accommodate a second 500kV circuit; nearly 19 acres in Chesterfield Township to be used as a corridor for a future connection between the existing Mercer 230kV station and future converted Burlington-Trenton circuits; and approximately 14 acres in Edison Township for a future Oak Tree Road switching station where four existing transmission circuits cross.[32]

Beginning in March of 2018, real estate acquisition is managed under the Enterprise Real Estate Transactions Council (ERETC), chaired by the Senior Director – Corporate Real Estate and Facilities Management. Besides the chair, this council consists of a standing member from the Legal Department. The Council also includes a director level member or members from the effected line(s) of business. The ERETC establishes guidelines for determining the prudency of real estate rights acquisition. It approves any acquisition involving certain unusual risks, including prices that exceed 120 percent of appraised value, environmental risk, relocation payments, and the waiving of governmental approvals prior to

[29] Response to OC-0480 (Confidential).
[30] Response to OC-0481.
[31] Response to OC-0488.
[32] Response to OC-0488.

closing. If these risks do not exist, the transaction is subject to the approvals established under Practice 930-1 which was noted previously.[33]

Balanced Scorecard

The Real Estate and Facilities balanced scorecard results for 2020 are summarized in the following table:[34]

[33] Response to OC-1741.

[34] Information for the "L/H" column was derived from the reported results.

Table 23-12 – PSEG Services Real Estate and Facilities 2020 Balanced Scorecard

PSEG Services Real Estate and Facilities 2020 Balanced Scorecard				
Key Performance Indicator	**L/H**	**2020 Target**	**2019 Actual**	**2020 Actual**
People Providing:				
OSHA Recordable Event Rate	L	0.02	-	-
OSHA Severity Rate	L	-	-	-
Availability	H	96.8%	93.0%	99.2%
Work Management Performance	H	90.0%	NA	96.3%
Safe, Reliable:				
Mapping On-Time Submittals	H	95.0%	93.8%	95.9%
Real Estate Land Acquisitions	H	82.3%	95.6%	92.3%
Railroad Tracker	H	86.7%	85.7%	16.7%
Customer Satisfaction	H	80.0%	60.0%	88.0%
Economic:				
Tax Appeal Net Savings ($M)	H	1.68	0.82	2.07
O&M Plan vs. Actual ($M)	L	58.6	57.3	56.6
GO Total Occupancy Cost per RSF	L	38.28	38.02	36.53
Gas & Electric Facility Maintenance Cost /	L	5.93	NA	6.39
SOX Deficiency Rate	L	-	-	-
Strategic Sourcing % Savings	H	7.0%	NA	7.5%
Supplier Diversity	H	17%	16%	19%
Green Energy:				
Usable GO Space Allocation per FTE	L	457	457	457
GO Electric Usage kWh / Sq Ft	L	1.04	1.06	1.10
Gas & Electric Faciltiy kWh / Sq Ft	L	1.00	1.02	0.92

Source: 2020 Balanced Scorecard provided in response to OC-0478 (Confidential).
Numbers presented in red are key performance metrics that were not achieved in 2020.
The "L/H" column indicates whether the goal is to be lower (L) or higher (H) than target.

OSHA = Occupational Safety and Health Administration
GO = General Office (aka Newark downtown headquarters)
SOX = Sarbanes-Oxley
FTE = Full-Time Equivalent
kWh = Kilowatt Hour
Sq Ft = Square Foot

Scorecard definitions can be found in Appendix 23-1.

The three key performance indicators that PSEG's Real Estate and Facilities organization failed to meet in 2020 were attributed to the COVID-19 pandemic. Specific reasons given include:[35]

[35] 2020 balanced scorecard for Real Estate and Facilities provided in the Response to OC-0478 (Confidential).

- Railroad-related milestones were missed because many of them were associated with a small, family-run railroad that did not have the resources to process PSE&G's license applications in a timely manner after the shutdown related to the pandemic.
- Facility maintenance costs increased because additional cleaning, signage, and touchless ice machines were implemented or installed in response to the pandemic.
- COVID-19 protocols resulted in increased outside airflow in the Newark headquarters facility, which resulted in assets working harder to condition air and maintain humidity levels.

Benchmarking

A 2017 benchmarking study performed by the Hackett Group indicated that PSEG's real estate process cost[36] per square foot was in the first quartile of a utility peer group and slightly more than first quartile of a peer group selected based on the PSEG organization's size and complexity. In addition, the same study showed that PSEG's facilities management total cost[37] per square foot was in the first quartile of both the utility and similarly-sized peer groups.[38]

A February 2018 benchmarking analysis performed by Accenture identified some savings opportunities in the Real Estate and Facilities organization, several of which were focused on the centralization of management.[39] PSEG had adopted a centralization strategy shortly before this report was released, and the cost savings identified by Accenture with respect to Fossil operations are most likely moot with the proposed sale of these assets to a third party that was announced in 2021.

The company also produced more recent benchmarking data concerning the Real Estate and Facilities organization. One, performed by BenchCore in **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, was primarily focused on the types of activities that a Real Estate and Facilities organization performs in-house vs. outsources. However, no conclusion was reached by BenchCore on which approach was preferable, and PSEG's handling of these functions was undocumented,[40] so the usefulness of this study for our purposes is limited. PSEG worked with Ernst & Young to produce a second source of recent benchmarking data. It compared employee levels of PSEG's Real Estate and Facilities organization with other utilities and concluded that PSEG was over-staffed on a relative basis in Business Solutions and Capital Project Management. However, in four other areas, PSEG was determined to be understaffed. PSEG's total staffing for its organization fell within the low and high peer

[36] Labor and outsourcing costs.

[37] Labor, applied labor, surcharges, materials, outside services, and other primary costs.

[38] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** Hackett Group benchmarking study, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, provided in the Supplemental Response to OC-0458 (Restricted).

[39] **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]** Accenture benchmarking analysis, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, provided in the Supplemental Response to OC-0458 (Restricted).

[40] Discussions with management also frequently did not yield any additional information.

group statistics – the implication being that PSEG could possibly benefit from restructuring its organization, but no cost savings would likely be realized due to reduced headcount.[41]

COVID-19 Pandemic Impact on Facility Usage

The lockdowns associated with the COVID-19 pandemic in early and mid-2020 had a major impact on the usage of PSEG facilities. While there were exceptions for companies offering critical infrastructure, many of PSEG's employees were required to work from home and to have limited contact with the public. Although these stay-at-home orders were subsequently lifted in New Jersey after approximately two and a half months, over two years later, a significant number of PSEG administrative, back-office, and executive employees continue to primarily work from home. Data for the Newark downtown headquarters through the end of 2021 demonstrates the impact that COVID-19 had on that facility's usage:

Table 23-13 – PSEG Newark Downtown Headquarters Average Daily Use

PSEG Newark Downtown Headquarters Average Daily Usage			
Month	**Employees**	**Contractors**	**Total**
December 2019	1,172	204	1,376
March 2020	783	122	905
June 2020	73	67	140
September 2020	83	71	154
December 2020	66	62	128
March 2021	93	66	159
June 2021	88	62	150
September 2021	107	64	171
December 2021	75	43	118
Source: Second update to the Response to OC-0489.			

Although no decision with respect to office space needs has been finalized to date,[42] management has developed plans to reconsider how the space at the Newark downtown headquarters will be utilized on a prospective basis. These plans include a transition away from assigned seating to more flexible options such as reserved seating, in which an employee requests a space in advance and is designated a specific location in the facility by management which can change from visit to visit.

In an April 2021 presentation, management suggested that using a reservation system for seating needs would allow PSEG to "re-stack" the 21 floors leased in downtown Newark so that 7 of them could "go dark."[43] PSEG would still be obligated to pay rent for these 7 floors until the lease terminates in 2030,

[41] Benchmarking data provided in Response to OC-0479. Response to OC-1829 provides clarification on the sources of this data.

[42] A January 2021 presentation on the subject suggested that thorough analysis would take from 18 to 24 months.

[43] Even though usage of the facility has dropped by over 90% (see Table 23-7 above), some of the floors are dedicated for specific use (e.g., cafeteria, fitness center, etc. although it is not clear if these would be essential in the future) and other

but it could avoid incremental costs to service these floors such as utilities, janitorial services, security, etc. **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**.[44]

As noted previously, no final decision on space needs has been finalized to date, and the situation is fluid with projected reentry dates having been postponed several times in the past.[45] Therefore, the dollar impact the work-at-home model will have on PSE&G is unknown.

Materials Management

Organization

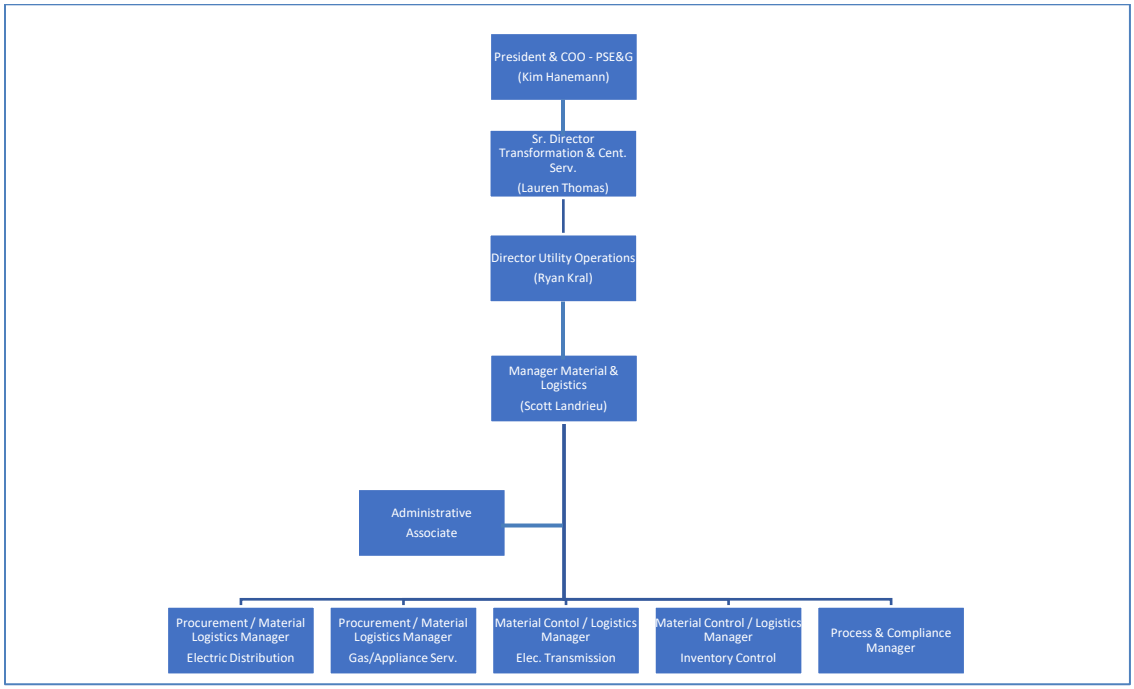
The Materials & Logistics Management ("M&LM") group is responsible for inventory management and warehouse functions across PSE&G's territories. The function is managed by Scott Landrieu, Material & Logistics Manager, and resides within the Utility Operations Department in the Transformation & Centralized Services Division led by Lauren Thomas.

space is needed for collaborative efforts (e.g., conference rooms). In addition, there are requirements associated with separation of functions that is dictated by BPU rules that may increase the need for space. Overland did not attempt to analyze the reasonableness of PSEG's preliminary, prospective space requirements.

[44] Response to OC-0490 (Restricted) and Interview of Stephen Kelly, Senior Director Corporate Real Estate and Facilities Management, on April 26, 2022.

[45] The original reentry date was projected to begin in July 2021 according to a January 2021 presentation. It was later delayed to September 2021 per the April 2021 presentation. According to management, the reentry date was instead at the beginning of 2022 (Interview of Stephen Kelly, Senior Director Corporate Real Estate and Facilities Management, on April 26, 2022).

Table 23-144 – PSE&G Materials & Logistics Management Organization as of April 2022[46]



PSE&G's Logistics Managers oversee field operations based on major material group: Electric Distribution, Electric Transmission/Substation, and Gas/Appliance Services. In addition, there are two administrative management roles. The Inventory Control Manager has control of the material master files (e.g., creation of new materials in the ERP system), and generates monthly reports and analysis from the system. The Process & Compliance Manager is responsible for scorecard reporting, control self-assessment, Sarbanes-Oxley documentation, and, until recently, fossil inventory.

PSE&G has separate inventory storage sites for electric and gas inventory, except for the Clifton, New Jersey location, where both are kept in separate areas. There are 10 storage locations for electric materials - two warehouses in each of the four divisions (Southern, Central, Metro and Palisades), and separate sites for Inside Plant and Projects & Construction material.

Gas inventories are maintained at 13 warehouse locations that are geographically dispersed in the Company's four divisions (Southern, Mid-Central, Central, Northern). Appliance Services inventory is kept at the Orange, New Jersey warehouse.

Electric and gas inventory items remain in stock until they are issued from warehouse locations to field employees. Appliance Services materials assigned to service vehicles are inventory assets until used for a customer repair or installation. Thus, each Appliance Services van is a storage location.

[46] Response to OC-1774.

All warehouse locations are secured with perimeter fencing and badge access. Outside storage yards have cameras on key locations.[47]

Inventory balances by location is summarized on the table below.

Table 23-15 – PSE&G Inventory Balances, 2018-2021

(amounts in 000's)	Inventory Balances at December 31,			
District/Division	**2018**	**2019**	**2020**	**2021**
Electric				
Central	$ 14,691	$ 14,534	$ 19,593	$ 21,893
Metro	19,176	23,432	20,689	23,683
Palisades	18,915	19,784	20,282	22,800
Southern	7,892	9,266	8,256	9,184
State Stock/Emergency	14,258	17,281	19,307	16,969
Substation	17,452	18,476	16,909	16,460
Transmission	61,686	65,452	67,097	78,339
Subtotal Electric	**$ 154,070**	**$ 168,225**	**$ 172,133**	**$ 189,328**
Gas / Appliance Services				
Audubon	$ 351	$ 373	$ 416	$ 396
Burlington	143	172	168	198
Trenton	169	159	165	167
New Burnswick	153	160	207	284
Plainfield	127	220	193	226
Orange	414	409	461	417
Central Stock	15,981	15,329	11,867	14,446
Summit	128	142	170	181
Harrison	65	81	94	66
Jersey City	87	72	67	87
Clifton	340	316	375	407
Oradell	217	300	469	278
Oakland	228	231	221	241
PDC/Appliance Serv.	6,524	6,792	7,125	7,617
Subtotal Gas / Appliance Serv.	**$ 24,927**	**$ 24,756**	**$ 21,998**	**$ 25,011**
Total Inventory	**$ 178,997**	**$ 192,981**	**$ 194,131**	**$ 214,339**

Note: Does not include electric or gas metering supplies.

Response to OC-1775.

Inventory balances for electric materials have increased 7% on average between 2018 and 2021, largely driven by the increase in transmission material. Management attributed the increases to upgraded components being used in new transmission and renovated transmission equipment. Because the newer

[47] Response to OC-1778.

components will take several years to be fully integrated into PSE&G's network, parts inventories for both the existing and new equipment must be kept in stock.[48]

Inventory Processes

All inventory transactions are recorded and maintained in SAP. Master data for each material are kept in the Materials Management module, which interfaces with the Purchasing function for parts ordering. SAP automatically values inventory using a moving average price that resets when new inventory purchases are made. Access to the material master files is limited to the M&LM group analysts and managers at the corporate office.

Vendor-shipped parts and materials are received on storeroom loading docks by storeroom personnel. Incoming shipments are compared with the packing slip and purchase order to ensure compliance with stated quantities and technical specifications. The stock handlers or warehouse clerks enter goods receipts into SAP, adding the quantities into the system.

The release of materials from the storeroom to field operations is typically controlled through the SAP work management processes. Work orders contain the required materials for the construction project as well as the accounting detail (i.e., capex project number, cost center expense coding, etc.). The completed work order becomes the storeroom's authorization to release materials for use.

Operations personnel can present the work order number to storeroom personnel through a manually created pick list, which must be approved by a supervisor, or a pick list generated directly from the work order. However, there are exceptions to this process, such as:

- Routine maintenance that does not require upfront planning. Materials are released to the requestor upon presentation of a pick list with the material required.
- Bulk, high turnover, low-unit value, and consumable materials are stored kept in self-service bins in accessible areas of the warehouse. Binned items are not inventoried – the materials are issued from inventory when the bins are replenished.[49]

Since warehouse locations are not staffed 24/7, personnel requiring materials during off hours have access to inventory stores. Operations personnel leave a pick list of all material taken that denotes the material number, quantity, account coding (i.e., work order number), and name/signature. The goods issuances are then entered by storeroom staff the following day. The off-hour access lists are reviewed weekly by the Process & Compliance Manager and staff.[50]

[48] Interview of Ryan Kral and Scott Landrieu on June 15, 2022.
[49] Response to OC-1773.
[50] Response to OC-1778.

Materials are routinely transferred between storage locations to meet local needs. These transfers are recorded in SAP both by the issuing and receiving locations. The Inventory Control group monitors material in-transit between sites to ensure completion of each transaction.[51]

The majority of inventory assets are physically counted on an annual basis using a cycle count method.[52] Each month, warehouse supervisors select materials to be counted in the SAP system, from which blind count sheets are generated. After the counts are completed by storeroom personnel, the supervisors review and investigate count variances. Inventory adjustments up to $10,000 per item and $50,000 per count sheet may be made without further approvals.[53] Count variances exceeding $20,000 require a formal root cause investigation and disposition.

Inventory shrinkage has not been material over the past four years, and the results show improvement in PSE&G's inventory management controls in more recent periods, as summarized below.

[51] Response to OC-1773.

[52] Material Logistics uses an ABC method to categorize inventory assets. "C" materials, the slowest moving group of materials, are counted biannually.

[53] Response to OC-1779.

Table 23-16 – Inventory Shrinkage, 2018-2021

Net Adjustments				
Area	**2018**	**2019**	**2020**	**2021**
Electric Distribution	$ (828,574)	$ (327,721)	$ (272,117)	$ (291,612)
Electric Transmission	(21,459)	(198,692)	(41,158)	(24,779)
Gas	(49,889)	(12,394)	1,535	4,608
Appliance Services	(276,690)	(386,063)	(389,261)	(281,848)
Total	**$ (1,176,612)**	**$ (924,871)**	**$ (701,001)**	**$ (593,631)**

Gross Adjustments				
Area	**2018**	**2019**	**2020**	**2021**
Electric Distribution	$ 2,603,224	$ 1,161,643	$ 717,596	$ 559,996
Electric Transmission	137,065	987,316	113,337	59,891
Gas	88,517	61,815	19,324	22,742
Appliance Services	636,897	1,965,859	746,333	980,563
Total	**$ 3,465,703**	**$ 4,176,633**	**$ 1,596,590**	**$ 1,623,192**

Adjustments Over $20,000				
Area	**2018**	**2019**	**2020**	**2021**
Electric Distribution	6	3	-	-
Electric Transmission	1	3	1	-
Gas	-	-	-	-
Appliance Services	-	-	-	2
Total	**7**	**6**	**1**	**2**

Response to OC-1779.

Material Logistics Performance

The pandemic has contributed to supply chain problems in several areas: wood poles, transformers, cabling, and personal protective equipment. M&LM has developed strategies to address these challenges, including the addition of qualified vendors, purchase commitments over extended timeframes (up to two years in advance), and increased stock levels. PSE&G has not been forced to delay capital projects due to material unavailability.[54]

Minimum stock levels are retained in the SAP system, which facilitates the automated reordering procedure that generate purchase requisitions when quantities fall below the threshold. Review of stock levels has been an informal procedure involving discussions among warehouse supervisors and logistics

[54] Interview of Ryan Kral and Scott Landrieu on June 15, 2022.

personnel. However, M&LM has not analyzed its material throughput to determine optimal inventory stock levels, although a procedure is currently in development.[55]

The M&LM group maintains a monthly Balanced Scorecard that tracks metrics in categories that correspond to PSEG's corporate KPI's: People, Safe/Reliable, Economic, and Green. A sample of key metrics are shown on the following table.

Table 23-17 – Materials and Logistics Management Selected KPI's 2018-2021

Metric	2018	2019	2020	2021
Staffing Levels - Permanent	121	114	111	112
Overtime %	25.41%	17.51%	23.37%	22.48%
Inventory Turns	1.32	1.22	1.45	1.31
Net Inventory Dollar Accuracy	99.67%	99.70%	99.88%	99.86%
Total Lines per Stock Handler	4,154	3,785	3,426	2,332
Inventory Write-off	$2,587,372	$2,417,416	$1,697,924	$ 927,349
Response to OC-1881.				

The M&LM group exceeded its 2021 goals in the areas of staffing levels, inventory accuracy and write-off values. It did not meet goals for overtime, inventory turns or total lines per handler.

External Benchmarking

The Purchasing and M&LM functions have participated in an annual utility benchmarking study performed by CAPS Research, affiliated with Arizona State University. The peer group includes many of the largest utility companies in the United States. Selected metrics from the 2020 report, based on 2019 data is presented in the following table.

[55] Response to OC-1883.

Table 23-18 – Selected 2020 Material Logistics Benchmark Results

Metric	PSE&G Value	Quartile
Total lines per material handler	2,496	Fourth
Total warehouse cost per line item - Electric	$81.90	Third
Total warehouse cost per line item - Gas	$29.60	Third
Total warehouse cost per line item - Utility	$76.03	Third
Inventory turns - Electric	1.0	Fourth
Inventory turns - Gas	1.8	Second
Inventory intensity - Electric	0.010	Third
Inventory intensity - Gas	0.005	Second
Inventory value per circuit mile (Electric)	$5,593	Fourth
Inventory value per distribution service line (Gas)	$547	Second
Inventory value per number of customers (Electric)	$62.59	Third
Inventory value per number of customers (Gas)	$21.72	Third
Response to OC-0493, *Like-Size Utilities 2020 Report* , CAPS Research.		

Management believes the underperformance relative to peers can be attributed in part to factors such as the population density in PSE&G's service territory, which impacts costs per mile and per line. Also, the transmission equipment upgrade program, which has necessitated elevated inventory levels, are responsible for the higher inventory levels and lower turnover.[56]

Transportation

The following section discusses the organization responsible for overseeing PSE&G's transportation function.

Organization

The organization responsible for the oversight of PSE&G's transportation needs is a part of the utility within the Transformation and Centralized Services group, which is currently headed by Senior Director, Lauren Thomas. Joe MartindelCampo (Manager of Transportation and Fleet, Fleet Maintenance) has primary responsibility for this organization and reports to Ryan Kral (Director of Utility Operations Services, Utility Operations Services) who in turn reports to Ms. Thomas.[57]

[56] Interview of Ryan Kral and Scott Landrieu on June 15, 2022.

[57] Interview of the Transportation Panel (Ryan Kral, Director Utility Operations Services; Joe MartindelCampo, Manager Transportation and Fleet; and Randolp DeKranis, Fleet Administrative Manager) on April 12, 2022.

Mr. MartindelCampo oversees 209 employees and is responsible for:[58]

- Vehicle purchases, repairs, maintenance, and fleet lifecycle management,
- Utility fleet fueling systems, tankers, and fleet fuel management systems,
- Transportation administrative functions (e.g., titling, registration, etc.),
- Transportation performance management.

A great many of the employees reporting directly or indirectly to Mr. MartindelCampo are mechanics or shop workers who are assigned to one of 23 different garages throughout the state of New Jersey. The largest of these garages is the Fleet Maintenance Center which has 50 mechanics assigned to it; followed by the Southern Electric Division garage located in Moorestown (15 mechanics) and the Central Electric Division garage located in Somerset (14 mechanics). Many of the garages, especially those focused on PSE&G's gas fleet are smaller and are typically staffed by five mechanics.[59]

Fleet

The PSE&G fleet serviced and maintained by the organization above consists of the following types of equipment:

Table 23-19 **– PSE&G Summary of Fleet March 2022**

PSE&G Summary of Fleet March 2022			
Category	**Owned**	**Leased**	**Total**
Vehicles	5,195	187	5,382
Trailers	968	0	968
POE	627	2	629
Other	7	0	7
Total	**6,797**	**189**	**6,986**

Source: Derived from Supplemental Response to OC-1736.

Vehicles consists of SUVs, pick-ups, autos, etc. which operate over-the-road.
POE = Power-operated equipment which consists of backhoes and skid steers which operate off-road.
Other consists of boats and Polaris Rangers (yard equipment).

As can be seen in the preceding table, most fleet assets are owned by PSE&G although a small percentage is leased under long-term agreements. In addition, the Projects and Construction organization manages 111 PSE&G transmission assets that are the subject of month-to-month rentals

[58] Joe MartindelCampo resume.
[59] Responses to OC-1804 (Confidential) and 0482.

because work levels in the past did not justify a purchase or long-term lease. These 111 assets are not included in the table above and are not overseen by PSE&G's Transportation organization. However, as the continued use of these assets is reconsidered by management, those that are converted from short-term rentals to long-term leases will be moved to PSE&G's Transportation group. These conversions are anticipated to be made by the end of 2022.[60]

PSE&G's Transportation organization handles all administrative tasks (titling, registration, etc.), emergency (road call) services, repairs and maintenance, and disposition of the utility's assets listed in Table 23-1 above. It also handles similar tasks for a vehicle fleet of PSEG Services Corporation assets totaling 153, most of which are owned. Finally, this utility organization also assumes administrative and emergency responsibility for a fleet of PSEG Power assets that totaled 232 in March of 2022. With the impending sale of PSEG Power's non-nuclear assets, this number will be reduced by approximately 120 fleet assets in the near future. While no fleet assets are jointly used or shared between different PSEG entities, any non-utility services provided by the Transportation group are direct billed or allocated to the benefiting affiliate.[61]

Fleet Costs

The Transportation organization's costs incurred for administering and servicing all fleet assets owned and leased, including PSEG Power and PSEG Services Corporation assets, for the past three years is summarized in the following table:[62]

[60] Response to OC-1737.
[61] Response to OC-1736 and Interview of the Transportation Panel on April 12, 2022.
[62] Response to OC-1827.

Table 23-20 – PSEG Fleet Costs

PSEG Fleet Costs			
Description	**2018**	**2019**	**2020**
Depreciation	$34,259,755	$33,625,890	$33,333,508
Interest	7,427,706	7,281,894	6,152,892
Licensing	1,572,314	1,530,743	1,600,168
Ownership Sub-Total	**43,259,775**	**42,438,527**	**41,086,568**
Technician	19,918,797	19,663,076	19,718,133
Parts	13,263,267	12,600,117	13,144,448
Outside Vendor	1,934,863	1,958,071	1,997,235
Fuel	16,290,723	14,117,721	10,406,602
Operating Sub-Total	**51,407,650**	**48,338,985**	**45,266,418**
Support Labor	5,241,503	5,776,314	6,025,844
Other	1,369,694	1,454,521	1,489,440
Support Sub-Total	**6,611,197**	**7,230,835**	**7,515,284**
Total	**$101,278,622**	**$98,008,347**	**$93,868,270**
Source: 2020 Utilimarc Fleet benchmarking survey, p. 5 (within rounding) pr in the Supplemental Response to OC-0487 (Restricted).			

As noted in the table above, the Fleet organization has been able to decrease its costs in recent years, and initiatives that it has adopted are expected to help it control costs on a prospective basis. These include equipping vehicles with automated vehicle tracking so that assets can be located quickly for scheduled preventative maintenance (estimated annual savings = $235,000), synchronizing preventative maintenance intervals with manufacturer guidelines resulting in extensions of some intervals (estimated annual savings = $137,000), increasing the use of retread tires vs. new tires for replacements (estimated annual savings = $330,000), and replacing the fuel management system which has resulted in reduced labor costs because data can be obtained wirelessly (estimated annual savings = $80,000).[63]

In addition to these specific initiatives, according to management, it takes the following steps to minimize the costs of ownership and on-going maintenance of fleet assets. PSE&G competitively bids vehicles and equipment on the Power Advocate procurement portal using technical specifications developed by user departments. Purchase volumes allow the Company to receive discounts from vehicle and equipment manufacturers. The replacement of fleet assets is based on criteria developed for each type of asset, including expectations of lifecycle and actual mileage.

Maintenance and repairs are largely performed by PSE&G mechanics on location or nearby garages.[64] Preventative maintenance is asset-dependent and based on a combination of usage (mileage) and

[63] Responses to OC-1800 and 1739.

[64] Exceptions include windshield and/or glass repair, alignment, and certain types of transmission work.

elapsed time, whichever occurs first. Parts and supplies are also competitively bid, and purchase volumes allow the Company to receive discounts.[65]

While the minimization of costs Is an important factor in the decision to perform in-house repairs and maintenance, an added benefit is the ability to mitigate asset downtime by scheduling repair and maintenance during evening hours or the weekend when outside vendors are not necessarily available.[66]

Balanced Scorecard

The Transportation balanced scorecard for Utility Operations Services in 2020 was as follows:

[65] Responses to OC-0475 and 1738, and Interview of the Transportation Panel on April 12, 2022.
[66] Interview of the Transportation Panel on April 12, 2022.

Table 23-21 – PSE&G Utility Operations Services – Transportation 2020 Balanced Scorecard

PSE&G Utility Operations Services - Transportation 2020 Balanced Scorecard				
Key Performance Indicator	**L/H**	**2020 Target**	**2019 Actual**	**2020 Actual**
People Providing:				
OSHA Recordable Incidence Rate	L	0.64	1.85	-
OSHA Days Away Rate	L	2.35	34.80	-
Motor Vehicle Accident Rate	L	4.49	6.78	-
Availability - Illness	H	97.3%	98.2%	98.7%
Overtime	L	16.7%	13.7%	16.7%
Staffing Levels - Permanent	L	210	208	197
Employee Development - MAST	H	100%	100%	100%
BU Employee Tech Training (hrs)	H	1,800	9,123	2,792
Safe, Reliable:				
Vehicle Preventative Maint Compliance (%)	H	99.0%	99.6%	98.8%
Mean Time Between Service (Days)	H	91.3	97.7	100.9
Maint / Repair Cost per MRU ($)	L	1,560	1,615	1,414
Mechanics Productivity	H	71.0%	73.9%	71.4%
Economic:				
Vehicle Capital Spend ($M)	H	28.3	24.1	29.0
Accountability O&M ($M)	L	14.0	14.8	14.6
Incurred Budget ($M)	L	43.1	43.2	45.0
Green Energy:				
Fleet Miles per Gallon	H	10.7	11.0	10.7
Fleet Mileage Collection Rate	H	90.0%	91.1%	82.7%

Source: 2020 Balanced Scorecard provided in Responses to OC-0485 (Confidential) and 1828.
Numbers presented in red are key performance metrics that were not achieved in 2020.
The "L/H" column indicates whether the goal is to be lower (L) or higher (H) than target.

OSHA = Occupational Safety and Health Administration
MAST = Management, Administrative, Supervisory, and Technical (non-union employees)
BU = Business Unit
MRU = Maintenance Repair Unit

Scorecard definitions can be found in Attachment 23-1

In 2020, the vehicle preventative maintenance compliance percentage was negatively impacted by the COVID-19 pandemic. Since many associates were working from home, it was more difficult to provide timely maintenance on the fleet. In addition, more vehicles were placed into service to conform to the

one-person-per-vehicle guidance that was adopted. This put additional pressure on the garages to keep up with maintenance on a larger asset base.[67]

Likewise, the COVID-19 pandemic had a detrimental effect on the Accountability O&M, Incurred Budget, and Fleet Mileage Collection Rate metrics. The Company incurred additional costs to clean and sanitize vehicles, to set up additional remote reporting locations, and by imposing a one-person-per-vehicle restriction. In addition, the establishment of remote reporting sites was not conducive to obtaining manual odometer readings which ultimately impacted the Fleet Mileage Collection Rate.[68]

Although not used directly to determine incentive compensation to employees participating in the short-term incentive compensation plans offered by the company, the scorecard results are used for assessing individual merit and performance.[69]

Benchmarking

PSEG participates in an annual benchmark study conducted by Utilimarc which, in 2020, included 44 other utility companies.[70] PSEG's relative performance against peers is summarized in the following table:

Table 23-22 – Utilimarc Key Fleet Benchmarks

[BEGIN CONFIDENTIAL]

Utilimarc Key Fleet Benchmarks		
Category	**PSEG**	**Participant Average**
Average Age - Vehicles	6.98	[redacted]
Van (Class 2b) Cost per Mile	$1.07	[redacted]
Bucket Truck (Class 8) Cost per Mile	$8.22	[redacted]
Vehicle Equivalency per Technician	1,150	[redacted]
Vehicle Equivalency per Support Staff	3,966	[redacted]
Annual Billed Hours per Technician	1,806	[redacted]
Technician Labor Cost per Billed Hour	$71.50	[redacted]
Technician Wage and Benefits	$48.06	[redacted]
Fleet Cost per Vehicle Equivalency	$421.17	[redacted]
Vehicle Cost per Vehicle Equivalency	$430.97	[redacted]
Cost per Retail Customer	$23.23	[redacted]
Source: 2020 Utilimarc Fleet benchmarking survey provided in the Supplemental Response to OC-0487 (Restricted).		

[END CONFIDENTIAL]

[67] Response to OC-1802 (Confidential).
[68] Response to OC-1828.
[69] Interview of the Transportation Panel on April 12, 2022.
[70] In some cases, data from individual utilities of a larger utility holding Company was provided by other participants. Each of these individual utilities was counted as a unique participant in the Utilimarc study.

Vehicle equivalency (VE) ". . . is a weighting metric used to compare diverse fleets on a variety of metrics. Each unit is assigned a VE rating based on its class and the average annual labor hours received by that class across the industry, adjusted for outsourcing practices."[71]

Van (Class 2b) and bucket truck (Class 8) data was compared to peers because these two types of equipment result in nearly one-third of the costs incurred by PSEG's Transportation organization in 2020. Management explained that metrics involving benchmarked costs per mile may not be particularly illuminating since PSE&G operates primarily in a dense urban service territory where fleet assets make many starts and stops which negatively affects fuel consumption and wear and tear on its fleet assets. In addition, many utilities in the benchmarking study were not combination electric and gas utilities and thus had fewer types of assets to service. Finally, given the COVID-19 pandemic protocol to have one person per vehicle, PSEG continued operating some older vehicles that would normally have been taken out of service. This increased PSEG's cost per mile in 2020.[72]

[71] 2020 Utilimarc Fleet benchmarking survey, **[BEGIN CONFIDENTIAL]** [redacted] **[END CONFIDENTIAL]**, provided in the Supplemental Response to OC-0487 (Restricted).

[72] Interview of the Transportation Panel on April 12, 2022 and Response to OC-1803.

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Real Estate and Facilities Balance Scorecard
Selected Definitions of Metrics

Attachment 23-1

Response to OC-0478 (Confidential).

2020	Decsription	Calculation
Real Estate Land Acquisition	Shared measure with DP&C, designed to track and monitor the Real Estate/Land Acquisition transaction process based on scheduled Milestones. Milestones are tracked and reported on “monthly” and “year to date” basis as weighted averages.	Percent of Planned vs Actual Milestones (“monthly” as well as “year to date” basis as a weighted average) with a 15-day milestone recovery period. Results reported on a monthly basis.
Railroad Tracker	The measure is designed to track and monitor the application process progress on railroad property rights and easements based on schedule. Milestones are tracked and reported on a “monthly” as well as a “year to date” basis as weighted averages. Activity dates have been established for: Date Package Submitted; Date Application Package Received; Date Submitted to Railroad; Date Fully Executed Agreement Received; and Scheduled Flagging Service	Percent of Planned vs Actual Milestones (“monthly” as well as “year to date” basis as a weighted average) with a 15-day milestone recovery period. Results reported on a monthly basis.
O&M Plan vs. Actual ($M)	Measures YTD O&M	O&M as reported by SC finance on the monthly BPR, incurred expense net of offsets and including depreciation and secondary charges.
Mapping On-Time Submittals	The measure is designed to monitor submittal date forecast accuracy for mapping requests given by SMG to its clients. Milestones are tracked and reported monthly and year-to-date as weighted averages. Dates will be established for plan reviews and final submittals. Submittal dates are established by client consent and assumes on-time and complete submittal of inputs from the project.	Percent of on-time submittals vs total submittals. Results reported on a monthly basis.
Tax Appeal Net Savings ($M)	Reductions in property taxes realized due to appeals settled and invoiced in the calendar year.	Assessment reduction multiplied by the tax rate for the respective year, net of attorney commission and fees.
GO Total Occupancy Cost per RSF	O&M Spend per rentable square footage of Corporate HQ	Total O&M divided by Rentable Square footage
GO Electric Usage kWh/Sq.Ft	GO Electric usage associated with the heating and cooling for occupant comfort and critical system areas, i.e., data center, ER&T.	Total GO kWh/ RSF
Usable GO Space Allocation per FTE	GO total square footage divided by general office employees	GO square footage divided by number of general office employees as reported by HR
OSHA Recordable Event Rate	This metric is designed to measure the total number of OSHA recordable events per calendar year.	Number of recorded OSHA incidents.
OSHA Severity Rate	The number of lost work days experienced per 100 workers.	The actual number of lost work days times 200,000 (a standardized estimate of the hours worked by 100 employees) divided by the actual, total number of hours worked by all employees results in the severity rate.
Work Management Performance	Measures projects completed	100% less the number of active work orders not on hold expressed as a percentage of orders worked
SOX Deficiency Rate	Measures the number of SOX Deficiencies identified through audits over total number of SOX controls	Number of SOX Deficiencies identified through audits divided by total number of SOX controls

Public Version - Redacted

Real Estate and Facilities Balance Scorecard
Selected Definitions of Metrics

Attachment 23-1

Response to OC-0478 (Confidential).

2020	Decsription	Calculation
Supplier Diversity	% of vendor spend managed by FM categorized by procurement as being certified with the state as minority, woman, veteran or LGBTQ	% of spend diverse suppliers over total material and outside services spend
Gas & Electric Facility kWh/Sq.Ft	YTD Average Kwh as reported on intercompany usage report expressed as a percent of square feet for Gas and Electric Facilities	YTD Average divided by total square footage
Availibility	The percentage of time employees are available to work by looking at the ratio of sick time taken to total employee hours.	Reported by Enterprise as percentage of base hours - illness hours.
Customer Satisfaction	Percent satisfaction based on survey to be administered to clients on bi annual basis.	Percent satisfaction based on survey to be administered to clients on bi annual basis.
Gas & Electric Facility Maintenance Cost/Sq Ft	Cost of Maintenance for Gas and Electric Facilities based on Sqaure footage of facility	Total Actual O&M less other primary costs plus allocated overhead net of COVID costs divided by Rentable Square footage
Strategic Sourcing % Savings	Percent of savings from initiatives sourced in the current year from previous contract. New categories not previously consolidated and no SLA developed.	Savings delta divided by previous contract.