



STATE OF NEW JERSEY
Board of Public Utilities
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CLEAN ENERGY

IN THE MATTER OF REVISIONS TO NEW JERSEY'S) ORDER
CLEAN ENERGY PROGRAM SEPTEMBER 2010)
PROTOCOLS TO MEASURE RESOURCE SAVINGS) DOCKET NO. EO09120975

Parties of Record:

Joe Gennello, Honeywell Utility Solutions, 5 East Stow Road, Suite E, Marlton, NJ 08053
Diane M. Zukas, TRC Energy Solutions, 900 Route 9 North, Suite 404, Woodbridge, NJ 07095
Mike Ambrosio, Applied Energy Group, 317 George Street, Suite 305, New Brunswick, NJ 08901

BY THE BOARD:

BACKGROUND AND PROCEDURAL HISTORY

On February 9, 1999, the Electric Discount and Energy Competition Act, N.J.S.A. 48:3-49 et seq. (EDECA) was signed into law. The Act established requirements to advance energy efficiency and renewable energy in New Jersey through the societal benefits charge (SBC), at N.J.S.A. 48:3-60(a)(3). EDECA further empowered the Board to initiate a proceeding and cause to be undertaken a comprehensive resource analysis of energy programs, currently referred to as the comprehensive energy efficiency (EE) and renewable energy (RE) resource analysis (CRA). After notice, opportunity for public comment, public hearing, and consultation with the New Jersey Department of Environmental Protection (NJDEP), within eight months of initiating the proceeding and every four years thereafter, the Board would determine the appropriate level of funding for EE and Class I RE programs (now called New Jersey's Clean Energy Program or NJCEP) that provide environmental benefits above and beyond those provided by standard offer or similar programs in effect as of February 9, 1999.

By Order dated September 30, 2008, Docket No. EO07030203, the Board concluded its third CRA proceeding and set funding levels for the years 2009 through 2012. By Order dated December 22, 2010, Docket Nos. EO07030203 and EO10110865, the Board approved 2011 programs and budgets. By Orders dated April 13, 2011 and June 2, 2011, 2011 the Board approved modifications to the 2011 programs and budgets.

By Order dated September 21, 2010, Docket No. EO09120975, the Board approved a document entitled *Protocols to Measure Resource Savings (Protocols)* dated September 2010 which are the most recent *Protocols* approved by the Board and which are used by the program managers to estimate energy savings and renewable energy generation. The *Protocols* include algorithms for measuring energy and other resource savings or renewable or clean energy generation that result from implementation of New Jersey's Clean Energy Program. The *Protocols* require updating from time to time as baselines against which energy savings are measured are changed due to upgrades in energy codes or appliance efficiency standards, as programs are added or changed, as a result of program evaluations, or due to other changes in the assumptions used to measure resource savings. In this Order the Board will consider proposed modifications to the *Protocols* that primarily reflect the addition of algorithms to calculate savings from measures fueled with oil or propane and updated inputs to the algorithms.

PROPOSED REVISIONS TO PROTOCOLS

The Office of Clean Energy (OCE) asked the Market Managers, Honeywell and TRC, to submit proposed revisions to the *Protocols* to account for updated energy building codes and energy appliance standards and the addition to several new measures to the programs. These revisions reflect updated energy building codes adopted by reference by the Department of Community Affairs (DCA) for residential buildings as set forth in the International Energy Code Commission (IECC) 2009 and for commercial/industrial buildings as set forth in American Society of Heating, Refrigerating And Air Conditioning Engineers (ASHRAE) 90.1 2007. Energy appliance standards are regulated by the US Department of Energy (USDOE).

The NJCEP provides incentives to install equipment with efficiency levels that are higher than the minimum efficiency levels required by the Energy Codes and/or energy appliance standards. *Protocols* utilize the energy codes and standards as the baseline for calculating energy savings. The recent adoption of higher building energy codes and energy appliance standards, which raise the baseline against which energy savings are calculated, results in a lower level of estimated energy savings per measure installed.

New algorithms were added to reflect new measures that were added to the Residential Gas and Electric HVAC, Energy Efficient Products, Home Performance with Energy Star, Commercial and Industrial (C&I) Retrofit, and Direct Install programs. Language was added to the protocol for the Pay for Performance program to account for program exceptions and to the Direct Install program to expand specific measures to include fuel savings for oil and propane. Applied Energy Group (AEG), the NJCEP Program Coordinator, compiled the proposed modifications to the *Protocols* proposed by the Market Managers and prepared a redlined draft that identified all of the proposed modifications to the *Protocols*.

On May 24, 2011 AEG circulated the redlined draft of the *Protocols* to the Energy Efficiency and Renewable Energy committee distribution lists, including the Division of Rate Counsel (Rate Counsel), the State's electric and natural gas utilities, the New Jersey Utilities Association (NJUA), environmental groups, and local governments and requested comments on the draft *Protocols* by June 15, 2011. Several groups submitted comments, which are summarized below.

SUMMARY OF COMMENTS

Comments were submitted by Rate Counsel and Nexant, Inc. There were several minor editorial and referencing comments that were integrated into the *Protocols*. The following summarizes the substantive written comments received.

Comment: Rate Counsel objects to the inclusion of the calculation of lost revenue as a use of the *Protocols*.

Response: This issue has been raised by Rate Counsel on multiple occasions in comments regarding previously approved *Protocols* and addressed by the Board in the previous two Orders approving those *Protocols*. As the Board has previously stated, if it were to approve lost margin recovery, it would not be bound by these *Protocols* in calculating such recovery. In addition, the Board found that using a consistent methodology to estimate energy savings and generation for all purposes is an important factor for keeping the language in the *Protocols*. August 7, 2009 Order in Docket No. EO07120961 at p. 6; December 17, 2009 Order in Docket No. EO09120975.

Comment: Rate Counsel questioned whether and how the *Protocols* were revised to meet PJM's requirements for energy efficiency resources to bid into the PJM capacity market and urged the New Jersey Clean Energy Program to actively pursue available PJM capacity market revenues.

Response: In order to participate in the PJM capacity market an entity must submit a Measurement and Verification (M&V) Plan to PJM. The first section of the Plan must include the nominated energy efficiency value that an entity plans to bid into the PJM capacity market, where the methods and procedures for determining the nominated value must be discussed. The current *Protocols* may be sufficient to meet PJM's requirements to calculate the nominated energy efficiency values to be included in an M&V plan. The remaining sections of PJM's M&V plans are dedicated to post-installation savings measurements and verification, which is outside the current scope of the *Protocols* as a deemed savings calculations document.

The OCE concurs with Rate Counsel that the NJCEP should pursue the sale of capacity savings that result from the NJCEP to PJM. The OCE has met with representatives of PJM to explore opportunities and requirements for the NJCEP to aggregate participants into a portfolio and bid the capacity savings into the PJM capacity market. However, bidding capacity into PJM raises a number of public policy issues that must be resolved by the Board that are outside of the scope of the instant proceeding which is limited to updating the *Protocols*.

Comment: Both Nexant and Rate Counsel requested the source for Electric Resistance Heating Annual Fuel Utilization Efficiency (AFUE) in the Residential Gas HVAC program.

Response: Electric resistance heat was calculated by determining the overall fuel cycle efficiency by dividing the average PJM heat rate (9,642 BTU per kWh) by the BTUs per kWh (3,413 BTU per kWh), resulting in an AFUE of 35%.

Comment: Rate Counsel recommends adjusting furnace and boiler MMBtu savings downward from 5.2 MMBtu savings for both to 3.8 and 4.1 MMBtu for boilers and furnaces respectively.

Response: Staff agrees that the current fixed savings appear overestimated. Using the methodology and calculations provided in the comments by Rate Counsel to calculate the

Energy Savings, and applying Staff's values and assumptions, Staff determined that this would result in the appropriate lower values of 4.2 and 4.5 MMBtu for boilers and furnaces respectively. Staff notes that the values in the text provided by Rate Counsel differ from the values included in the calculations provided by Rate Counsel. Staff utilized the calculations provided by Rate Counsel which results in the recommended lower values. The protocols have been revised to incorporate these values.

Comment: The Pay for Performance program has exceptions to the 15% energy use reduction requirement for customers under a specific load threshold. Nexant recommends accepting all manufacturing and processing facilities, subject to pre-approval, since it may be difficult to quantify load at many facilities.

Response: Staff agrees that exact quantification of process loads may be difficult to quantify, however, the exception needs to be bounded to facilities that are process-driven. The protocol is intended to address situations where an energy intensive process exists in a facility and that process represents a small percentage of the total energy consumption. The language for the exception was modified to include "approximately" to refer to the energy usage of facilities that are process-driven.

Comment: Rate Counsel requested more specific sources for Gas Booster Water Heaters in the Commercial and Industrial Construction Program.

Response: The capacity factor data point is referenced from the Summit Blue New Jersey Market Assessment. Two capacity factors are suggested at 27% and 32%, respectively. Utilizing a reasonable average for the figures provides a capacity factor of 0.3. The Protocols have been updated to incorporate this reference.

Comment: Rate Counsel requested justification for utilizing residential efficiency standards for commercial and industrial programs for the Direct Install Program.

Response: In developing the protocol for HVAC systems in the Direct Install Program, no sources were found for default efficiencies for existing C&I equipment. The referenced RESNET Report included default values for residential equipment. Staff used these values as a basis for developing age-based default efficiencies for larger equipment, under the assumption that the residential and commercial equipment standards ramped up over time in a consistent manner.

Comment: Rate Counsel inquired about savings and lifetime references for ENERGY STAR Products, specifically for refrigerators, clothes washers, and consumer electronic products.

Response: Savings references were listed for refrigerators and clothes washers. However, further research on clothes washers by Honeywell identified relevant updated savings values. Because of this, the energy, gas, and water savings estimates were revised slightly upwards based on recent information from the US Department of Energy and other regional studies. With regards to consumer electronics, Staff removed protocols for LCD monitors, desktop computers, and televisions because they are not currently offered through the Clean Energy Program. If these measures are offered in the future, protocols will be developed to calculate their demand and energy savings.

Comment: Rate Counsel inquired what *Protocols* apply to the Large Energy Users (LEU) Pilot Program.

Response: The LEU Pilot is similar to the Pay for Performance Program and the *Protocols* associated with Pay for Performance should apply. In cases where a project addresses a specific end use, *Protocols* for that technology may be used. The *Protocols* have been updated to include the LEU Pilot and a reference to either the Pay for Performance Program or technology specific protocols.

Comment: Rate Counsel requested a basis for the exception numbers for the Pay for Performance Program.

Response: The Pay for Performance Program included this modification for process-related facilities because they offer unique challenges for addressing energy efficiency opportunities. Because process loads can be very large on an annual basis, several projects were noted as having difficulty with the 15% energy reduction target. The 4% alternative target was developed by analyzing data from the DOE Industrial Assessment Center (IAC) database. The value of 4% was found to be the median reduction in energy use intensity for the 90 projects included in the analysis. Minimum estimated savings of 100,000 kWh was developed as a threshold as it corresponds to 15% savings for a typical 100 kW customer with a high load factor. In the event that the process is fossil fuel driven, the associated minimum of 350 MMBtu is the rough equivalent of 100,000 kWh in a direct conversion.

Comment: Rate Counsel inquired what *Protocols* apply to the Pay for Performance New Construction Program.

Response: The *Protocols* for Pay for Performance New Construction program are equivalent to the Existing Buildings component of Pay for Performance. The one exception is that for new construction projects, the baseline is determined using a simulation model based on constructing the building to ASHRAE 90.1-2007 standards following the methodology described in ASHRAE Appendix G and the Pay for Performance Simulation Guidelines.

DISCUSSION AND FINDING

Staff circulated a revised draft of the *Protocols* for comment and addressed all of the comments received on the proposed *Protocols*. The Board carefully considered the public comments on the draft *Protocols*. Based on the comments and recommendations of Staff, the Board believes a revision of the *Protocols* is necessary. The Board **FINDS** that the *Protocols* should be updated from time to time so that they are current with federal and State codes and standards, are reflective of current technologies and building practices and other changes in the marketplace, including the addition of new NJCEP programs and program components.

The OCE conducted an open and public process to solicit feedback from interested stakeholders. The Board **HEREBY FINDS** that Staff solicited input from the public and circulated a revised draft of the *Protocols*. The Board **FURTHER FINDS** that the current draft of the *Protocols* reflects the input of the participants in the process.

For the above reasons the Board **FINDS** that the proposed *Protocols* include a reasonable methodology and are appropriate for estimating energy savings and renewable and distributed generation. The Board supports ongoing program evaluation to inform additional updates to the *Protocols* and **DIRECTS** the OCE to continue coordinating the development of an evaluation plan. Based on the above, the Board **HEREBY APPROVES** the *Protocols to Measure Resource Savings* dated July 2011 for use in estimating savings from 2011 program measures.

DATED: 9/22/11

BOARD OF PUBLIC UTILITIES
BY:



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PRESIDENT



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COMMISSIONER



JOSEPH L. FIORDALISO
COMMISSIONER

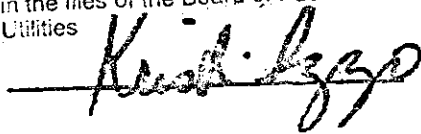


NICHOLAS ASSELTA
COMMISSIONER

ATTEST:

KRISTI IZZO
SECRETARY

I HEREBY CERTIFY that the within
document is a true copy of the original
in the files of the Board of Public
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In the Matter of Revisions to New Jersey's Clean Energy Program
September 2010 Protocols to Measure Resource Savings - Docket No. EO09120975

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