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May 1, 2012

Via Overnight Delivery and Electronic Mail

Honorable Kristi Izzo, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
P.O. Box 350
Trenton, New Jersey 08625-0350

Re: **New Jersey Clean Energy Program - Draft Revisions
to the July 2011 Protocols (issued April 2012)
Comments of the New Jersey Division of Rate Counsel**

Dear Secretary Izzo:

Enclosed please find an original and ten copies of comments submitted on behalf of the New Jersey Division of Rate Counsel in connection with the above-captioned matters. Copies of the comments are being provided to all parties by electronic mail and hard copies will be provided upon request to our office.

We are enclosing one additional copy of the comments. Please stamp and date the extra copy as "filed" and return it in our self-addressed stamped envelope.

Honorable Kristi Izzo, Secretary
May 1, 2012
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Thank you for your consideration and assistance.

Respectfully submitted,

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**New Jersey Clean Energy Program
- Draft Revisions to the
July 2011 Protocols (issued April 2012)**

**Comments of the New Jersey
Division of Rate Counsel**

May 1, 2012

Introduction

The Division of Rate Counsel (“Rate Counsel”) would like to thank the Board of Public Utilities (“BPU” or “Board”) for the opportunity to present our comments on the proposed revisions (“Draft Protocols”) to the Clean Energy Program Protocols (“Protocols”) submitted in red-line form to stakeholders for comment by Applied Energy Group (“AEG”), the Market Coordinator for the Clean Energy Programs (“CEP”), on April 17, 2012.¹

As noted below, certain source references are absent from the Draft Protocols. Rate Counsel reserves its right to provide further comments in response to the submission of source references as well as in response to other developments affecting the Draft Protocols.

I. Background

Presently, the Office of Clean Energy (“OCE”) and the Market Managers for CEP’s energy efficiency (“EE”) and Renewable Energy (“RE”) programs use the current version of the *Protocols to Measure Resource Savings* to track the energy and demand savings (and RE generation) resulting from participation in CEP programs. Energy and demand savings data submitted by the CEP Market Managers – calculated using the Protocols – is compiled by the OCE’s CEP Program Coordinator, who then prepares quarterly and annual reports on CEP activity and results to the Board.

In addition, the Protocols have been used by several utilities to estimate prospective energy savings associated with the EE measures and programs found in their energy efficiency economic stimulus (“E3”) programs initially approved by the Board in 2009.

II. Substantive Comments on Recommendations Regarding the Protocols

A. Overall Comments

Rate Counsel has three overall comments on the Draft Protocols. The first concerns the authors’ proffered use of the protocols to measure lost revenues. The second overall concern is the absence of any plan to develop protocols which would enable the CEP’s EE measures to

¹ The draft of the Protocols was entitled: “New Jersey Board of Public Utilities, New Jersey Clean Energy Program, Protocols to Measure Resource Savings: Revisions to July 2011 Protocols, dated April 2012.”

benefit from PJM programs, such as the PJM capacity market, which could be a source of revenue to offset program costs for the benefit of ratepayers. The third involves the inconsistent provision of adequate references and descriptions of methodology and assumptions used to determine values for many of the Protocols.

In its comments on earlier versions of the Protocols, Rate Counsel objected to the inclusion of the calculation of lost revenues as one of the stated uses of the Protocols. Specifically, Rate Counsel objects to the inclusion of the following: “3. Calculate lost margin revenue recovery (as approved by the BPU).” Draft Protocols, page 1. Rate Counsel objects to the inclusion of this item for two reasons, as set forth below.

First and foremost, Point 3 presumptively considers Board approval of consideration of lost margin revenue, notwithstanding a Board Order in Docket No. ER09070460, dated August 7, 2009, which addresses this point. Therein, on pages 6-7 of the Order, the Board found that “...including a reference to the use of the Protocols to calculate lost margin revenues does not presume Board approval of such recovery,” and that “in the event it approves such recovery [of lost margin revenue], it is not bound to use these Protocols in calculating any recovery.” Nonetheless, Rate Counsel reiterates its objection to the inclusion of Point 3 in the Protocols.

Second, the use of the Protocols would be inappropriate for determining lost revenues from EE or RE measures even if there were provisions for lost revenue recovery. The basic reason is that the Protocols do not yet incorporate the effects of EE or RE measures attributable to factors other than EE or RE programs. This is further explained on page 2 of the Draft Protocols: “The protocols report gross savings and generation only. Free riders and free drivers are not addressed in these Protocols.” Rate Counsel maintains that until the Protocols strive to identify the net savings in consumption of natural gas or grid-supplied electricity from EE or RE programs, compared to savings that would occur even in the absence of the programs, their use to identify lost revenues is inappropriate in principle.

Rate Counsel notes that the evaluation research referenced in the CEP 2010-2011 Evaluation Plan has not commenced, due to delays in issuing requests for proposals (which were still in draft form as of April 23, 2012). This means that the research necessary to identify current “net-to-gross ratios,” accounting for changes to programs since the 2009 evaluation report and including new or unevaluated programs (such as Home Performance with ENERGY STAR, Direct Install, and the Large Energy Users pilot),² as just discussed, has also not commenced. Furthermore, it also means that research that would bear on several specific Protocol values has been delayed. For this reason, Rate Counsel’s comments are limited to issues we can readily identify in the absence of pertinent new evaluation research findings.

In addition, the Draft Protocols do not discuss whether and how the Protocols were revised to meet PJM's requirements so that EE resources could be bid into PJM’s capacity market. Rate Counsel reiterates its position that the OCE and the utilities should actively pursue available PJM capacity market revenues to contribute toward funding energy efficiency

²KEMA. New Jersey’s Clean Energy Program Energy Impact Evaluation and Protocol Review: Summary Report. September 30, 2009.

programs, as is suggested by the final 2011 Energy Master Plan³ and as is done in other states (including but not limited to Maryland, Pennsylvania, Virginia, Illinois, Massachusetts, Vermont, Rhode Island, and Maine). In 2011, demand savings attributable to CEP measures were estimated at 130 MW for installed measures, with another 145 MW associated with firm commitments for incentives to be paid upon project completion (excluding capacity associated with CEP-incentivized renewable energy).⁴ This translates into millions of dollars per year in potential capacity market revenue that could be displacing or supplementing ratepayer funds. Moreover, ensuring consistency with PJM requirements would facilitate offering utility EE program savings into the capacity market, since some utilities are using the Protocols to measure savings from their EE programs. Offering energy efficiency resources into the capacity market also has the potential to reduce capacity clearing prices, reducing capacity payments and potentially impacting all New Jersey ratepayers.

Finally, Rate Counsel maintains that the methods, assumptions, and sources used to determine values for many of the Protocols should be highly transparent. Many of the protocols for individual measures do not include sources or explanations for the derivation of algorithm components. All references should be specific and include authors, dates, titles, and page numbers, as well as website addresses for key documents. Key assumptions should also be described, including who developed the assumption and the basis for the assumption. This comment applies to both the proposed modifications to the Protocols and pre-existing text.

Rate Counsel's specific comments on proposed modifications to the Protocols by Program Area are set forth in the following sections.

B. Residential Electric HVAC

Regarding the capacity factor for solar domestic hot water ("CF_{SDHW}") cited on page 17 in source number 21, the Protocols state that "Load shape and coincidence factors were developed by VEIC from ASHRAE hot water hourly consumption and NREL Red Book insulation data." Rate Counsel maintains that the exact data source should be clearly identified; e.g., does the calculation use ASHRAE's estimate of hot water hourly consumption from the 1995 ASHRAE Application Handbook or from the ASHRAE Standard 90.2 draw profiles? For greater transparency, Rate Counsel also requests that OCE provide VEIC's analysis.

The calculation for demand reduction from drain water heat recovery ("DWHR") systems ("DSav_{DWHR}") referenced on page 15 of the Protocols and described under data source number 27 on page 18 of the Draft Protocols, seems to overstate the peak electric savings from this measure. The calculation attempts to adjust summer peak electric demand savings using the

³ "New Jersey must evaluate whether or not certain EE and DR programs, in particular, would clear the PJM capacity market without any financial support or, in the alternative, much less financial support than is embedded in the array of programs subsidized by New Jersey's four EDCs. In light of New Jersey's fiscal challenges, efforts must be made to strip away any largesse that constitutes a transfer of wealth from New Jersey's ratepayers to EE/DR program developers. While the Administration remains committed to increased EE/DR penetration to meet the State's planning goals, as discussed in Section 7.3 of this report, EE and DR programs are being evaluated to determine if PJM wholesale markets already provide adequate compensation to ensure program success, thereby obviating the need for continued State sponsorship and assistance." (2011 New Jersey Energy Master Plan, December 6, 2011, p. 55)

⁴ New Jersey's Clean Energy Program Report Submitted to the New Jersey Board of Public Utilities: Reporting Period Year-to-Date through Fourth Quarter 2011. Available at http://www.njcleanenergy.com/files/file/Library/BPURpt4Q11_NJCEP_FINAL_UPDATED_20120312.pdf.

proportional difference in annual energy savings between solar domestic hot water (“SDHW”) systems and drain water heat recovery systems. This is not a fair comparison, because SDHW energy savings relative to the total hot water needs (also called the “solar fraction”) is higher during the spring, summer, and fall, when electricity demand is high, than the solar fraction based on annual average SDHW savings, which is assumed to be 70% in the Draft Protocols. In contrast, energy savings from the DWHR systems cover a relatively constant portion of hot water needs throughout the year. When adjusting SDHW demand reduction (in kW) for estimating DWHR demand reduction, the Protocol should apply average SDHW energy savings during the summer, when electricity use peaks (instead of the entire year). For example, the savings for SDHW systems during the summer might be about 90% instead of 70%, while the savings from the DWHR might be about 30%. In this example, the adjustment factor would be calculated as 30%/90%, or 0.33. Applying this adjustment factor to SDHW demand savings of 0.426 kW, $DSav_{DWHR}$ becomes 0.142 kW rather than 0.18 kW. CEP should investigate this issue.

Of minor note, on page 13 of the Draft Protocols, “DSavPWHR” appears to contain a typo. It should read “DSavDWHR”.

C. Residential New Construction Program

Full references, including study name, date, authors and page numbers, should be provided for notes 2, 3, 4 and 6 on page 33 of the Draft Protocols for Lighting and Appliances. Rate Counsel suggests that the source of the saturation rate for CFLs (note 3) is the CFL saturation rate for New York State per a 2010 NMR Group study titled, “Results of the Multistate CFL Modeling Effort”.

D. ENERGY STAR Products Program

CF_{APS} should be defined on the bottom of page 42, where the other capacity factors are defined.

Two terms that appear to mean the same thing, “CF” and “Light CF”, are used on pages 46 to 48. Terminology should be made consistent throughout the Draft Protocols.

Regarding source number 3 under ENERGY STAR lighting on pages 48 to 49 of the Draft Protocols, it appears the referenced source is incorrect. The full reference should be provided rather than “Ibid” for clarity.

E. Home Performance with ENERGY STAR Program

Full references, including study name, date, authors and page number(s), should be provided for the “n-Factor Table” on page 61 of the Draft Protocols.

F. Commercial and Industrial (“C&I”) Energy Efficiency Construction

The full data source, including study name, date, authors and page number(s) as applicable, should be provided for the 0.13 savings factor used in the algorithm for Fuel Use Economizers on page 81 and 96 of the Draft Protocols.

More explanation and the full reference should be provided for the factor 3412, referenced on page 86 of the Draft Protocols in the algorithm for Cooling Savings (kWh).

Regarding the table on page 87 for Kitchen Hoods with Variable Frequency Drives (“VFDs”):

- more explanation and the full reference should be provided for “Melink Analysis Sample”, used as the source for the Existing Motor Loading Factor (LF), referenced on page 86;
- more explanation should be provided for the value of 1.4, the ventilation rate oversize factor (OF) referenced on page 86, than “Estimated Typical Kitchen Design”;
- explanation should be provided for why the value of 0.8 is used for the baseline Efficiency of Heating System (“HEFF”), for both new and retrofit applications; and
- more explanation should be provided for the value of 2.93 for Efficiency of Cooling System (“CEFF”), as the efficiency of the baseline measures.

On page 88 of the Draft Protocols, full references should be provided for each of the following tables: “Facility-Specific Values Table”, “Modified Heating Degree Days Table”, and “Modified Cooling Degree Days Table”.

A definition should be provided for the variable $CAPY_{Qi}$, used in the infrared heaters gas savings algorithm on page 96.

The Fuel Use Economizer algorithm on page 96 of the Draft Protocols does not use factors for $CAPY_{in}$, ΔT , and HDD_{mod} , which are defined in the table following the algorithm on page 98. Variables that are no longer used in the algorithms should be deleted, or their relevance should be explained.

G. Direct Install Program

References to data sources listed on pages 104 to 105 for Refrigeration Measures (described on page 103) should be consistent with the reference approach used throughout the Protocols.

The recommended default values in the Draft Protocols for several Direct Install measures, including electric and gas HVAC Mechanical System Efficiencies (pages 103 and 111) and Water Heating System Efficiencies (page 111-112), reference Table 303.7.1(3) of the Residential Energy Services Network (“RESNET”) 2006 Mortgage Industry National Home Energy Rating Systems Standards. The RESNET standards apply to residential buildings,

including “existing or proposed, site-constructed or manufactured, single- and multi-family residential buildings three stories or less in height excepting hotels and motels.”⁵ If Direct Install participants’ existing HVAC and water heating systems are on average more efficient than residential ones, this protocol would overstate program savings. Although it appears that the efficiency of residential systems is similar to the efficiency of C&I systems, the Draft Protocols should include specific justification for applying a residential efficiency standard to C&I systems.

Conclusion

As set forth above, Rate Counsel objects to the use of the proposed protocols to measure lost revenues and urges the OCE to develop protocols which would enable the CEP’s EE measures to benefit from PJM programs. In addition, Rate Counsel urges the OCE to address the numerous technical concerns set forth above. Finally, Rate Counsel reserves its right to provide further comments in response to the submission of source references as well as in response to other developments affecting the Draft Protocols.

⁵RESNET.2006 Mortgage Industry National Home Energy Rating Systems Standards, Section 301.2.1.Available at http://www.resnet.us/standards/RESNET_Mortgage_Industry_National_HERS_Standards.pdf.