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STEFANIE A. BRAND
Director

June 15, 2011

Via Hand Delivery and Electronic Mail
Honorable Kristi Izzo, Secretary
New Jersey Board of Public Utilities
Two Gateway Center
Newark, NJ 07102

Re: Comments of the New Jersey Division of Rate Counsel on the New Jersey Clean Energy Program - Draft Revisions to the September 2010 Protocols (May 2011)

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.

We are enclosing one additional copy of the comments. Please stamp and date the extra copy as "filed" and return it to our courier.

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Thank you for your consideration and assistance.

Respectfully submitted,

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Comments of the New Jersey Division of Rate Counsel on the New Jersey Clean Energy Program - Draft Revisions to the September 2010 Protocols (May 2011)

June 15, 2011

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 to the Draft Clean Energy Program Protocols ("Draft 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 May 24, 2011.[1] The within comments also address the Draft Protocol's recommended measured lives for ENERGY STAR Consumer Electronics which were circulated by AEG via an email dated June 2, 2011.

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* ("Protocols") 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 of Public Utilities ("Board", "BPU").

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 approved by the Board in 2009.

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[1] New Jersey Board of Public Utilities, New Jersey Clean Energy Program, Protocols to Measure Resource Savings: Revisions to September 2010 Protocols, dated May 2011.

II. Substantive Comments on the Draft Protocols

Overall Comments

Rate Counsel has two 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 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.

In our 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 as one of the uses of the Protocols: "3. Calculate lost margin revenue recovery (as approved by the BPU)." Nonetheless, the Draft Protocols include the objectionable language. Draft Protocols, page1. Rate Counsel objects to the inclusion of this item for two reasons, as set forth below.

Procedurally, Point 3 presumptively recognizes Board approval of consideration of lost margin revenue, notwithstanding a Board Order in Docket No. ER09070460 (August 7, 2009) addressing this point. Therein, on pages 6-7, 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 [lost margin revenue], it is not bound to use these Protocols in calculating any recovery." Rate Counsel reiterates its objection to the inclusion of Point 3 in the Protocols.

Substantively, 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 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.

Rate Counsel notes that the evaluation research referenced in the CEP 2010-2011 Evaluation Plan has not commenced yet, due to delays in issuing requests for proposals. This means that the research necessary to identify "net-to-gross ratios", as just discussed, has not commenced. It also means that research that would bear on several specific Protocols values has been delayed. For this reason, our comments today 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 urges the OCE to actively pursue available PJM capacity market revenues to contribute toward funding its energy efficiency programs, as is done in other states (including but not limited to Maryland, Pennsylvania, Virginia, Illinois, Massachusetts, Vermont, Rhode Island, and Maine). In 2010, demand savings

attributable to CEP measures were estimated at 62.5 MW for installed measures, with another 32.1 MW associated with firm commitments for incentives to be paid upon project completion.[2] 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 Draft Protocols to measure savings from their EE programs.

Rate Counsel's specific comments on several Program Areas are set forth in the following sections.

Residential Electric HVAC

The proposed time period allocation factors for "Heat Pump Water Heaters" on page 16 do not have a reference. The following reference could be cited to support the assumption that the allocation factors are similar to standard electric water resistance heaters: Merrigan, Tim and Danny Parker, Electrical Use, Efficiency, and Peak Demand of Electric Resistance, Heat Pump, Desuperheater, and Solar Hot Water Systems, FSEC-PF-215-90 (http://www.fsec.ucf.edu/en/publications/html/FSEC-PF-215-90/).

Residential Gas HVAC

a. On pages 19-20, regarding source number 7 for residential boiler and furnace, energy savings for these appliances appear to be overestimated. We recommend the Protocols use 3.8 MMBtu for boiler related savings instead of 5.2 MMBtu, and 4.1 MMBtu for furnace related energy savings instead of 5.2 MMBtu.

   The current estimates used in the Draft Protocols for water heaters are based on "US DOE estimates for the SEEARP (EPA Savings Calculator, Assumes default values but without Programmable Thermostat)."[3] Draft Protocols, page 20. However, we were unable to locate the US DOE estimates associated with SEEARP, but reviewed the original source ("EPA Savings Calculator") for the DOE estimates. Using that source, we were unable to reproduce the same results using the EPA Savings Calculator. Therefore, we estimated energy savings using the default setting as well as more New Jersey-specific settings as follows:

   - According to the EPA Savings Calculator for oil boilers, energy savings differ not just based on programmable thermostats but also, significantly, by the square footage of a house. Without the thermostats setting, the ~~Calculator estimates 5.72 MMBtu savings for Newark, NJ, from a house~~ built between 1970 to 1989.[4] The default house size (including only the

[2] New Jersey's Clean Energy Program Report Submitted to the New Jersey Board of Public Utilities: Reporting Period Year-to-Date through Fourth Quarter 2010. Available at http://www.njcleanenergy.com/files/file/Library/BPURpt4Q10_NJCEP_FINAL_20110608.pdf.

[3] The calculator is available at http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_Boilers.xls

[4] We selected this period because boilers that will be replaced are likely to have similar vintages.

heated area) in the EPA Savings Calculator is 2,500 ft^2. This appears to be much higher than the actual average. According to EIA Residential Energy Consumption Survey ("RECS"), the average heated area of an oil heated home in Mid-Atlantic is 1821 ft^2.[5] As shown in Table 1 below, with this adjustment the savings amount to 4.2 MMBtu for Newark, NJ.

TABLE 1. Oil Savings from Oil Boiler in Newark NJ (MMBtu)

Year of House Built	1821 sf	2500 sf
1980 – 1989	4.2	5.7
1970 – 1979	4.2	5.7
Average	4.2	5.7

Note: the thermostat setting is off in this calculation.

- According to the EPA Savings Calculator for oil and gas furnaces, the savings range from 5.7 to 6.7 for a house built between 1970 and 1989, averaging at 6.2 MMBtu. Yet, when the heating area is adjusted downward to 1821 according to EIA RECS, the savings result in a range from 4.2 to 4.9 with an average of 4.5 MMBtu in Newark, NJ (See Table 2 below).

TABLE 2: Oil Savings from Oil Furnace in Newark NJ (MMBtu)

Year of House Built	1821 sf	2500 sf
1980 – 1989	4.2	5.7
1970 – 1979	4.9	6.7
Average	4.5	6.2

Note: the thermostat setting is off in this calculation.

b. The proposed Annual Fuel Utilization Efficiency ("AFUE") measure for resistance water heating (35%) found in the Draft Protocols is not supported by a source reference. Draft Protocols, page 20.

Residential New Construction

The Draft Protocols suggest using the RESNET guideline default of 10% for baseline installed efficient lighting. Draft Protocols, page 29 et seq. Absent a New Jersey-specific lighting study, we suggest a higher CFL saturation rate consistent with a

[5] EIA RECS, Table SH11. Average Heated Floorspace by Main Space Heating Fuel Used, 2005 Heated Square Footage per Household, available at http://www.eia.doe.gov/emeu/recs/recs2005/c&e/spaceheating/pdf/tablesh11.pdf

2010 NMR Group study titled, "Results of the Multistate CFL Modeling Effort" ("2010 NMR CFL Study").[6] The 2010 NMR CFL Study found CFL saturation rates of 22.4%, 18.2%, and 16% for New York City, New York State, and Pennsylvania respectively.[7] Given the higher level of energy efficiency program activity here than in Pennsylvania, New Jersey's saturation rate should be higher than 16%. We suggest 18% for this measure, consistent with the saturation in New York State.

ENERGY STAR Products Program

a. On pages 41 through 43 of the Draft Protocols, data sources 1, 3, 4, 16, 17, and 18 for Energy Star refrigerators and clothes washers should be more specific and include website addresses for key documents. Key assumptions for the savings estimates should also be noted, including the size of refrigerator and the energy consumption level for a conventional and a new model refrigerator.

b. Regarding source # 16 on page 41 for Tier 2 refrigerators, it is not clear how 131 kWh savings was derived. The description of source 16 on page 44 states:

> Refrigerator savings for CEE Tier 2 are derived from a 5% increase in performance over the US Department of Energy estimates for an ENERGY STAR unit in the State Energy Efficient Appliance Rebate Program.

The energy savings for an Energy Star unit is currently estimated to be 105 kWh according to source #1 for ESaveREF, on page 41. A 5% increase over this value is 110.25 kWh, which is far less than 131 kWh value found in the Draft Protocols.

c. Regarding NEEP screening clothes washer load shape cited on page 44 of the Draft Protocols for reference 17, a more specific reference should be provided, and the website information for this analysis should also be provided.

Home Performance with ENERGY STAR

Under "Stand Alone Home Seal-Up", it is not clear what the 0.6 correlation factor for the CFM 50 test represents. Draft Protocols, pages 57-58. The Draft Protocols should explain the 0.6 factor in more detail, together with data sources.

Commercial and Industrial ("C&I") Energy Efficiency Construction

a. On page 89 of the Draft Protocols, the sources cited as "Summit Blue" for CF value and "PSE&G" for EFLH value for "Gas Booster Water Heaters" should be more specific. The draft does not indicate whether the listed values are based on specific reports or analyses conducted by those companies.

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[6] Results of the Multistate CFL Modeling Effort (Final - dated 2/2/10),submitted to the Connecticut Energy Efficiency Board by the NMR Group, Inc. The 2010 NMR CFL Study is available at the following website: www.ctsavesenergy.org/.../FINAL%20CFL%20Modeling%20Report%20CT%20020210.doc

[7] 2010 NMR CFL Study, Table 3–5 (page 30) entitled "Current CFL Saturation by State of the study."

b. References should be provided for the tables found on page 95 titled "Adjusted Heating Degree Days by Building Type" and "Heating Degree Days and Outdoor Design Temperature by Zone."

Direct Install Program

The recommended default values in the Draft Protocols for several Direct Install measures, including electric and gas HVAC Mechanical System Efficiencies (pages 101 and 109) and Water Heating System Efficiencies (page 109), 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."[8] 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 provide some justification for applying a residential efficiency standard to C&I systems.

Large Energy Users' Pilot Program

A proposal for a Large Energy Users ("LEU") Pilot Incentive Program was submitted to stakeholders for comment by AEG on May 18, 2011. Accordingly, the Protocols should state which protocols would apply to LEU pilot projects, prior to the implementation of the pilot.

Pay for Performance Program

Page 99 of the Draft Protocols includes new language addressing exceptions to the 15% reduction in energy use requirement, providing an alternative measurement of a minimum energy savings of 100,000 kWh, 350 MMBtu or 4% of total facility, whichever is greater. A basis for each of these numbers should be provided.

The Protocols should also state what protocols would apply to projects in the Pay for Performance New Construction program.

ENERGY STAR Consumer Electronics

AEG provided recommended measure lives for ENERGY STAR Consumer Electronics for inclusion in the Draft Protocols via an email dated June 2, 2011. Data sources should be provided for the measure life estimates. If no sources are available to support the recommended measure life for efficient LCD monitors and televisions, they should be modified to be consistent with Massachusetts' EE program assumptions, described in the Massachusetts Technical Reference Manual for Estimating Savings from

[8] RESNET 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.

Energy Efficiency Measures, 2011 Program Year – Plan Version, October 2010. For LCD monitors, Massachusetts utility efficiency programs use a 5 year measure life based on the following data source:

> CEE (2008). Consumer Electronics Program Guide: Information on Voluntary Approaches for the Promotion of Energy Efficient Consumer Electronics - Products and Practices.

For efficient televisions, Massachusetts' programs use a 6 year measure life based on the following data source:

> Environmental Protection Agency (2008). Life Cycle Cost Estimate for ENERGY STAR Television. Interactive Excel Spreadsheet found at www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/Calc_Televisions_Bulk.xls

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.