

October 14, 2014

VIA EFILE

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

**Re: Implementation of the Alternative Energy Portfolio Standards Act of 2004:
Standards for the Participation of Demand Side Management Resources—
Technical Reference Manual 2015 Update;
Docket No. M-2012-2313373**

Dear Secretary Chiavetta:

Pursuant to the Commission's Order entered September 11, 2014, in the above-captioned proceeding, enclosed herewith for filing are the Comments of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company.

Please contact me if you have any questions regarding this matter.

Sincerely,



John L. Munsch

JLM:jss

Enclosure

cc: Certificate of Service

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Implementation of the Alternative Energy :
Portfolio Standards Act of 2004: : Docket No. M-2012-2313373
Standards for the Participation of :
Demand Side Management Resources- :
Technical Reference Manual 2015 Update :**

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true and correct copy of the foregoing document upon the individuals listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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Dated: October 14, 2014


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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Implementation of the Alternative Energy	:	
Portfolio Standards Act of 2004:	:	
Standards for the Participation of Demand	:	
Side Management Resources – Technical	:	Docket No. M-2012-2313373
Reference Manual 2015 Update	:	

**COMMENTS OF METROPOLITAN EDISON COMPANY,
PENNSYLVANIA ELECTRIC COMPANY,
PENNSYLVANIA POWER COMPANY AND WEST PENN POWER COMPANY TO
THE TENTATIVE ORDER REGARDING THE
2015 TECHNICAL REFERENCE MANUAL**

INTRODUCTION

On September 11, 2014, the Pennsylvania Public Utility Commission (“Commission”) entered a Tentative Order in the above-referenced matter seeking comments to the proposed updates to the Technical Reference Manual (“2015 TRM”) that will be applied to electric distribution companies’ (“EDCs”) Phase II Energy Efficiency and Conservation (“EE&C”) Plans from June 1, 2015 through May 31, 2016. The Commission directed that comments be submitted within thirty days of the entry date of the Tentative Order, and that reply comments be filed within forty days of the Tentative Order.

The Commission previously adopted an *Energy-Efficiency and DSM Rules for Pennsylvania’s Alternative Energy Portfolio Standard, Technical Reference Manual*¹ to help implement the Alternative Energy Portfolio Standards Act (“AEPS Act”), 73 P.S. §§ 1648.1 – 1648.8. Subsequently, the protocols for measurement and verification of energy savings and load reduction impacts associated with Electric Distribution Company (“EDC”) Energy Efficiency and Conservation (“EE&C”) Plans developed to meet the requirements of Act 129

¹ *Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual Update*, Docket No. M-00051865 (Order entered October 3, 2005).

were vetted through a collaborative process and specified in an updated TRM that was adopted in an Order in May 2009 (the “2009 TRM”).² The Commission recognized the need to review and update the TRM on an annual basis and directed the Bureau of Technical Utility Services (“BTUS”), formerly the Bureau of Conservation, Economics and Energy Planning (“CEEP”), to oversee the implementation, maintenance and periodic updating of the TRM in accordance with EE&C program requirements pursuant to Act 129.

Metropolitan Edison Company (“Met-Ed”), Pennsylvania Electric Company (“Penelec”), Pennsylvania Power Company (“Penn Power”) and West Penn Power Company (“West Penn”) (collectively, “the Companies”) appreciate the efforts of the Commission, Staff and Statewide Evaluator (“SWE”) in updating the TRM. In an effort to continuously improve the TRM, the Companies submit the following comments to the Commission’s Tentative Order.

In general, the organization and documentation in the Draft represents a significant effort and welcome upgrades. That said, annual changes to the TRM are increasingly incremental in nature and involve costly processes to implement while having modest impacts on reported or evaluated energy and demand reduction impacts. The Companies recommend that the Commission direct that 2016 TRM be designed to span the entirety of Phase III of Act 129, with any revisions reserved for administrative corrections or addition of measures. This will reduce implementation costs and regulatory processes related to TRM management.

I. COMMENTS ON SECTION 1: INTRODUCTION

The Companies make the following suggested corrections or revisions to the Introduction, identified by Section and Table numbers.

² The TRM was adopted as a component of the EE&C Program in accordance with the Commission’s Energy Efficiency and Conservation Program Implementation Order (“Implementation Order”) entered on January 16, 2009, at Docket No. M-2008-2069887.

Section 1.2.3: Thresholds: Consistent with comments on the 2014 TRM, thresholds for requiring site-specific information for open variables are lower than are necessary, and the Commission should direct that thresholds be reviewed through the Program Evaluation Group (PEG) process supporting modifications in the 2016 TRM. In the Companies' experience, overall certainty in verified MWh and MW estimates will actually increase if the thresholds – particularly for lighting projects – are increased because trade allies or applicants generally do not have the capability to conduct monitoring, resulting in need for evaluators to manage a constant trickle of medium-sized projects, often one at a time, instead of focusing measurement and verification efforts on projects that represent the most savings – either by virtue of having high energy savings, or by virtue of representing multiple projects as part of the Act 129 verification sample. An “above threshold” project is necessarily placed in a “certainty stratum” (and is removed from the sample frame) and the value of the metered data decreases since it can no longer represent other like projects.

Section 1.7: Baseline Estimates: The Companies fully support clarifications relative to protocol for updating baselines for codes and standards. The lead times for recognizing changes in codes are reasonable and supported. That said, however, the reference to “the higher of code or available equipment” in the following conflicts with the balance of the section and should be struck. The following recommends changes (brackets for deletions, bold face for additions):

All baselines are designed to reflect current market practices [which are generally the higher of code or available equipment,] that are updated periodically to reflect upgrades in code or information from evaluation results.

The sentence should instead read:

All baselines are designed to reflect current market practices that are updated periodically to reflect upgrades in code or information from evaluation results.

In addition, the Companies recommend replacing “be released” with “take effect” the following phrase to clarify:

*In the case of a January 1st effective date for a new Federal standard, the previous standard will be said to have expired on December 31 of the previous calendar year, and thus the change will be reflected in the TRM to [be released] **take effect** in June of that year.*

II. COMMENTS ON PROTOCOL DETAILS – RESIDENTIAL MEASURES

The Companies also make the following suggested corrections or revisions to the details of the residential measures protocols in the 2015 TRM, identified by Section and Table numbers.

Section 2.2.5: Room AC (RAC) Retirement: The coincidence factor has been updated in the 2015 TRM, but the default demand reduction for this measure does not reflect this update. Please remove the text “(See section 1.5) which is 0.58 from the 2010 PA TRM for the ENERGY STAR Room Air Conditioner measure”, from the second to last line in Table 2-27 and then update the 0.6395 value in Table 2-27 to 0.26, which corresponds to the default calculation:

$$7,870 / (1000 \times 9.07) \times 0.30 = 0.26 \text{ kW per retired RAC.}$$

Section 2.3.2: Heat Pump Water Heaters: While the enhanced detail related to interactive effects for heat pump water heaters upgrades engineering considerations, it will significantly increase evaluation costs with minimal enhancement to accuracy given the minimal penetration to date for that measure. The Companies recommend making no changes to the current (2014 TRM) protocol, and postponing possible implementation of the recommended changes until a future year when the measure has more significant penetration.

Section 2.4.3: Refrigerator / Freezer Recycling with and without Replacement: While the protocol supports use of either default savings values or calculate program savings using the partially deemed savings algorithms, the default savings values should be upgraded to

reflect a) changes to EnergyStar standards implemented in September of 2014, and b) market-weighted values rather than a simple average of the six types of refrigerators.

III. COMMENTS ON PROTOCOL DETAILS – COMMERCIAL AND INDUSTRIAL MEASURES

Section 3.1.1: Lighting Fixture Improvements: Consistent with comments on the 2014 TRM, many of the hours of use and coincidence factors listed in Table 3-5 reference the outdated Version 2.0 of the Mid-Atlantic TRM released in July of 2011. In those comments the Companies recommended use of values from Version 3.06 of the Mid-Atlantic TRM published in March 2013. Since that time Version 4 has been released with updated values. It is also the Companies' understanding that updated values supported by metering studies in Pennsylvania will be available to inform the 2016 TRM in the near future.

Following is a table comparing values from the 2015 TRM and the two versions of the Mid-Atlantic TRM showing current values from Table 3-5. While in practice these table values generally apply to smaller projects given the current thresholds for site specific data collection, the impact could result in understatement of savings for smaller projects. The Companies recommend adoption of the most current MidAtlantic TRM (V4) in regard to the hours of use and coincidence factors for building types.

Building Type	2015 PA TRM DRAFT Building Types Referencing Mid-Atlantic TRM Version 2 (2011)		Mid-Atlantic TRM Version 3 (2013)		Mid-Atlantic TRM Version 4 (2014)	
	HOU	CF	HOU	CF	HOU	CF
Education – School	1,632	0.31	2,456	0.42	2,575	0.42
Education – College/University	2,348	0.76	3,416	0.56		
Grocery	4,660	0.87	6,019	0.90	7,134	0.96
Health/Medical – Clinic	3,213	0.73	4,007	0.65	3,909	0.79
Hospital	5,182	0.80				
Lodging – Guest Rooms	914	0.09	914	0.09		
Lodging – Common Spaces	7,884	0.90	7,884	0.90		
Office					2,969 large	
	2,567	0.61	3,642	0.63	2,950 small	.70 large .67 small
Restaurant	3,613	0.65	4,089	0.73		
Retail					4,920 large	
	2,829	0.73	4,103	0.72	4,926 small	0.96 large 0.86 small
Warehouse					4,116 large	
	2,316	0.54	4,009	0.62	3,799 small	0.70 large 0.68 small

Section 3.1.2: New Construction Lighting: The Companies offer two comments on this section supporting a) clarifying treatment of savings associated with controls in new buildings and b) incorporating updated values from the Mid-Atlantic TRM as discussed above in any changes to hours of use prior to applying any adjustment to lighting hours of use for building types in Table 3-11.

Table 3-11 of the Draft 2015 PA TRM reduces hours of use for new construction lighting across all building types except 24/7 spaces and exterior lighting by 24% with the following justification (Section 3.1.2, Note 320):

The default HOU and CF values, with the exception of Dusk-to-Dawn/Exterior Lighting and 24/7 Facilities or Spaces, are reduced by 24% to account for the savings associated with installing required controls in new construction buildings.”

First, the Commission should clarify that other approaches are allowed so long as the code requirements are reflected in ex ante calculations. Company forms generally reference Appendix C (i.e., involving space by space review and limited use of Table 3-11), and set the “baseline” control mechanism to correspond to occupancy sensors in all cases where occupancy sensors are required by code.

Second, the Companies recommend adoption of updated Mid-Atlantic TRM values prior to applying any adjustment.

Third, the Companies suggest that the 24% adjustment to reflect new building code requirements is too aggressive for entire buildings. 24% appears to be the savings control factor (SVG) associated with occupancy sensors in a given space. Applying that factor to the entire building is inappropriate as it is inconsistent with ASHRAE 90.1-2007 requirements for new construction. The Company supports some adjustment less than the suggested 24% value to reflect code requirements, but does not have a specific value to recommend. Again, from a practical perspective, the Companies plan to use alternative space-specific calculations.

As supporting detail for this third point, Section 9.4.1 of ASHRAE 90.1-2007 requires automatic lighting shutoff in all buildings greater than 5,000 square feet. This requirement is most often met through scheduled shut off (turning lights off at a central location at set time of day). Enclosed spaces within each building type are further required to independently control the space lighting—this control can be supplied by a manual switch. Occupancy sensors are only required in three space types: classrooms, conference/meeting rooms, and employee break

rooms. Further, ASHRAE 90.1 specifically excludes 24/7 spaces, lighting in which patient care is rendered, and lighting where automatic shutoff would endanger occupants. Simply put, occupancy sensors are not required by the current energy code, and they are not voluntarily applied in most areas of most new buildings because they do not make sense in many spaces (e.g., hallways, common areas, general retail space).

Section 3.2.1 HVAC Systems: The current baselines in Table 3-22 do not reflect federal code changes for systems less than 65,000 BTUH set for January 2015. Baselines will increase for air source heat pumps from 13 SEER to 14 with SEER increasing from 7.7 HSPF to 8.2 HSPF. If the Companies properly understand effective dates in Section 1.7, the baseline values should be updated to reflect the change in code.

Section 3.2.4 Ductless Mini-Split Heat Pumps: Similar to comments on Section 3.2.1, the current baselines do not reflect upcoming federal code changes for systems less than 65,000 BTUH set for January 2015. Baselines will increase for air source heat pumps and air source ductless mini-split heat pumps from 13 SEER to 14 SEER, and from 7.7 HSPF to 8.2 HSPF.

3.3.2 Variable Frequency Drive (VFD) Improvements: The algorithm for VFD savings needs to be corrected to include a 0.746 factor to convert hp to kW.

In Section 3.5.3, HOU for evaporator fan motors are reduced from 8,760 in 2014 PA TRM to 8,273. However, the changes are not reflected in Table 3-100 and 3-101.

In section 3.5.4, Evaporator Fan Controllers, if the HOU for evaporator fan motors is changed to 8,273 in Section 3.5.3, then it should also be changed here for consistency.

- The 1-14W motors were eliminated from the deemed savings tables; however, 6 and 9W motors are very common in reach-in refrigerated display cases. The Companies would recommend reinstating the 1-14W motor category into tables 3-100 and 3-101.

- In 3.5.9, strip curtains for walk-in coolers, there is an error in the algorithm--the units do not cancel. Two changes need to be made: Delta kWh and delta kW should be listed as "per square foot"; and the description for the term, "20, Product of 60 minutes per hour..." should read, "20, Product of 60 seconds per minute..."

3.5.12 Refrigeration Door Gaskets: ADM, the Company's evaluator, after failing to observe any savings in retrofit isolation tests, traced gas tests on dozens of refrigerator and freezer cases in 2008. Only by entirely removing the gaskets from doors were they able to observe infiltration rates that correspond to 91 kWh per foot savings. The resulting estimate for *removed* gaskets was approximately 3 kWh/ft for freezers, and 1 kWh/ft for coolers.

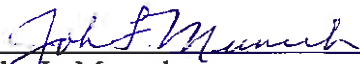
In short, the Companies strongly recommend against using these values in the draft 2015 TRM, but recommend they be referred to the PEG for consideration and incorporation, as appropriate, in a future TRM.

VII. CONCLUSION

The Companies again thank the Commission for the opportunity to provide comments on the Commission's proposed revisions to the TRM and look forward to continuing to work with the SWE, TWG and Commission Staff on this critical aspect of Act 129 compliance.

Respectfully submitted,

Dated: October 14, 2014



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