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December 27, 2010

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

Re: 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

Dear Secretary Chiavetta:

Enclosed for filing are an original and sixteen (16) copies of Comments of Metropolitan Edison Company, Pennsylvania Electric Company and Pennsylvania Power Company pursuant to the Commission's Tentative Order regarding revisions to the Technical Reference Manual entered February 2, 2010, in the above-captioned docket. Please note that Kathy J. Kolich is attorney of record in this proceeding, as indicated on the last page of these comments.

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

Very truly yours,

John F. Povilaitis

JFP/ck
Enclosures
c. Certificate of Service

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 Reference Manual Update	:	**Docket No. M-00051865**

COMMENTS OF METROPOLITAN EDISON COMPANY, PENNSYLVANIA ELECTRIC COMPANY AND PENNSYLVANIA POWER COMPANY TO THE 2011 TRM ANNUAL UPDATE

I. INTRODUCTION

On November 19, 2010, the Pennsylvania Public Utility Commission ("Commission") adopted a Tentative Order in the above-captioned proceeding proposing revisions and recommended updates to the existing Technical Reference Manual ("TRM"), which is being used to help validate savings and provide support for the implementation of Act 129 of 2008 ("Act 129")[1]. The Tentative Order was subsequently entered by the Commission on November 24, 2010. A notice seeking comments to the Tentative Order and proposed revisions and updates to the TRM appeared in the *Pennsylvania Bulletin* of December 4, 2010, 40 Pa. B.7010, and invited interested parties to submit comments on the 2011 TRM Update within 20 days (or December 27, 2010) and reply comments within 30 days (or January 6, 2011).

The Commission previously adopted an *Energy-Efficiency and DSM Rules for*

[1] 66 Pa. C.S. 2806.1.

Pennsylvania's Alternative Energy Portfolio Standard, Technical Reference Manual[2] 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 were vetted through a collaborative process and specified in an updated TRM that was adopted in an Order in May 2009 (the "2009 TRM")[3]. The Commission recognized the need to review and update the TRM on an annual basis and directed 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. This Tentative Order initiated the second annual update of the TRM to be applied beginning with the 2011-2012 AEPS Act and Act 129 EE&C program compliance years.

Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec") and Pennsylvania Power Company ("Penn Power") (collectively "the Companies") remain committed to Pennsylvania's successful achievement of the goals of Act 129, and the furtherance of credible evaluation, measurement and verification ("EM&V") supporting those goals. The Companies continue to support the development and improvement of the TRM and have been working closely with the Act 129 Statewide Evaluator ("SWE"), the TRM Technical Working Group ("TWG") and Commission Staff to address the complex and detailed technical issues related to EM&V. The Companies respectfully submit the following comments in the above-

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[2] *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).

[3] 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.

captioned docket in response to the Commission's invitation for comments regarding the proposed revisions and updates to the TRM ("2011 TRM Update").

II. COMMENTS

The Companies offer their Comments to the proposed 2011 TRM Update focusing on (i) the process that was used to develop the proposed 2011 TRM Update; (ii) the significant change to the deemed value for CFLs; (iii) their concerns with those changes that may present significant challenges to the Companies' ability to comply with Act 129 mandates; (iv) how the TRM should account for Federal legislation and regulations (in response to the Commission's request); and (v) specific suggestions and proposed edits to clarify certain areas of the proposed 2011 TRM Update.[4]

A. If Significant Changes In The TRM Are Contemplated, They Should Be Identified And Vetted With Adequate Time For Input.

The Commission has proposed in this round of updates to the TRM some changes -- the most significant of which was to the deemed value for CFL hours of operation ("HOU"). These changes were made with neither adequate time for input, nor the opportunity for vetting through the TWG. The Companies generally support minor corrections, changes, and clarifications to the TRM without significant participation by various stakeholders. However, any significant changes to the TRM should be developed utilizing the TWG. This process will allow the EDCs to understand the rationale for any such changes and to work collaboratively with the SWE and Commission Staff to determine if these changes are warranted in light of their impacts on programs, and to ensure that the basis for the changes (i.e. supporting studies and evaluation

[4] The Companies also participated in the development of joint EDC comments submitted by the Energy Association of Pennsylvania (EAP) and endorse the recommendations submitted in their comments, even if not addressed herein.

work) are applicable to the Pennsylvania market.

Even though, in its Tentative Order, the Commission stated that "[t]he proposed improvements to the TRM are based on more recent research and the needs and experiences of the EDCs" and that "[t]he EDCs provided, through the SWE evaluation and verification process, much of the data that forms the basis of these recommended improvements," the proposed changes to the protocols[5] used for certain residential CFL lighting were developed without input from the TWG. Indeed, the Companies learned of the proposed revision to the CFL HOU in the SWE's preparation of the draft Annual Report, and no TWG discussions took place to vet the basis or merits of the new protocols prior to them being proposed. This process is clearly inadequate given the magnitude of the proposed change to the CFL HOU, its impact on the assumptions contained within the Companies' Commission-approved EE&C Plans, and the risks it adds to the Companies' ability to meet Act 129 mandates.

The fact that portions of the proposed 2011 TRM Update were developed without adequate time for review limits the Companies' ability to evaluate the merits and impacts of those changes and to provide input to the Commission relative to the changes. And, if such changes are adopted, additional time is necessary prior to implementation so as to allow the Companies time to (i) assess and recommend revisions to their EE&C Plans to accommodate the TRM changes and propose alternative measures/programs to compensate for the lost savings; (ii) seek Commission approval of those changes, including the EEC-C Rider increases that may be necessary to fund those changes as well as the potential need for relief from the 2% spending

[5] The reference to "changes in baseline" in the Tentative Order actually address the protocols more generally, (i.e., baselines, formulas or other deemed or partially deemed factors). The proposed change in the CFL HOU addresses the deemed value for operating hours rather than the baseline technology used for estimating savings.

cap; (iii) communicate the changes to customers; and (iv) implement those changes in time to meet their compliance targets. Because the proposed change to the CFL HOU was developed without sufficient lead time and without input through the TWG process, it should not be incorporated into the proposed 2011 TRM Update. Rather, the Companies endorse the recommendation articulated in EAP's comments that adoption of material changes should not take effect until the next compliance cycle (i.e. June of 2013 and beyond).

Moreover, significant mid-stream changes, such as CFL HOU reduction in the proposed 2011 TRM Update, could have constitutional due process implications should the Companies' fail to meet their Act 129 targets as a result of the challenges posed by mid-stream changes. The first goal of due process is to ensure "fair notice" to the subject of the law as to what the law requires; the second is to provide standards to guide the discretion of those charged with enforcing the law. *Columbia, Natural Resources, Inc. v. Tatum*, 58 F.3d 1101, 1104 (6th Cir. 1995). "Because due process requires that the parties receive fair notice before being deprived of property...in the absence of notice – for example, where the regulation is not sufficiently clear to warn a party about what is expected of it – an agency may not deprive a party of property by imposing civil or criminal liability." *CBS Corp. v. F.C.C.*, 535 F.3d 167, 181 (3rd Cir. 2008) *citing Trinity Broad. Of Fla., Inc. v. FCC*, 211 F.3d 618, 628 (D.D.C. 2000) (discussing due process concerns with retroactive application of laws).[6]

Reducing the CFL HOU, one of the most cost-effective EE&C Plan measures, midway through the compliance period, without changing the cost cap, and without providing the Companies enough time to evaluate a potential adjustment to their EE&C Plans and EEC-C

[6] Rather than reiterate the details of the constitutional and other legal implications of changing the CFL HOU in the 2011 TRM Update, the Companies incorporate by reference Section D of the Comments filed by the EAP.

Riders, may present significant challenges to the Companies' ability to achieve savings targets, within budget, by the compliance date. Additionally, the Companies have entered into Commission-approved, performance-based contracts with Conservation Service Providers (CSPs) that could be negatively impacted by the proposed CFL HOU reduction. The Companies' approved EE&C Plans were based substantially on the expected savings that were in the 2009 TRM.[7] Thus, the Commission should not adopt the change in the CFL protocol as proposed in the 2011 TRM Update.

B. The Proposed Changes to the CFL HOU Is Not Reasonable.

In the proposed 2011 TRM Update, the deemed hours of operation for the residential CFL measure is reduced by 40% -- from 3.0 HOU in the 2010 TRM[8] to 1.9 HOU.[9] The proposed 1.9 HOU for CFLs is based on a 2010 KEMA study from California[10] and a U.S. Department of Energy ("USDOE") study that was added on December 17, 2010, as an errata to the proposed 2011 TRM Update.[11] The Companies do not agree with the 1.9 hour HOU proposed for residential CFLs because the California results do not reflect conditions in Pennsylvania, the KEMA study conflicts with several other studies that better reflect conditions in Pennsylvania, and the USDOE study is unreliable and arbitrary.

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[7] Due to expediency in developing the 2009 TRM, the 2009 TRM was revised in 2010 to add some measures and correct certain errors from the 2009 TRM. This revision was fully vetted with the TWG and also contained a waiver process should the changes negatively impact the Companies' ability to comply with Act 129 mandates. Unlike the change to the CFL HOU in the proposed 2011 TRM Update, with one exception the 2010 revisions did not negatively impact the Companies' ability to comply.

[8] See Table 4-3 on page 26 of the 2010 TRM at http://www.puc.state.pa.us/electric/Act129/TRM.aspx.

[9] See page 104 of the proposed 2011 TRM.

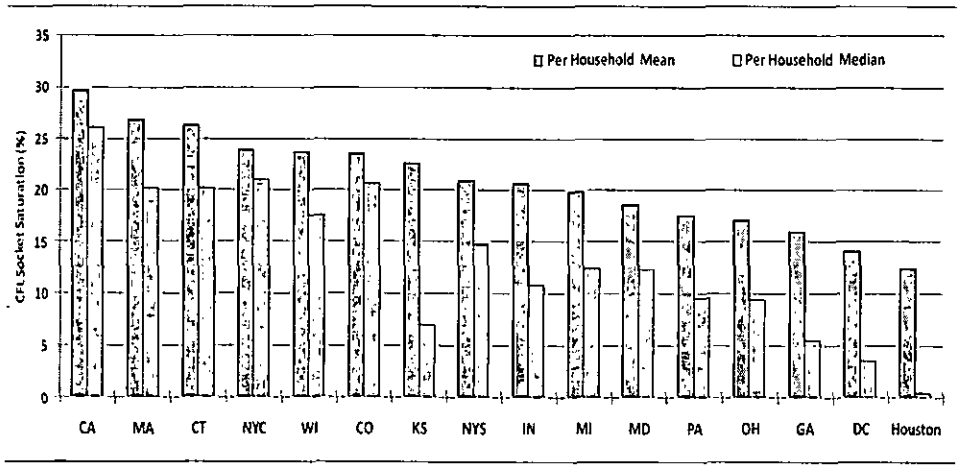
[10] KEMA (2010) "Results from California's Residential Lighting Metering Study". The 1.9 average daily hours of use for all bulbs is based upon a large scale comprehensive residential lighting metering study of 1200 randomly selected households completed in 2010.

[11] National: U.S. Department of Energy. US Lighting Market Characterization, Volume 1: National Lighting Inventory and Energy Consumption Estimate. 2002.

1. The KEMA Study for California Is Not Relevant to Pennsylvania.

The recommended 1.9 HOU value was based on the KEMA Study for California which does not accurately reflect conditions in Pennsylvania. As a preliminary matter, the California utilities have some of the longest running CFL programs in the country with a higher saturation of CFLs than many other states, including Pennsylvania, where programs are generally less than a year old. There is evidence that as saturation increases, people start using CFLs in a greater variety of locations in the home, including locations with fewer hours of use.

The following chart is from an NMR Group, Inc. Survey and shows the "Socket Saturation" survey results (i.e. the percentage of light sockets with CFLs) state by state. This survey clearly demonstrates the significant differences between California and Pennsylvania markets. California has a socket saturation mean near 30% with a median over 26%, while Pennsylvania's saturation mean is roughly 17% with a median under 10%.[12]



CFL socket saturations are as high as 20-30% in some parts of the country, depending on how we measure it.

Source: NMR Group Inc, "Final CFL Modeling Report" (2010)

[12] The median is a better indicator of market participation in CFL programs (which is significantly less than half of California's) but either metric shows that the markets are significantly different.

Data from California also demonstrates that a higher saturation of CFLs results in lower operating hours.[13] In 1994, when California's CFL market was not as robust, a study measured a value of 2.6 HOU.[14] Then, in 2005 when CFL usage became greater, another study measured a mean 2.3 HOU ± 0.3 HOU.[15] And in 2010, when CFL saturation in California had increased, the KEMA study not surprisingly found a mean 1.9 HOU ± 0.3 HOU. Clearly, there is a relationship between CFL saturation and CFL operating hours. Consequently, because CFL saturation in Pennsylvania is low, the hours of use for CFLs in Pennsylvania should be higher than those in the KEMA study.[16]

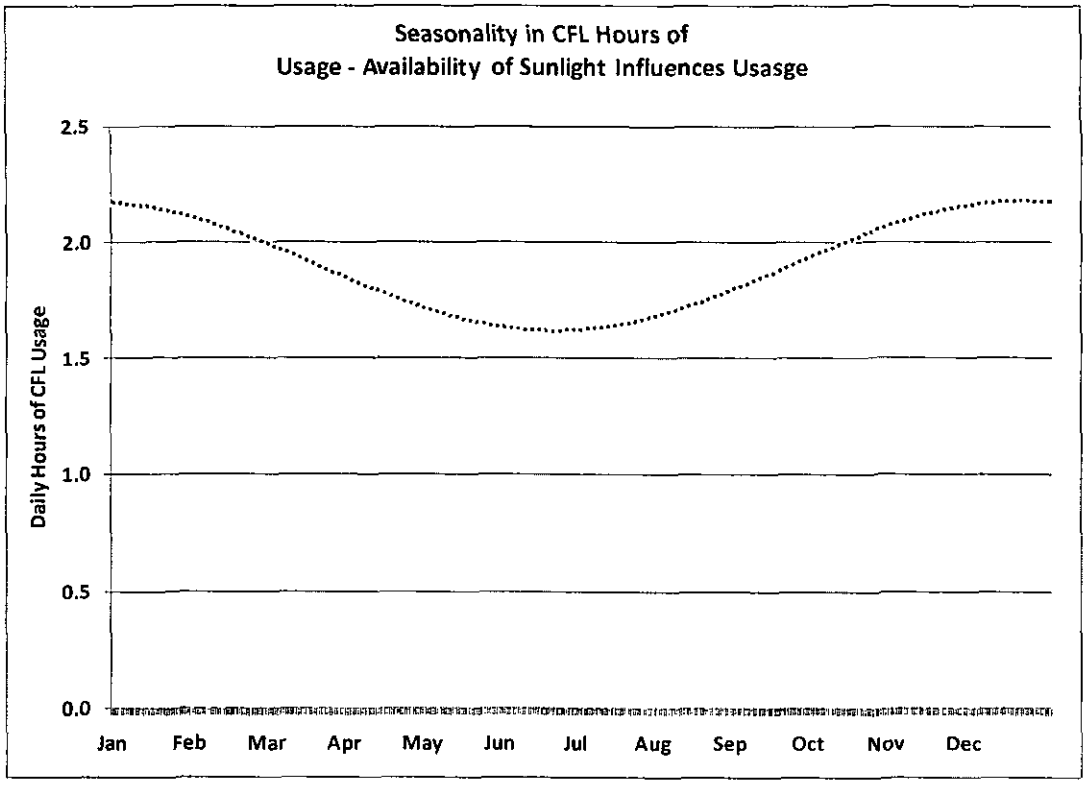
Second, the availability of sunlight also greatly influences CFL HOU, as demonstrated by the seasonal nature of CFL usage. For example, as the following graph adapted from the KEMA Study demonstrates, if the availability of sunlight is lower in Pennsylvania than in California then Pennsylvania CFL usage would be higher – all else held constant. Clearly due to well-established meteorological patterns and home design, the availability of sunlight in Pennsylvania is expected to be lower.

[13] One would expect this relationship for two simple reasons: First, incandescent bulbs that are used more heavily tend to burn out more frequently, thus having a higher probability of being replaced by CFLs. Second, cost-conscious and informed tenants and homeowners would target the lamps with the highest operating hours to maximize the return on their CFL investment.

[14] 1992 Compact Fluorescent Lighting Program: Time-of-Use Study, HBRS, 1992, PGE0042.01; 307; summary available on www.calmac.org.

[15] CFL Metering Study, Kema-Xenergy, 2005, SDG0203.01; available on www.calmac.org

[16] Even if such a relationship did not exist, then true mean daily usage in California is close to 2.3 hours a day -- the average of the results from the three California studies – which is more appropriate than that being proposed in the 2011 TRM.



And finally, the history of differences in the price of electricity and reliable energy supply in the California and Pennsylvania markets raise differences in customer behavior, further reinforcing a basis for fewer HOU in California. California's energy prices and pricing policies, reliability issues, and long history of energy efficiency programs that were invigorated by the California energy crisis ten years ago all reinforce consumer behavior that will be different than customer behavior in Pennsylvania where electricity prices are relatively lower and the paradigm shift towards energy conservation is just starting.

2. Several Other Studies Exist That Provide Different CFL HOU.

Studies in other states that more closely reflect conditions in Pennsylvania contradict the 1.9 CFL HOU included in the KEMA study. For example, a 2009 GDS Associates study

conducted in New England (with 657 installed meters) found an average of 2.8 HOU for CFLs.[17] In June 2010, Duke Energy in Ohio found 2.85 HOU. And the Draft Ohio TRM uses 2.85 HOU based on the weighted average day length adjusted hours from the Duke study, while Vermont's Technical Reference Manual (February 2010) specified 3.4 HOU per day for residential CFLs. These studies also support a higher coincidence factor (CF) for CFLs than is used in the Pennsylvania TRM[18]. Each of these studies were conducted in areas much closer to Pennsylvania than California under conditions that more closely reflect those found in Pennsylvania. Accordingly, the KEMA report should be rejected for purposes of developing the 2011 TRM CFL HOU values. As these other studies demonstrate, 3.0 HOU is just and reasonable and appropriate for purposes of the 2011 TRM Update and should be used until empirical data specific to Pennsylvania can be obtained.

3. The U.S. Department of Energy 2002 Study Is Also Not a Reliable Study.

The inclusion of the U.S. Department of Energy 2002 study (2002 Study) adds nothing to justify a 1.9 HOU for CFLs in Pennsylvania. The 2002 Study relies on imputation of data from a metering study conducted for Bonneville Power Administration fifteen years ago.[19] The imputation of data from the 1996 study results in a drastic reduction of the HOU that are reported in the 2002 Study. Moreover, the 2002 Study is based on rules that are arbitrary. For example, in section 4.1.4.2 of this study, the HOU is calculated based on "Tacoma data." The imputed "Tacoma data" in the 2002 Study is not representative of the original data collected in the field.

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[17] NMR, RLW Analytics, GDS Associates. *Residential Lighting Markdown Impact Evaluation.* Prepared for Markdown and Buydown Program Sponsors in Connecticut, Massachusetts, Rhode Island, and Vermont. January 2009.

[18] Both the NMR study and the Draft Ohio TRM support a coincidence factor of 11%, vs. the 5% used in the Pennsylvania TRM.

[19] Indeed, even this 1996 study indicates a 2.4 HOU – not 1.9 HOU.

Without explanation, the original data collected in the field for kitchens has been altered from 3.9 to 3.0 HOU; data for living rooms, from 3.1 to 2.2 HOU; and data for exterior lighting, from 3.4 to 2.1 HOU. Absent an explanation for such drastic modifications to the field data, the 2002 Study is an unreliable source on which to rely for the CFL HOU values included in the proposed 2011 TRM Update.

In sum, as demonstrated by studies that better reflect Pennsylvania conditions, the current TRM value of 3.0 HOU is a more appropriate value for CFL usage. The studies on which the 1.9 HOU is based either pertain to conditions that are vastly different from those that can be found in Pennsylvania or are unreliable as a resource. Accordingly, the Commission should not adopt changes to the CFL HOU proposed in the 2011 TRM Update.

C. The Proposed Change to the CFL HOU Could Present Significant Challenges to the Companies' Ability to Comply with Act 129 Mandates.

In proposing the CFL HOU change in the Tentative Order, the Commission recognized "that the use of the most recent baseline data may result in lower deemed savings," which "may require the deployment of additional measures to meet statutorily mandated targets." The Commission specifically requested comments "on how to fairly address the tradeoff between the use of baseline data derived from more recent data that reflects a more accurate assessment of current energy savings and the possibility that such adjustments may require greater market penetration to meet mandated goals." The Companies have developed their EE&C Plans based on data available at the time the Plans were created. The strategies for compliance were based on a period ending May 31, 2013. Any significant change, such as that being proposed for CFL HOU, if adopted, will make it extremely difficult, if not impossible, for the Companies to meet their Act 129 requirements. Therefore, while the Companies do not agree with the 1.9 HOU proposed in the 2011 TRM Update (for the reasons discussed above), if the Commission

determines that such a value is appropriate (only after a thorough vetting of the matter), it should be applied for the next EE&C compliance cycle -- effective no earlier than June 1, 2013, rather than on June 1, 2011 as proposed in the 2011 TRM Update. Not only would this approach provide the Companies with sufficient time to adjust their compliance strategies, perhaps avoiding the potential due process and other legal issues discussed *supra*, but such a value would better reflect a more saturated CFL market with customers who are more familiar with energy efficiency concepts.

D. Comments on How the TRM Should Account for Changing Federal Legislation and Regulations.

The Companies offer the following response to the Commission's request for input on how the TRM should account for Federal legislation and regulations that prohibit the production and sale of less efficient lighting technology raised in the Tentative Order.

There is a considerable lag between the manufacture and sale of any product. The cessation of manufacturing leaves a considerable inventory of product in the distribution pipeline, on store shelves and on customers' shelves. The duration of that lag time depends on the product, and the scale of inventory developed and/or purchases made in anticipation of the change.

Therefore, the Companies suggest that the TRM reflect distribution lag time from changing federal standards by phasing in any changes over an appropriate amount of time. The specific approach and phase-in period is technology specific, and like other material changes, should be developed through the TWG process. Similarly, the treatment of changing standards should be addressed by the TRC Test Working Group when it is convened.

E. The Companies Offer Detailed Comments to Specific Measures.

In addition to the general comments, the Companies offer the following additional detailed comments regarding the proposed 2011 TRM Update. These specific recommendations and changes are generally presented in the sequence of the sections of the proposed 2011 TRM Update. Given the number of suggestions and level of detail, the Companies are providing the following recommendations with limited explanation. The Companies have discussed and will continue to communicate with the SWE regarding the technical recommendations. The Companies are available and willing to provide any supplemental support as needed to the SWE or Commission Staff.

1. Section 1: Introduction

a. Page 7: Section 1.12 addresses "Calculation of the Value of Resource Savings" and acknowledges that such calculations are beyond the scope of the TRM. However, the last sentence of the paragraph includes a statement *"The details of this methodology are subject to change by the TRC Working Group"* that appears to give inappropriate standing and authority to a TRC Working group which, when formed, would be an ad hoc working group that can only provide input supporting Staff recommendations for the Commission to approve. Given pending decision-making processes related to the TRC, and given the fact that TRC is not within the scope of the TRM, the sentence should be stricken in its entirety.

b. Page 11: The TRM formulas seem to omit terms that account for energy savings during the heating season for duct sealing in homes with air source heat pumps. It is recommended that the savings calculation for duct sealing is corrected with the following equation:

   i. $\Delta kWh_{heat} = (CAPY/(1000 \times SEERq)) \times EFLH_{heat} \times DuctSF,$

   ii. In the above equation, $EFLH_{heat}$ should be the same as in Table 2-1

c. Page 11: The TRM formulas seem to omit terms that account for energy savings during the heating season for maintenance (tune-ups) of air source heat pumps. It is recommended that the savings calculation for tune-ups is corrected with the following equation:

   i. $\Delta kWh_{heat} = ((CAPY/(1000 \times HSPFm)) \times EFLH_{heat}) \times MF_{Heat}$

   ii. In the above equation, *HSPFm* should be 6 (close to 10/13 * 7.7, for parity with *SEERm*)

iii. In the above equation MF_{Heat} should be 0.07 – discounted 30% from MF_{Cool} because it is posited that some tune-up activities such as refrigerant charging or condenser coil cleaning, do not improve efficiency associated with *the portion of heat delivered by the auxiliary electric resistance coils* (such as during defrost cycles). Other activities such as air flow correction have the same impact all the time.

d. Page 11: The TRM formulas seem to omit terms that account for energy savings during the heating season for quality installation (commissioning) of air source heat pumps. It is recommended that the savings calculation for commissioning is corrected with the following equation:

i. $\Delta kWh_{heat} = ((CAPY/(1000 \text{ X } HSPFm)) \text{ X } EFLH_{heat}) \text{ X } QIF_{Heat}$

ii. In the above equation, *HSPFm* should be 6

iii. In the above equation QIF_{Heat} should be 0.07 – discounted 30% from QIF_{Cool} because it is posited that some tune-up activities such as refrigerant charging or condenser coil cleaning, do not improve efficiency associated with *the portion of heat delivered by the auxiliary electric resistance coils* (such as during defrost cycles). Other activities such as air flow correction have the same impact all the time.

2. Section 2: Residential Measures

a. Page 45: The words "*Seasonally averaged efficiency rating of the baseline unit. For units > 65,000*" should be removed from this section. This is for programmable thermostats in residential dwellings. It is likely that many units will have smaller capacities than 65 kBTU. The terms $EER_{cool, heat}$ are understood to be nameplate efficiencies – perhaps SEER for cooling, HSPF/COP/EER for heating are more appropriate, but the intent is clear.

b. Page 92: In the refrigerator retirement section, the eligibility requirements are modified and the following criterion is added: "The refrigerator or freezer is a secondary unit that will not be replaced." However, in the previous section, the *replacement* of an old refrigerator with a new Energy Star qualified model is given a deemed savings of 1,205 kWh/year. In the TRM, the difference in energy usage between a new Energy Star refrigerator and a new standard efficiency refrigerator is about 80 kWh. It would be sensible to create a category for refrigerator retirement with replacement by a standard efficiency refrigerator, and to take 1,205 kWh – 80 kWh =1,125kWh as the energy savings that result from this action. Perhaps it would be more convenient to modify Table 2-23 to list an energy savings of 1,659 kWh if a refrigerator is retired without replacement, and 1,125 kWh is a refrigerator is replaced with a standard efficiency unit. For FirstEnergy, if the refrigerator is replaced with an Energy Star model, the 70 or 80 kWh of energy savings would accrue to

the Energy Efficient Products program. This proposed modification would enable the FirstEnergy Companies, and perhaps others, to claim savings when they are due for refrigerator retirement, but to avoid double-counting if a refrigerator is replaced by an Energy Star model.

c. Page 95: In Section 2.24 – Residential New Construction - Baseline "reference home" continues to Reference MEC 95 (i.e. the wrong code). The Companies recommend replacing the reference to "MEC 95" with "2009 IECC".

d. Page 110: Section 2.29 - "ENERGY STAR Refrigerator/Freezer Retirement"- appears to be duplicative, repeating §2.23 (Refrigerator/Freezer Retirement (and Recycling)) but with the 2010 TRM values for kWh per unit retired.

3. Section 3: Commercial and Industrial Measures

a. Page 121: Section 3.2, "Lighting Equipment Improvements," includes several pages addressing equipment standards for solid state lighting. The TRM should address measurement of savings associated with accepted equipment ratings. If transitional technical issues exist with such ratings for a new or developing line of equipment (like solid state lighting), it should be addressed in a separate document or appendix rather than in the body of the TRM. The level of detail implies that any technology not specifically listed is ineligible as a lighting technology or lighting application, which is an inappropriate hindrance to the programs.

b. Page 125: Section 3.2, "Lighting Equipment Improvements," cross references Sections (e.g. 3.2.7, 6.2.1, 5.2) that do not exist in the document. Section headings were no doubt deleted some time in the revision process. Either restore section names to support references, or replace the references with appropriate text or page references.

c. Page 126: Section §3.2, "Lighting Equipment Improvements," references the wrong table. In the sentence "Reference to Table 3-4 (ASHRAE 90.1-2007 Space-by-Space Method) should reference Table 3-5 (Lighting EFLH and CF by Building Type or Function).

d. Page 127: Three area types for all building types should be added supporting 8,760 (exit signs), 8,736 hours (7 day/3 shift) as well as 6,240 hours (5 day/3 shift) operations in Table 3-2 – Hours of Use for Usage Groups. These are some lighting usage patterns that are emerging from monitored data. These patterns are associated with a *schedule* rather than a specific building or business type. Two important patterns are:

   i. 24/7/364 = 8736 hours (one day of maintenance). Typically, "8,760" claims are well-supported by monitoring.

   ii. Three shift operations five days per week. This business pattern results in 6,240 hours per year.

e. Page 147: Table 3-15, in the Building Type column includes a reference to "Hospitals & Healthcare - Pumps". The reference should drop the reference to pumps in "Building Type" as this row also includes fans.

f. Page 159: In Table 3-21, the baseline efficiencies for ground source heat pumps or ground-water source heat pumps (GSHP) should be the baseline efficiencies as *Air-Source Heat Pumps* (ASHP) unless the GSHP replaces another GSHP. The Companies' incentives are intended to effect the purchase of a GSHP instead of the more common ASHP. Given that the heat pump market is comprised primarily of ASHPs, and that GSHPs are far more efficient than ASHPs. the primary energy savings achieved by usage of GSHPs occur when they are specified as alternatives to ASHPs, not as alternatives to standard efficiency GSHPs."

g. Page 165: Table 3-26 "Chiller Cooling EFLH by Location" contains a column labeled "Space Type" which appears to reference "Building Type" and should be relabeled to avoid confusion.

III. CONCLUSION

The Companies commend the Commission's efforts to provide clear direction relative to the evaluation of program impacts in the TRM and to support the expedient implementation of Act 129. Additionally, the Companies appreciate the opportunity to provide comments on the Commission's proposed revisions to the TRM.

Respectfully submitted,

Dated: December 27, 2010

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Pennsylvania Electric Company and
Pennsylvania Power Company

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Implementation of the Alternative Energy	:	
Portfolio Standards Act of 2004: Standards	:	
For the Participation of Demand Side	:	Docket No. M-00051865
Management Resources – Technical	:	
Reference Manual 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 et seq. (relating to service by a participant).

Via Electronic Mail
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Date: December 27, 2010

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