



**Duquesne Light**

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May 8, 2015

Ms. Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, Pennsylvania 17120

**RE: 2016 TRM Annual Update Tentative Order**  
**Docket No. M-2015-2469311**

Dear Secretary Chiavetta:

On March 26, 2015, the Commission issued a Tentative Order seeking comments on the annual update to the 2016 TRM. Duquesne Light Company's comments regarding the 2016 TRM are enclosed for consideration.

Should you have any questions, please feel free to contact me or David Defide at (412) 393-6107.

Respectfully,

Adrienne D. Kurtanich  
Attorney, Regulatory

Enclosures

cc: Certificate of Service

**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. §1.54 (relating to service by a participant).

**FIRST CLASS MAIL**

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Date: May 8, 2015

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Implementation of Alternative Energy Portfolio :**  
**Standards Act of 2004: Standards for the :**  
**Participation of Demand Side Management : Docket No. M-2015-2469311**  
**Resources – Technical Reference Manual :**  
**2016 Update :**

**Comments of Duquesne Light Company on the Commission’s  
2016 TRM Annual Update Tentative Order**

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On March 26, 2015, the Pennsylvania Public Utility Commission (“Commission”) issued the 2016 TRM Annual Update Tentative Order (“TRM Tentative Order”) to continue the process of evaluating the 2016 Technical Reference Manual (“TRM”) which will apply to Phase III of Act 129’s Energy Efficiency and Conservation (“EE&C”) Programs for electric distribution companies (“EDCs”). In the TRM Tentative Order, the Commission sought comments on general improvements to the TRM, existing and additional EE&C measure protocols, and other requirements set out therein. Pursuant to the March 26, TRM Tentative Order, Duquesne Light Company (“Duquesne Light” or “Company”) hereby submits its comments regarding updates to the 2016 TRM.

**Background**

On October 15, 2008, Governor Edward Rendell signed HB 2200 into law as Act 129 of 2008 (“Act 129”), with an effective date of Nov. 14, 2008. Among other things, Act 129 requires Pennsylvania electric distribution companies (“EDCs”) such as Duquesne to develop and implement Energy Efficiency and Conservation (“EE&C”) plans. The Commission adopted

the Technical Reference Manual (“TRM”) as a component of the EE&C evaluation process and noted that the TRM would be updated and expanded in its Phase I Implementation Order.<sup>1</sup> On March 26, 2015, the Commission issued a Tentative Order proposing updates to the TRM and soliciting comments from interested stakeholders within 30 days after the publication of notice of the Tentative Order in the *Pennsylvania Bulletin*.<sup>2</sup> Through the annual update process, the TRM has been expanded from roughly 68 pages into a document that is now more than 500 pages as proposed. The expansion of the TRM reflects the extraordinary efforts and increased experience and expertise of the Commission, Statewide Evaluator (“SWE”), EDCs as well as other stakeholders. Duquesne understands the need for TRM updates and appreciates the opportunity to provide comments to the proposed 2016 TRM.

In the April 11, 2015 Tentative Order, the Commission explains that the proposed modifications to the TRM are based upon five major goals including 1) adding protocols for EE&C measures being implemented by the EDCS and broadening the scope of the TRM, 2) balancing the integrity and accuracy of claimed energy savings estimates with the costs incurred to measure and verify the purported energy savings, 3) clarifying the methodology of existing calculations, 4) allowing more flexibility for the EDCs to use territory-specific or compiled data in their calculations of energy savings, and 5) providing additional reasonable methods for measurement and verification of energy savings associated with EE&C measures without excessively burdening EE&C program and evaluation staff.

The Company generally supports the proposed modification to the 2016 TRM and offers some suggested modifications that may help align the 2016 TRM with the Commission’s stated

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<sup>1</sup> See Energy Efficiency and Conservation Program Implementation Order at Docket No. M-2008-2069887.

<sup>2</sup> Notice of the Tentative Order was published in the *Pennsylvania Bulletin* on April 11, 2015.

goals and the implementation of Phase III. The aforementioned issues are discussed in detail below.

### **1. C&I Lighting Hours of Use**

The default values for Commercial and Industrial (“C&I”) Lighting Hours of Use (“HOU”) which are provided as in Table 3-8 and Table 3-9 appear to be overly simplistic and lower than other regional sources. The 2016 TRM employs a “catch all” approach allowing for one building type annual HOU value for one high-level building type category. Duquesne Light questions these values and the lack of building type specificity within Table 3-8 and Table 3-9. These default values appear low in some cases, which results in treating a HOU in a dentist’s office the same as that in a hospital since they are both under the label of “health.” Treatment of such different environments as the same will result in skewed values as lighting is used significantly less in a dentist’s office than in a hospital. This type of approach cannot be said to increase accuracy and unduly discounts program impacts.

The table below compares the 2016 TRM lighting HOU with other regional TRMs published in Connecticut, Indiana and New Jersey:

Building Type	2016 PA TRM	2013 CT TRM	2015 IN TRM	2014 NJ TRM
Education	2,371			
School		2,187	2,379	
School Primary				1,440
School Secondary				2,305
Community College				3,792
College		2,586 - 6,376	3,749	
University				3,072
Restaurants	4,747	4,182		
Food Service			3,357	
Restaurant - Fast Food				6,188
Restaurant - Sit-Down				4,368
Healthcare	2,943		6,802	
Hospital		7,674		8,736
Medical Clinic		3,748		4,212
Medical -				
Retail	2,915	4,057	4,984	
Retail - 3 Story				4,259
Retail - Single Story Large				4,368
Retail - Small				4,004

<sup>1</sup>Range for College: Cafeteria, Classes, Administration and Dormitories

Of particular note, TRMs in Connecticut, Indiana, and New Jersey delineate between different types of education related building types. Additionally, TRMs in both Connecticut and New Jersey delineate between various types of healthcare facilities. Though Indiana's TRM only shows total industry HOU, that value is significantly higher than the HOU value prescribed in Pennsylvania.

## **2. Baselines**

### **A. Dual Baselines**

The Statewide Evaluator (“SWE”) describes the terms Retrofit Measure (“RET”) and Early Replacement Measure (“EREP”) as having dual baselines in the 2016 TRM. The intent to differentiate these measures is clear; however they were not actually differentiated in the description. In the 2016 TRM, both have dual baselines comprised of a baseline for existing equipment for the remaining useful life and then a secondary baseline thereafter which is based upon the applicable code or standard. It appears that the SWE has inadvertently comingled the concepts of “replace on burn-out” and “early replacement.” Duquesne Light has two concerns related to the application of a two-tiered baseline for retrofit/early replacement measures, where the removed equipment sets the baselines for a number of years and then the baseline switches to the new construction/replace on burnout level for the remaining years.

The first concern is that a dual baseline does not accurately reflect the way customers behave. Many examples can be seen in residential appliance recycling programs where residential customers actively use exceptionally old appliances. Similarly in the C&I sector, there is a high saturation of equipment (e.g., motors and HVAC equipment) that remains in use far beyond manufacturers’ estimated useful life. Duquesne Light also has a concern related to energy efficiency tracking systems. Duquesne Light’s energy efficiency tracking system lacks the capability to address this change in calculation requirements for measures with dual baselines and anticipates that such a change in calculation would require a system upgrade that would take substantial time and have a significant cost. As Duquesne Light previously proposed in its comments to the 2015 TRM, Duquesne Light requests that the Commission redefine this

approach in favor of one that retains the use of an existing condition as the baseline for retrofit/early replacement projects, as the Commission did in the 2014 TRM.

### **B. Energy Independence and Security Act Baselines**

Duquesne Light has concerns regarding the accuracy of the standards imported into the 2016 TRM from the Energy Independence and Security Act (“EISA”). The 2016 TRM provides that “[n]ote that the Energy Policy Act of 2005 (“EPACT 2005”) and Energy Independence and Security Act (“EISA”) 2007 standards introduced new efficacy standards for linear fluorescent bulbs and ballasts, effectively phasing out magnetic ballasts (effective October 1, 2010) and most T-12 bulbs (effective July 14, 2012).” However, market trends have shown the non-compliant products continue to be readily available for purchase as there is remaining inventory at the distributor level and also that customers have stockpiled products. Given the existence of the remaining inventory of non-compliant products today, the continued availability of such products in retail distribution, and the somewhat unreliable track record of the enforcement of efficiency standards by the federal government, Duquesne Light asserts that the mandatory baseline assumptions are overly severe and limit flexibility in the offerings of energy efficiency programs.

Voluntary energy efficiency programs, such as Pennsylvania's Act 129 energy efficiency programs, will still be needed to transition the linear fluorescent marketplace well into Phase III. The impositions of T8 baselines should be moved back at least three years to coincide with the transitions present in the Act 129 programs. However, as Duquesne Light previously proposed in its comments to the 2015 TRM, Duquesne Light requests that the Commission redefine this approach in favor of one that retains the use of an existing condition as the baseline for retrofit/early replacement projects, as the Commission did in the 2014 TRM.

### **3. (1-SVG<sub>base</sub>) Factor**

Duquesne Light notes that there is a typographical error or omission on page 235 of the TRM as follows: the (1-SVG<sub>base</sub>) term in the energy formula ( $\Delta kWh_1$ ) for new construction should also appear in the demand formula ( $\Delta kW_{p1}$ ).

### **4. Wholesale Market Instability, Legal and Regulatory Actions, Natural Gas Market Implications, and the “Utility of the Future”**

On April 27, 2015 Duquesne Light filed substantive comments to Commission regarding the March 11, 2015 Phase III Implementation Order’s discussion of demand reduction programs and measures. In conjunction with those comments and noting the inclusion of the demand reduction measures in the proposed 2016 TRM, Duquesne Light offers additional comments on the general subject of Phase III demand reduction programs. There are four additional dynamics to be mindful of when considering going-forward demand reduction programs:

#### **A. Ongoing Challenges**

Ongoing legal challenges with respect to the FERC Order 745 call into question the vision of competing or complementary PJM demand reduction programs and whether they will remain in existence. Until additional clarity is provided on the demand reduction programming landscape in wholesale electric markets, it is not possible to appropriately establish planning rules and to plan on the retail side of the market.

#### **B. Clean Power Plan**

The US Environmental Protection Agency set forth the “Clean Power Plan” which remains subject to significant debate and thus potentially subject to substantial modification or withdrawal. While Duquesne Light does not necessarily support positions taken in the plan

regarding mandated utility demand-side options, it is clear that the plan remains unsettled and the planning horizon is ambiguous. Regardless, the implications of this federal regulatory action on the wholesale side of the electric markets will likely be material, thus making it nearly impossible to appropriately establish planning rules and to plan on the retail side of the market without having an indication of the future landscape of the wholesale market.

### **C. Natural Gas Markets**

The reaction of PJM and its market participants to the ramp-up of natural gas fired generation, the challenges regarding availability of gas transportation capacity, and the related future trajectory of the cost of gas delivered to the wholesale generator's burner tip are all too uncertain to enable effective planning rules and to engage in planning on the retail side of the market.

### **D. Utility of the Future**

The emergence of "Utility of the Future" concept and neighboring state proceedings such as 14-M-0101 ("Reforming the Energy Vision") in New York suggest that the entire market for demand reduction products and services is entering a stage of significant evolution. Until there is more clarity regarding the nature, design, and products associated with this market, it is difficult to establish planning rules and to effectuate planning for retail demand reduction programs.

For the abovementioned reasons, Duquesne Light requests the elimination of demand reduction programs from consideration in Phase III, at least temporarily, and thus exclusion of the demand reduction protocols section of the 2016 TRM.

## **5. Appendix 6.2 Relationship between Program Savings and Evaluation Savings**

Duquesne Light asserts that the verification of deemed and partially deemed savings should be based upon the TRM rather than a case by case selection. Utilizing a standard of reasonableness for individual cases will result in conflict between implementers and evaluators, wasted time, and customer confusion. Additionally; any associated claimed improvements in accuracy render a de minimus impact variance. Addressing protocols on an individual basis will result in the disparate application of protocols for program measurement and verification procedures as compared to evaluation measurement and verification procedures. Many instances allow for EDC data gathering or use of TRM defaults with no clarity as to which take precedence. If an implementer references a default value from the 2016 TRM, evaluators should be empowered to accept that value without further review.

## **6. Smart Strip Protocols**

The proposed 2016 TRM applies to smart strip plug outlets in both the residential and the commercial & industrial sections (§2.5.3 and §3.9.3, respectively). However, there are a number of inconsistencies between the two treatments. The first inconsistency relates to measure life. The measure life for C&I applications is specified as half of the value as that given for residential uses of the smart strips (five years versus ten years, respectively). This discrepancy appears to be based on using two different sources for the useful life of the same product. However, the Michigan Energy Measures Database (“MEMD”), the source for the TRM’s C&I section, provides the same measure life for both residential and C&I applications. The MEMD could be used for both residential and C&I applications which would remove the measure life inconsistency.

The second inconsistency relates to smart strip types. The residential section provides deemed savings and algorithms for both tier 1 and tier 2 smart strips, however the C&I section does not make this distinction. More broadly, the energy and demand algorithms used in each section vary from one another unnecessarily. Duquesne Light generally contends that both of these sections should mirror each other. The differences in applications would better be captured through residential and C&I specific equipment idle hours-of-use, coincidence factors, and in-service rates.

## **7. Inconsistency in the Measure Lives of Retrofit Lighting and New Construction Lighting**

Duquesne Light disagrees with the proposed difference between the measure lives of new construction and retrofit lighting measures. An approach that utilizes different values for new construction and retrofit lighting measures result in situations where an identical lighting fixture will have a different useful life in a project characterized as retrofit than in a project characterized as new construction. Given that deep retrofits of a facility are often treated as new construction measures, this dual measure life creates a difference where none actually exists. The Measure Life Study referenced as documentation of these measure lives notes that this is a non-standard approach by stating that “[w]e have readily found that the vast majority of national utilities do not differentiate between NC and retrofit projects for measure lives. [...] To date, we have been unable to find quantitative studies of the effect of NC versus retrofit status on measure life”.<sup>3</sup>

In the absence of an available quantitative study or other interview data that can serve as a definitive reference, ERS noted a number of qualitative factors that can characterize how new

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<sup>3</sup> Measure Life Study, §3, pp. 5-6, prepared for the Massachusetts Joint Utilities by ERS. October, 10, 2005. [http://rtf.nwcouncil.org/subcommittees/nonreslighting/Measure%20Life%20Study\\_MA%20Joint%20Utilities\\_2005\\_ERS-1.pdf](http://rtf.nwcouncil.org/subcommittees/nonreslighting/Measure%20Life%20Study_MA%20Joint%20Utilities_2005_ERS-1.pdf).

construction and retrofit status may affect measure life. “It is our impression that most of these factors would lead to a conclusion that the retrofit measure life would be reduced relative to the new construction estimate. Others’ conclusions or impressions of these factors may be different. In addition, more factors may be identified or defined that could provide evidence or perspective in one direction or the other. These factors are clearly not quantitative, but they seem to formulate the basis for a discussion from which we can draw conclusions. After consultation with the sponsors, we are recommending a very modest decrease in the retrofit measure life”.<sup>4</sup>

Given the inconclusive nature of the source for using distinct measure lives, Duquesne Light proposes revising the 2016 TRM to use the same value for both new construction and lighting measures.

## **8. VFDs and Economizers Are Retrofit Only**

In sections 3.2.9 (Controls: Economizer) and 3.3.2 (Variable Frequency Drive Improvements), the 2016 TRM defines the only eligible vintage or installation scenario as Retrofit. In Duquesne Light’s experience, there are new construction/replace on burnout situations that arise in which an economizer or Variable Frequency Drive (“VFD”) are options to a base model piece of equipment rather than a retrofit. If such controls can be documented as options, Duquesne Light believes there is no reason to exclude them from eligibility. Duquesne Light relies upon this type of scenario to provide a presence in the new construction/replace on burnout air conditioning market segment, where low run-hours render high efficiency equipment by itself to be non-cost effective. Duquesne Light requests that the applicable scenario for these measures be changed to New Construction/Replace on Burnout or Retrofit.

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<sup>4</sup> Id.

## 9. Variable Frequency Drives on Chillers

Duquesne Light previously commented on VFD Chillers in relation to the 2015 TRM. At issue in the 2016 TRM is the language found in the second paragraph of Section 3.2.2 Electric Chillers that states that the protocol does not apply to VFD retrofits to an existing chiller and that the Integrated Part Load Value (“IPLV”) for the old chiller/new VFD would be unknown. This logic provides little to no direction in cases where an existing chiller is being modified by adding a VFD, a common retrofit measure. Integrated Part Load Value (IPLV) generally means Air-Conditioning and Refrigeration Institute (ARI) standard test conditions 44 degree chilled water set point, 54 degree returning chilled water, 3.0 GPM per ton condenser water flow, at 85 degree entering condenser water. An IPLV rating may be obtained from the chiller manufacturer or Nonstandard Part Load Value (“NPLV”) could be used in its place. It should be noted that it is common for systems to be operated at conditions other than those designated by the Air-Conditioning and Refrigeration Institute (“ARI”).

IPLV is a standard set of operating conditions for the chiller, typically used where actual conditions are not yet known. When known, NPLV for actual conditions could be used in place of IPLV. It should be acceptable to use NPLV or actual site conditions. The language in the 2016 TRM imposes what is essentially a "rule of thumb" in preference to site specific information. The stated algorithm could be used incorporating NPLV in place of IPLV and produce more accurate bases for savings calculation. Rather than directing a TRM user to employ an unspecified custom protocol, the TRM should state that if a manufacturer certified IPLV rating at ARI standard conditions is not available, the NPLV should be used in place of IPLV with parameters specified (chilled water set point, returning water temperature, condenser

water GPM and entering condenser water temperature). These parameters can then be verified by evaluators.

## 10. Appendix C

Duquesne has identified several issues with Appendix C of the 2016 TRM Appendix C.

1. On the summary sheet, the "Wattage Controlled by Newly Installed Lighting Controls" value is actually reporting kilowatts, not watts.
2. The categories of fixture types available in the description column in the custom LED fixture identity generator section of the fixture identities sheet are overly restrictive. These categories should include all appropriate categories from ENERGY STAR and the DesignLights Consortium.
3. Some the entry forms seem to be sensitive to the order in which data are entered. After experimenting with a retrofit example, the same instance of the App C exhibited errors in the Space Designation lookup on the General Info sheet when trying to enter a new construction example.
4. The App C formulas for lighting fixture improvements energy and demand savings (columns AA and AB) are both missing the  $(1 - SVG_{base})$  term that appears in the algorithms in sections 3.1.1 and 3.1.2 of the TRM. The relevant formula from the TRM are:

$$\Delta kWh = (kW_{base} - kW_{ee}) \times [HOU \times (1 - SVG_{base}) \times (1 + IF_{energy})]$$

and

$$\Delta kW_{peak} = (kW_{base} - kW_{ee}) \times [CF \times (1 - SVG_{base}) \times (1 + IF_{demand})]$$

The Appendix C, on the other hand, contains the equivalent of the following:

$$\Delta kWh = (kW_{base} - kW_{ee}) \times [HOU \times (1 + IF_{energy})]$$

and

$$\Delta kW_{peak} = (kW_{base} - kW_{ee}) \times [CF \times (1 + IF_{demand})]$$

Duquesne Light requests that the SWE reconcile the 2016 TRM text and Appendix C formulas.

## 11. Appendix D

Duquesne Light has also identified a number of issues with the 2016 TRM Appendix D:

1. Given that the facility type, utility, program year, and city must be entered on the summary sheet, its name and placement appear to be inappropriate. Duquesne Light suggests that the placement be repositioned to be before the motor sheet and be renamed “general input and summary.”
2. The range of dates and program years available for entry on the summary sheet need to be updated for Phase III.
3. The table references to the TRM on the lookup table sheet needs to be updated.

In general, the Appendix D would also benefit from similar organizational and functional improvements as those made to Appendix C.

## Conclusion

Duquesne Light appreciates the opportunity to comment on the issues raised regarding the update of the 2016 TRM.

Sincerely,



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