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April 7, 2025

VIA ELECTRONIC FILING

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

Re: Energy Efficiency and Conservation Program;
Docket No. M-2025-3052826

Dear Secretary Chiavetta:

Pursuant to the Pennsylvania Public Utility Commission's Act 129 Tentative Implementation Order dated February 20, 2025 in the above-captioned proceeding, please find enclosed the Comments of FirstEnergy Pennsylvania Electric Company.

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

Very truly yours,

Timothy K. McHugh

Enclosures

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Energy Efficiency and Conservation Program	**:**	**Docket No. M-2025-3052826**

COMMENTS OF FIRSTENERGY PENNSYLVANIA ELECTRIC COMPANY TO THE TENTATIVE IMPLEMENTATION ORDER REGARDING PHASE V OF THE ACT 129 ENERGY EFFICIENCY AND CONSERVATION PROGRAM

Act 129 of 2008 (the "Act" or "Act 129") created an Energy Efficiency & Conservation ("EE&C") Program, codified in the Pennsylvania Public Utility Code at Sections 2806.1 and 2806.2, 66 Pa.C.S. §§ 2806.1 - 2806.2. The Act requires that every five years the Commission must assess the cost-effectiveness of the EE&C Program and set incremental reductions in electric consumption if the EE&C Program's benefits exceed its costs. In preparation for a potential Act 129 Phase V, the Commission tasked the Phase IV Statewide Evaluator ("SWE") with performing an energy efficiency and peak demand reduction ("EEPDR") potential study and a Demand Response ("DR") potential study to determine the cost-effective consumption and peak demand reduction potential in Pennsylvania. The SWE submitted its final *Pennsylvania Act 129 Phase V Energy Efficiency and Peak Demand Reduction Market Potential Study ("EEMPS")*[1] and *Pennsylvania Act 129 Phase V Demand Response Potential Study ("DRPS")*[2] to the Commission in February 2025. In the Tentative Implementation Order ("TIO"),[3] the Commission presents its evaluation of the cost-effectiveness of the EE&C Program and proposes a five-year Phase V that

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1 *See Pennsylvania Act 129 - Phase V Energy Efficiency and Peak Demand Reduction Market Potential Study Report*, submitted by NV5, Inc., et al., February 2025.
2 *See Pennsylvania Act 129 – Phase V Demand Response Potential Study*, submitted by Demand Side Analytics, February 2025.
3 *See Energy Efficiency and Conservation Program Tentative Implementation Order*, Dkt. No. M-2025-3052826 (February 20, 2025).

would operate from June 1, 2026, through May 31, 2031. The TIO proposes additional required incremental reductions in consumption and peak demand and additional proposals regarding the design and implementation of the Phase V Act 129 EE&C Program. FirstEnergy Pennsylvania Electric Company ("FE PA" or the "Company") offers the following comments in response.

I. Introduction

The Company appreciates the efforts of the Commission and SWE to complete the potential studies, as well as the opportunity to provide input on the TIO. Accordingly, the Company offers the following comments for Commission consideration.

II. Comments

A. Proposed Reductions in Electric Consumption

A.4 – Proposed Reductions in Consumption

The proposed reductions in consumption included in the TIO for FE PA are set too high based on several assumptions in the EEPDR Potential Study which creates significant risk and undue uncertainty on the ability of the Company to meet its proposed targets within the Act 129 budgets. The Proposed Phase V targets for the Company are artificially inflated due to several reasons including: 1) understated acquisition costs; 2) overreliance on significant customer participation in a very limited number of measures including non-residential lighting, combined heat and power ("CHP"), and Solar Photovoltaic ("PV"); 3) overestimation of residential heating, cooling and water heating end uses; 4) the impact of impending new tariffs; 5) the Low-Income carve-out is overstated and dependent on assumptions for external funding; 6) uncertainty with external federal funding and tax credits being available; and 7) the treatment of effective useful life of equipment. These factors are discussed in more detail below. The Company respectfully requests that the SWE consider these factors and provide revised projections that mitigates these risks and uncertainties so that the Commission can establish Phase V targets that the Company can reasonably achieve within its Act 129 budget that are cost-effective and beneficial for customers.

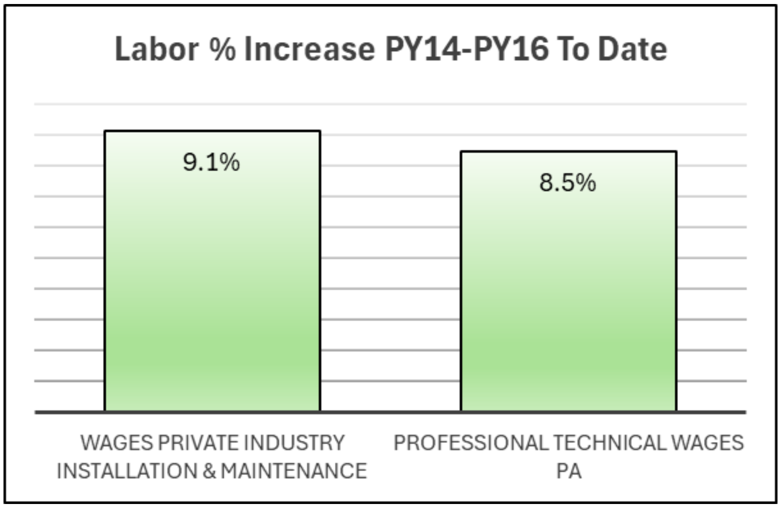
a) **Acquisition Costs** - In the SWE's EEMPS and DRPS, the acquisition costs are understated for several reasons and should be revised when considering their use for setting Phase V targets. The SWE made several budgetary assumptions for Phase V based on what was observed in early Phase IV that included an over-reliance on participation of lower cost measures, which will not generate the same level of savings in the future, thereby suppressing the acquisition costs for Phase V. Since that time, the Company's overall acquisition costs have increased over 20% and should be included as part of the analysis.

Secondly, the potential for non-residential lighting, CHP and Solar PV, which all have low acquisition costs when compared to other available measures, are overstated and as modeled are critical to the ability of the electric distribution companies ("EDCs") to attain the saving goals within the Act 129 budget. This creates an undue reliance for the EDCs to achieve significant customer participation in a very limited number of measures that have acquisition costs that are much lower than achieving the same savings from other measures in the portfolio. Simply put, if EDCs are not able to achieve the participation and savings projections for these few measures at the acquisition cost that the SWE assumed, there is nothing else available that can make up the savings at an equivalent cost, which places the EDCs at risk of non-compliance for Phase V. As discussed more in detail below, several imminent policy and economic factors, such as tariffs and the uncertainty of the availability of external funding and tax credits, also introduces significant uncertainty to the assumed levels of customer participation, customer costs and resulting acquisition costs, and savings potential for these low-cost measures as included in the EEMPS.

Additionally, acquisition costs for CHP and Solar PV should be increased. For both CHP and Solar PV, the EEMPS assumes the same incentives as observed in early Phase IV for the Phase V potential. While the study acknowledges the declining cost for solar equipment in early Phase IV (with no consideration of the impact of tariffs on the cost of equipment), the study does not include any inflation or growth in the cost to customers (e.g., labor, equipment, increased costs due to tariffs, other economic conditions etc.) and the level of customer incentives needed for Phase V. This is not reasonable and the incentives for Solar PV and CHP, and thus acquisition costs should be increased to reflect increased project costs to customers.

Further, the EEMPS assumed non-incentive to incentive cost ratios as the basis for setting the non-incentive costs for Phase V and did not consider the volatile inflation experienced during Phase IV. Also, the EEMPS did not consider other economic growth factors that impact administrative costs associated with program implementation and delivery. While the SWE applied these cost ratios to incentive assumptions based on updated Incremental Measure costs, non-incentive costs, such as labor, are not necessarily a direct function of incentives. See Figure 1 that shows the dramatic increases in labor costs from early Phase IV to PY16.

Figure 1: Labor % Increase PY14-PY16 to Date[4]



Recognizing that Phase V extends up to 8 years into the future, inflation should also be considered and included in the SWE's EEMPS and DRPS assumption of non-incentive costs.

b) **Non-Residential Lighting** – Light emitting diode ("LED") lighting has become the dominant technology in both the small and large commercial customer sectors over the past several years. As the 2023 Baseline Study shows for small and large commercial customers combined, the End Use Intensity ("EUI") has dropped from a value of 2.5 kWh/square feet in the 2018 study to 1.6 kWh/square feet in the 2023 study,[5] a drop of 36% in just five years. According to the 2023 Baseline Study, lighting represents a fraction (10.5%)[6] of customers' EUI, for both small and large commercial customer sectors, yet, for FE PA, the EEMPS has lighting program potential representing 61% of the total program potential.[7]

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[4] Data Sourced From: https://fred.stlouisfed.org.
[5] 2023 Baseline Study, page 57.
[6] 2023 Baseline Study, Figure 26 shows that lighting represents an of 1.6 KWh/square foot compared to a total of 15.2 KWh/square foot of customers' EUI.
[7] EEMPS Tables 22 and 26.

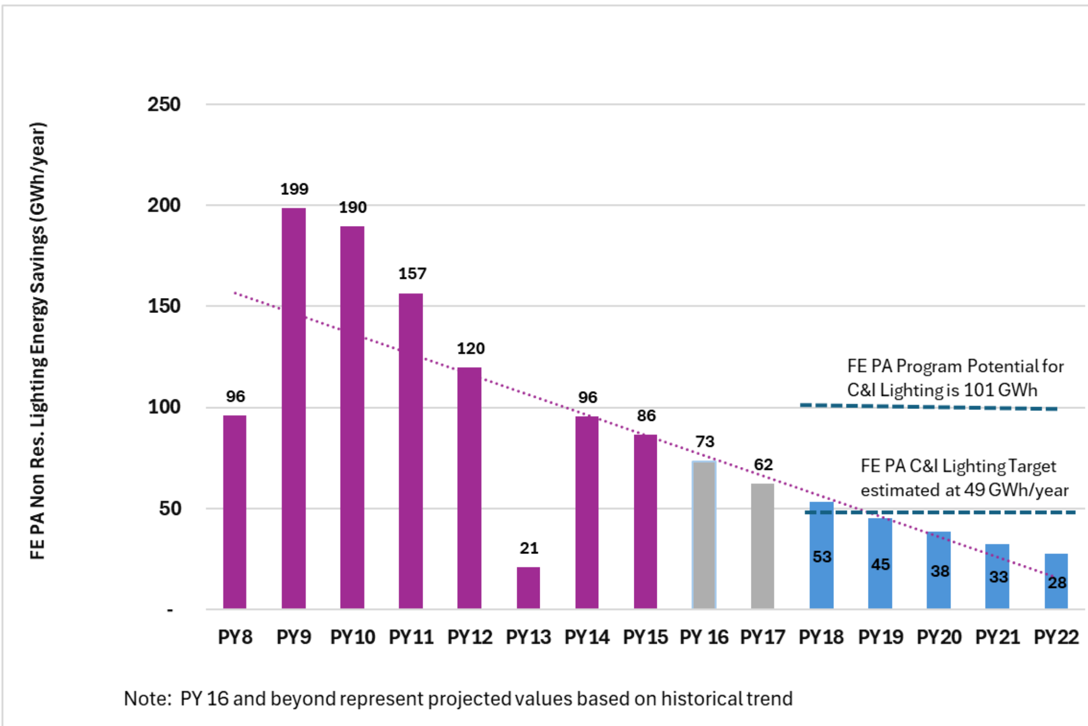
While the study cites the significant historical participation in non-residential lighting, it does not consider the actual trend of participation in lighting programs. The Company has evaluated its own trends over the last two phases (PY8 - PY15) and has concluded that the trend in potential is declining rapidly. As presented in Figure 2 below, the Company's participation in lighting has been declining year over year since the beginning of Phase III. In the past 7 years, the savings achieved in FE PA's non-residential lighting program has decreased in half and is declining at an average rate of 15% year over year even though the Company has continued to heavily promote non-residential lighting over this time period. If the historical trend is projected forward into the Phase V term, actual savings will continue to decline to an ultimate level of 28 GWH for FE PA, a value far below the assumptions in the EEMPS and the amount assumed in the Company's targets, which assumes an estimated FE PA target potential for Commercial and Industrial ("C&I") Lighting over the five-year period of approximately 49 GWh[8] per year.

The study also assumes that all remaining stock of baseline non-residential lighting equipment can be converted to LEDs. It is unreasonable to assume that all remaining stock can be converted. Furthermore, the population of customers who have yet to implement LED lighting projects after over a decade of available programs and incentives likely have additional barriers to overcome that the study does not take into account. This includes, but is not limited to, lack of competing requirements for, or high cost of capital, inaccessibility, uncertain business conditions, etc. In Phase V, it will be more difficult for

[8] The 49 annual GWh is calculated as follows: From the EEMPS Tables 22 and 26, the FE PA C&I Lighting Program Potential = 504 GWh, and the FE PA C&I Total Program Potential = 825 GWh. From Table 27, the FE PA C&I Act 129 Potential = 487 GWh. The ratio of C&I Act 129 Potential to C&I Program Potential of 59% (487/825) is then applied to the FE C&I Lighting Program Potential of 504 GWh to arrive at 298 GWh total and 60 GWh annually. That value is then reduced to arrive at the amount that supports the TIO proposed target, by using the ratio of allocation factors from the TIO (from TIO Table 8, 67%) and dividing that value market rate EE from the EEMPS (81%) from Table 50, (67% / 81% = 83% x 60 annual GWh = 49 annual GWh).

the EDCs to reach these remaining customers and would likely require even higher levels of program outreach, marketing initiatives and incentives, causing both incentive and non-incentive costs to increase, which will lead to higher than previously achieved overall acquisition costs. As such, the study should consider more recent levels of participation as a starting point, and for the Act 129 Potential over Phase V to reflect declining participation and savings over time to incorporate this market trend.

Figure 2: FE PA Non-Residential Lighting Energy Savings by PY



c) **CHP Potential** - In the EEMPS, the SWE considered the Phase IV EEMPS and early Phase IV CHP participation to determine the Act 129 Potential for Phase V: however, the SWE did not consider historical Act 129 CHP achievements. As acknowledged in the EEMPS and shown in Figure 3 below for FE PA, CHP participation is highly uncertain and variable in terms of the size of the project, its energy savings and timing.

CHP projects are highly complex and specialized with only a small subset of customers that have the facilities required to participate, and each project is unique in the size and savings that can be achieved. Further, to participate in a CHP project, customers must make a long-term business commitment to own, maintain and operate these installations, which can be impacted by changing economic and business conditions. Every customer's business condition is unique and may be highly uncertain, especially in light of recent and current changing federal policy and economic conditions.

Additionally, the SWE assumed an acquisition cost for CHP consistent with what the SWE observed in early Phase IV. No consideration was given to increasing costs to customers or increased customer incentives, such as for the equipment, construction and other labor aspects of these projects. If the Company is unable to achieve CHP participation and savings at the costs the SWE assumed, the Company will be forced to make up for any shortfall in savings using technologies with significantly more expensive (by a factor of 10 or more) acquisition costs which places undue risk of compliance on the Company.

Figure 3: FE PA CHP Projects from Act 129 Inception to PY16

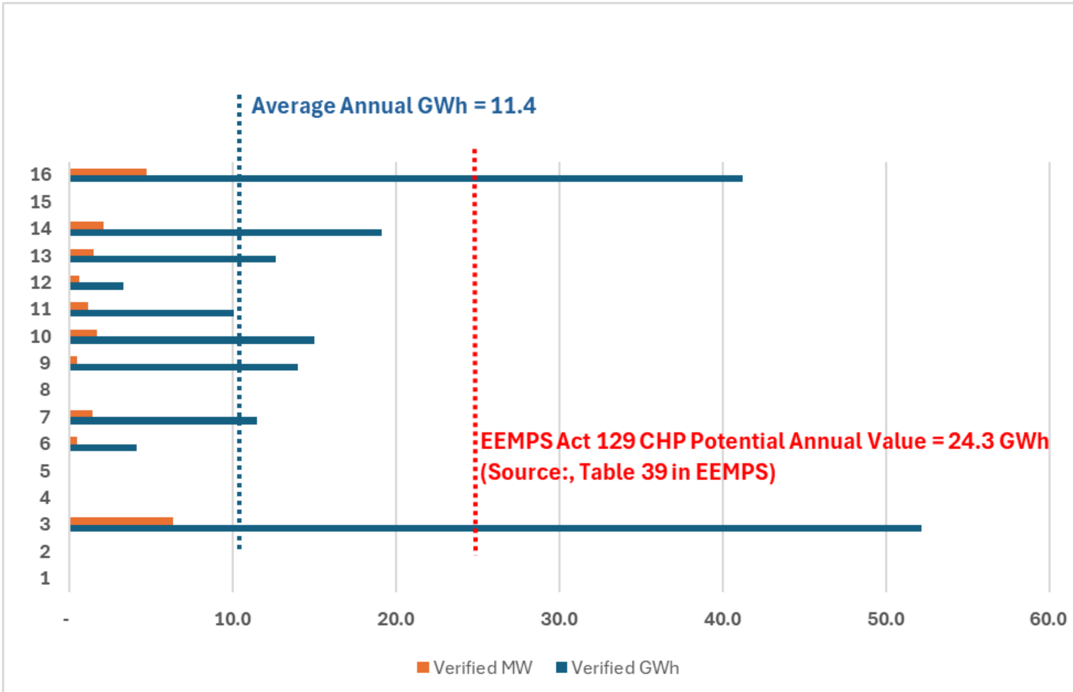


Figure 3 above shows that the EEMPS assumptions are over 200% of the Company's average annual results attributable to CHP projects since inception of Act 129 Programs. As the SWE used only Phase IV results to project Phase V Act 129 Potential, this assumption is highly skewed for FE PA since a longer term was not considered in the analysis and it ignores the variability in participation and size of projects. Data which considers only Phase IV is further skewed due to a very large project (41.2 GWh) that was completed in PY16, that history clearly shows as an outlier. Furthermore, highly uncertain federal policy decisions, such as tariffs on imported steel and other equipment, as well as increased labor costs associated with the construction, operation and maintenance of these comprehensive industrial projects, increases the cost of these projects that very likely causes uncertainty for customers to commit to install and own these projects and the level of incentives that are needed. Consequently, the assumed Act 129 Potential from CHP projects for EE savings and the corresponding Coincident Peak Demand savings should be decreased by at least 50% to more accurately reflect the market for CHP projects based on the Company's actual results and the uncertainty in participation, size and timing over the 5-year period of Phase V.

d) **Solar PV Potential -** To arrive at the proposed targets in the Phase V TIO, the Commission almost doubled the amount of Solar PV as compared to the EEMPS (9% vs. 5% of total FE PA budget)[9] at a very low acquisition cost compared to Traditional EE ($154.7/MWh for Solar vs. $382.5/MWh for Traditional EE)[10] in the EEMPS. In the EEMPS, the SWE assumed an acquisition cost for Solar PV consistent with what the SWE observed in early Phase IV and, similar to CHP projects, did not consider increasing costs to customers (or increased customer incentives), such as costs for the equipment, construction and other labor aspects of these projects associated with inflation or other economic conditions. While Solar PV is a viable technology for achieving energy and demand reduction savings, there are significant uncertainties in the current policy arena regarding the availability of federal tax credits and the costs to customers to commit to and undertake solar projects based on impending tariffs on imports[11] and other increasing costs.

[9] Compare Table 8 in the TIO at 9% for Solar to the EEMPS Table 50 with a 5% allocation for Solar.

[10] Acquisition cost for Traditional EE for the FE PA is from Table 27 in EEMPS. Acquisition cost for Solar in FE PA is from Table 47 in EEMPS.

[11] "According to a 2024 study by SEIA, potential new tariffs could raise the cost of solar panel imports by 10-15%, significantly increasing overall installation expenses for residential, commercial, and utility-scale projects. This price increase could deter investment in new solar projects, particularly in cost-sensitive markets like community solar or rural installations. Higher costs also extend the payback period for solar energy systems, reducing their financial appeal to homeowners and businesses. For utility-scale projects, even a modest cost increase can make the difference between a project being financially viable or shelved, leading to a slowdown in large-scale renewable energy deployment. Solar tariffs have a direct impact on consumers by increasing the cost of solar installations, delaying financial benefits, and limiting access to renewable energy. These effects ripple through the solar adoption process…Tariffs disproportionately affect middle- and low-income households, creating barriers to clean energy access and undermining efforts to democratize solar power." Source: Trump Solar Tariffs in Second Term & Impact on Solar Prices – Green Ridge Solar https://greenridgesolar.com/trump-solar-tariffs-solar-prices.

Studies have shown that if the current federal tax credits for Solar PV installations are removed, the expected new Solar PV capacity in the US could drop by 50%.[12] Further, increased equipment and labor costs coupled with decreased government subsidization will serve to reduce potential even further. If the Company is unable to achieve the Solar PV participation and savings as projected in the TIO at the costs the SWE assumed, the Company will need to make up the gap for any shortfall in savings using technologies with significantly more expensive (over twice on average) acquisition costs which places undue risk of compliance on the Company. In fact, if the levels of Solar PV were reduced to the EEMPS amounts of 5% of budget, assuming the EEMPS values for acquisition costs and notwithstanding all other arguments presented towards this issue, the Company would not be able to achieve the proposed targets within its Act 129 budget. Consequently, the assumed Act 129 Potential from Solar PV projects for Consumption Reduction savings and the corresponding Coincident Peak Demand savings established in the TIO should be decreased by at least 50% so as to not rely on tax credits. Additionally, the level of incentives should be increased to reflect increased equipment and labor costs to customers due to the impact of tariffs and other current inflationary and economic conditions, which will result in higher acquisition costs.

e) **Residential Heating, Cooling and Water Heating Potential** – In the EEMPS, the SWE estimated the Program Potential for residential space and water heating and

[12] "A recent study by The Brattle Group projects a strong future for solar deployment under existing federal tax credits. If the current incentives remain in place, the U.S. could see 550 gigawatts (GW) of new solar capacity installed by 2035. However, if those tax credits disappear, that number drops dramatically to just 242 GW—a reduction of more than half." Source: https://www.tstpros.com/2025/03/18/the-impact-of-tax-credits-on-renewable-energy-growth-a-visual-comparison/ The Impact of Tax Credits on Renewable Energy Growth.

cooling end uses to be almost 80% of the total Residential Program Potential for FE PA. Of these three end-uses, Residential Space Heating alone is almost 47% of the total. The magnitude of Program Potential for these end uses is unreasonable for several reasons and is not supported with setting customer incentives at only 50% of the incremental measure costs for this equipment. First, these end uses have a high project and incremental measure cost when compared to all residential measures and other barriers to customer participation (e.g. space heating type) makes them among the hardest measures for EDCs to incent for program participation. In addition, recent changes in codes and standards for residential cooling and electric heating equipment went into effect in 2023, which caused increased costs to customers and reduced energy savings counted toward targets. Furthermore, participation in these end uses predominantly relies on customers having applicable electric equipment that can be replaced with higher efficiency air-conditioning and electric heat pump equipment. As a result, the Company has traditionally achieved small amounts of participation among these end uses, with an annual participation rate of less than 0.5% of customers with applicable baseline electric equipment between PY8 and PY15. Table 1 below compares the amount of participation that the Company considers it maximum reasonably achievable based on the number of its residential customers who have the applicable baseline electric end use with the amount of participation that the Company would need to achieve the estimated Act 129 EE Potential for these end uses in the EEMPS based on the average retrofit per the PA TRM.

Table 1: FE PA Comparison of Participation for Residential Space and Water Heating and Cooling End-Uses

	A	B	C = A * B	D	E = C / D	F	G = F * E
End-Use	Number of Res Customers	% of Res Customers with End Use [1]	Number of Res Customers with End Use	Measure Life of End Use	Customer Count with End Use (Annual)	Max Achievable participation rate (1 to 2%) [2]	Max Achievable participation count
Cooling	1,801,214	53%	960,476	15	64,032	2%	1,281
Space Heating	1,801,214	23%	416,589	15	27,773	2%	555
Water Heating	1,801,214	45%	816,615	10	81,662	2%	1,633

	H	I = H * Table 27/Table 16	J	K = I * 1,000,000 / J / 5	L = K / G
End-Use (Cont'd)	EEMPS Program Potential (GWh)[3]	Act 129 EE Potential Estimate (GWh) [4]	kWh / Replaced Unit Savings [5]	Estimated Annual EEMPS Participants	Overestimated EEMPS participants as %
Cooling	60	32	293	21,841	1705%
Space Heating	465	250	1,468	33,992	6120%
Water Heating	261	140	1,168	23,947	1466%

Note: All values are FE-PA
1. FE-PA 2023 Residential Appliance Saturation Survey
2. Evaluation input
3. MPS Table 17
4. Based on ratio of MPS Table 27 to MPS Table 16
5. Average retrofit using PA2026 TRM

For all the reasons discussed above, as well as recognizing other comments herein of the Company associated with increasing costs to customers due to the impact of tariffs and continued higher levels of inflation, the Company recommends that the SWE should update the EEMPS to increase the incentives for these end uses to at least 75% of the incremental measure costs to enable the EDCs to incent customers at a level that would help drive participation.

f) **Impact of Tariffs -** The uncertainty related to federal policy on tariffs and the consequential impact on customers' costs, the Company's acquisition costs and the impact of these factors on program potential should be addressed. As addressed in the Company's comments regarding CHP, Solar PV, non-residential lighting and Residential Heating, Cooling and Water Heating, the SWE's EEPDR should be updated to include the impact of tariffs on equipment costs, and incentives should be increased to offset increased costs to customers. The EEPDR projects significant potential in residential HVAC,[13] appliances (e.g. water heaters),[14] non-residential lighting,[15] Solar PV and CHP, and all of these end uses or technologies have large imports from countries being targeted with tariffs. As such, the EEPDR should be updated to reflect the anticipated increased equipment costs, especially for these major sources of potential, to customers and a corresponding increase in incentives that are needed to achieve the potential.

g) **Prescription of Low-Income Measures and Carve-Out -** In the TIO, the Commission proposes a low-income savings target utilizing 13.3% of the EEPDR budgets to achieve approximately 8.3% of statewide portfolio savings. This is problematic for a few reasons, namely 1) the acquisition cost used to calculate the Act 129 Potential savings achievement should be increased resulting in decreased participation and savings potential; and 2) the low-income carve out should be based solely on low-income spend without a commensurate target for savings.

While the SWE acknowledged that as of January 2025, neither Home Efficiency Rebates ("HER") or Home Electrification and Appliance Rebates ("HEAR") have been approved by the U.S. Department of Energy (DOE) and that it is possible that the funding assumed could be altered or eliminated, the SWE included federal funding as a cost share of eligible measures to lower the acquisition cost and to increase low

[13] "Major HVAC manufacturers, including Carrier, Daikin, Lennox, and Trane, which hold over a 60 percent share of the U.S. market, have manufacturing exposure in Mexico and source components from China." Source: HVAC imports from Mexico face 25% tariff, HomePro, Feb 2, 2025 https://homepros.news/hvac-imports-from-mexico-face-25-tariff.

[14] "Appliances such as refrigerators and washing machines are expected to see price increases of nearly 20% because of higher costs for imported materials like steel and aluminum," Source: Which Items Will be More Expensive Because of Trump's Tariffs? / HuffPost Life https://www.huffpost.com/entry/trump-tarrifs-what-to-buy.

[15] https://inside.lighting/news/25-01/Lighting-Industry-Braces-for-china-mexico-canada-Tariffs: "The lighting industry remains heavily reliant on Chinese components, including LED chips, drivers, and other critical electronic elements. Many low-cost LED components, such as 6-cent LED chips or $6 drivers, originate from China. Finished goods like $10 downlights and $20 flat panels also often rely on Chinese manufacturing."

income participation and savings projections up to the budget carve out under the Act 129 programs. These values do not incorporate inflation, noting that the SWE relied on early Phase IV costs, or other economic and policy factors. As shown below in Table 2, specific to the low-income carve out, this results in an increase of the Act 129 potential of approximately 20% and for the savings carve out and budget to be effectively the same as in Phase IV. Removing the federal funding from the low-income target aligns the % change between Phase IV and Phase V with both the overall consumption reduction and peak demand reduction targets. The low-income consumption reduction target as compared to Phase IV goes from 95% to 78%, aligning more closely to the 77% and 75% for statewide consumption reduction and peak demand reductions respectively. Given the uncertainty in federal funding as discussed in more detail below, the SWE should remove the assumptions for external funding from its study.

Table 2: Statewide Low-Income Targets[16]

Statewide Targets	Phase IV	Phase V	% Change
Consumption Reduction (MWh)	4,513,871	3,481,403	77%
Peak Demand Reduction (MW)	809	608	75%
Low Income Consumption Reduction (MWh)	260,179	245,980	95%
Impact of IRA Funding (MWh)[16] (A)	N/A	42,700	
Low Income Budget Allocation	13%	13%	0%
Low Income Consumption Reduction (MWh) Less IRA Funding (B)	260,179	203,280	78%
Additional Low Income Savings from External Funding (A) / (B)		20.10%	

[16] Impact of IRA Funding from Table 36 of the PA EE&PDR Market Potential Study Report.

Additionally, maintaining the low-income budget as a spending requirement and removing the discrete low-income consumption reduction target allows for better coordination among programs and flexibility to offer additional or expanded comprehensive offerings to serve low-income customers. In addition to its Act 129 programs, the Company provides a Low-Income Usage Reduction Program ("LIURP"), which is a well-established comprehensive weatherization program and has seen significant increase in its budget and participation goals that, when combined with an Act 129 consumption reduction target, creates competition between these offerings. Further, there is uncertainty of the impact of the expanded LIURP program on the Act 129 low-income program potential. To align and mitigate competition, best promote the implementation of coordinated LIURP and Act 129 low-income programs, and to mitigate uncertainty with the Act 129 low-income potential, establishing a low-income carve out for spending and not discrete consumption reduction target for this segment achieves all objectives.

h) **External Federal Funding and Tax Credits –** The SWE's EEMPS and DRPS relied on the availability of federal funding and tax credits for several programs and measures in both studies. For the low-income customer segment, the SWE decreased the Act 129 incremental measure costs and incentives, and increased participation based on Inflation Reduction Act ("IRA") funding for the HER and HEAR programs.[17] The SWE further relied on the continued availability of tax credits in determining participation in certain measures, including participation and savings assumptions for Solar PV projects and managed electric vehicle ("EV") charging, that creates a

[17] See Tables 34 and 35 in the EEMPS.

significant uncertainty with the ability to achieve goals at the projected costs (see discussion on Solar PV at pages 12-14 above). The Company believes that the assumption that there will be federal funding and tax credits available is inappropriate and should be removed from the studies to account for the uncertainty with the continued availability of these funding sources due to changing federal policies.

i) **Effective Useful Life Assumption** – In the EEMPS, the SWE adopted a cap on measure life to 15-years in its analysis of the annual consumption reduction potential. While this is required for cost-effectiveness analysis in accordance with the PA Total Resource Cost ("TRC") Test, the determination of potential should be based on the effective useful life ("EUL") of equipment since this reflects the true population of customers who may be replacing equipment each year. As such, the SWE should not cap the measure life at 15-years and should instead use the EUL of equipment in calculating participation rates and program potential.

A.7 – Accumulating Savings in Excess of Reduction Requirements

In the TIO, the Commission proposes allowing EDCs to count only those savings attained in Phase IV in excess of their MWh or MW targets for application towards their Phase V targets and basing the carryover for FE PA on the net sum of carryover from Phase IV for the four formally independent EDCs.[18] The Company agrees with and appreciates the efforts by the Commission to ensure program continuation and lessen market disruptions from programs "going dark"; however,

18 On January 1, 2024, FirstEnergy Corp.'s Pennsylvania operating companies (i.e., Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company) merged into FE PA. Due to the merger transaction, the affected operating companies' tariffs were consolidated into a single tariff, with each former operating company's rates becoming its own rate district.

setting a maximum allowable carryover equal to 20% of the respective targets for EDCs is counter to that intention. The historical carryover allowed programs to continue to be implemented past target achievement, with the assurance that EDCs were not eroding the potential for achieving savings in a subsequent Phase to achieve their targets. Limiting that carryover to only a portion of what was achieved does not provide the same assurance nor give applicable incentive to keep programs from "going dark" once Phase IV targets are achieved. Carryover should not be limited as proposed, and the EDCs should be able to receive full recognition in Phase V for savings achieved through their programs in excess of their MWh and MW targets during Phase IV.

B. Proposed Reductions in Peak Demand

B.4 – Proposed Peak Demand Reduction Targets

The TIO states that the "Phase V Peak DR target may be satisfied with either coincident demand reductions from EE or verified demand reductions from load-shifting program."[19] It continues to state that "[t]his proposal allows EDCs the flexibility to pursue load-shifting programs but does not require it."[20] As noted in the TIO, the amount of DR potential achievable within Phase V, and the cost to acquire it, is dependent on the assumed program design. For Phase V, DR targets and potential are based upon a bifurcated peak demand definition that includes both summer and winter peaks, and the SWE determined the most effective approach for the Phase V DRPS to be the "daily load-shifting" DR program design. However, the proposed demand reduction target for FE PA cannot be met with coincident peak reductions from the EE programs alone and will require aggressive implementation of the DR load shifting programs, all of which are fraught with uncertainty, high costs to implement, and, as proposed, will put the Company at

[19] TIO, at page 50.
20 *Id*.

significant risk of meeting the Phase V DR target within its Act 129 budget. Based on the TIO budget allocations (TIO Table 8) and the acquisition costs from the EEMPS and DRPS, Table 3 below demonstrates that the Company must rely on DR load-shifting programs to meet the proposed DR Target and does not allow for the flexibility in program design as indicated in the TIO. The coincident demand reductions from EE programs only achieve 152.3 MW, based on the acquisition costs identified in the DRPS, compared to the proposed target of 199.3 MW, which amounts to a deficit of 47.0 MW. Therefore, the Company must rely on additional demand reductions from load-shifting programs in addition to the full potential from EE coincident demand to meet the proposed targets.

Table 3: FE PA Values based on TIO Allocation[21]

	Budget Allocation (from Tentative Imp Order, Table 8)	$/MWh Acquisition cost A	$/KW Acquisition Cost B	$, Millions =Budget Allocation % x FE Budget ($390.3 M) C	GWh =C/A*1000 D	MW = C/B*1000 E	Notes
Market Rate EE	67%	$ 363	$ 2,842	$ 262	720	92	Acquisition cost calculated from Tables 27 and 28 in EEMPS
LI EE	13%	$ 583	$ 4,087	$ 51	87	12	Acquisition cost calculated from Tables 27 and 28 in EEMPS
Solar	9%	$ 155	$ 1,138	$ 35	227	31	Acquisition costs are from Table 47 in EEMPS
CHP	1%	$ 32	$ 230	$ 4	122	17	Columns D and E are from Tables 50, and 51 in EEMPS, Acquisition Costs in Columns A and B, are calculated from these values
Total EE				$ 351	1,155	152	
C&I Load Shifting	9%	n/a	$ 701	$ 33	n/a	47	Acquisition Cost, from Table 41 in DRPS.
Residential Thermostats	0%	n/a	$ 1,057	$ -	n/a		Acquisition Cost from Table 59 I DRPS
EV Management	0%	n/a	$ 1,359	$ -	n/a		Acquisition cost are calculated using information using information from DRPS Tables 6, 40 and 58.
Totals	99%			$ 384	1,155	200	
TIO ProposedTargets				$ 390	1,156	199	Tentative Order, at Tables 9 and 15

[21] The 9% value for C&I Load Shifting is slightly lower than the 10% assumed for DR in the TIO Table 8. This is the minimum percentage required to achieve the DR target based on the coincident peak demand savings and acquisition costs from the EEMPS and DRPS.

The DRPS identifies three likely candidates for daily load-shifting: C&I Load Shifting, EV Management and Residential Thermostats. According to the DRPS, FE PA C&I Load Shifting is estimated to be the least costly candidate at $701/kW compared to the latter two technologies, with EV Management estimated at $1,359/kW and Residential Thermostats at $1,057/kW. In order to make up the 47 MW of deficit from the DR programs, due to the acquisition costs and the Reasonably Achievable Potential ("RAP") of the three candidates identified in the DRPS, the Company would be required to achieve the majority of the Reasonably Achievable Potential ("RAP") of the C&I Load Shifting Program from the DRPS, which is 48.6 MW.[22] This places an inordinate and entirely unreasonable amount of reliance on the C&I Load Shifting program for the Company to meet its targets, which is an unproven program with inherent risks as discussed further below.

- **C&I Load Shifting –** The Company has significant concerns regarding the viability of this program in Pennsylvania as this program is unproven, with no actual data to reasonably rely on for estimating its achievable potential. The DRPS assumes enrollment rates based on California data, which may not apply to Pennsylvania given the significant differences in industry, weather patterns, customers' cost of energy and capacity, customer opinions, and other factors. Further, it appears that most program implementations rely on energy storage (e.g. battery or thermal energy storage) that can "charge" when overall system demand are low – often overnight – and then discharge during certain on-peak hours when demand and electricity prices are higher, presumably so that customers can maintain

[22] Tables 34 and 35 in the DRPS show that the RAP for C&I Load Shifting is 48.6 MW for FE PA.

normal business operations.[23] Energy storage was not factored into the acquisition cost of the C&I Load Shifting program (note that the DRPS separately studied battery storage and thermal storage with heat pumps and did not include these due to their higher costs and or low-cost effectiveness results). However, understandably, the hours required for customer load shifting are very aggressive (four hours per day on all non-holiday weekdays for five months of the year) and many customers are not able to participate by nature of their business without relying on battery or other storage options (i.e. thermal storage). Indeed, for many of the facilities that are listed in the DRPS,[24] customers' willingness to curtail load without storage or behind the meter generation that can be dispatched to this degree is highly questionable, such as grocery stores and restaurants (perishable goods, hours of load shifting coincide with business hours), as well as health care facilities and industrial facilities. Further, it is entirely unknown whether the incentives assumed in the DRPS[25] will be sufficient to incent customers that can participate with this DR program design, to participate at the potential risk of impacting business operations or sacrificing employee and or customer comfort.

- **Residential Thermostats** – Similar to the C&I Load Shifting program, there is significant uncertainty with customer participation in a daily load shifting program for residential

[23] **Minnesota Power** offers a commercial/industrial fixed off-peak service tariff that provides discounted rates to customers with facilities equipped with controlled energy storage or other loads that will only draw power from the grid between 10:00 p.m. and 6:00 a.m.
https://minnesotapower.blob.core.windows.net/content/Content/Documents/CustomerService/commercial-rates.pdf.
Xcel Energy Minnesota's Dynamic Thermal Storage program provides upfront and ongoing incentives to C&I customers who install thermal storage systems that use phase-change materials and use these storage systems to power space cooling (for summer-peaking DR) or refrigeration (for year-round demand reductions). Participating customers must "charge" the thermal storage system for four hours each night and then use the system during a four-hour curtailment period the following day. Xcel Energy provide initial incentives equal to 10% of the project cost. It then provides ongoing incentives equal to 5% of the project cost for each year a customer complies with the daily load shifting schedule. https://mn.my.xcelenergy.com/s/business/rate-plans/dynamic-thermal-storage

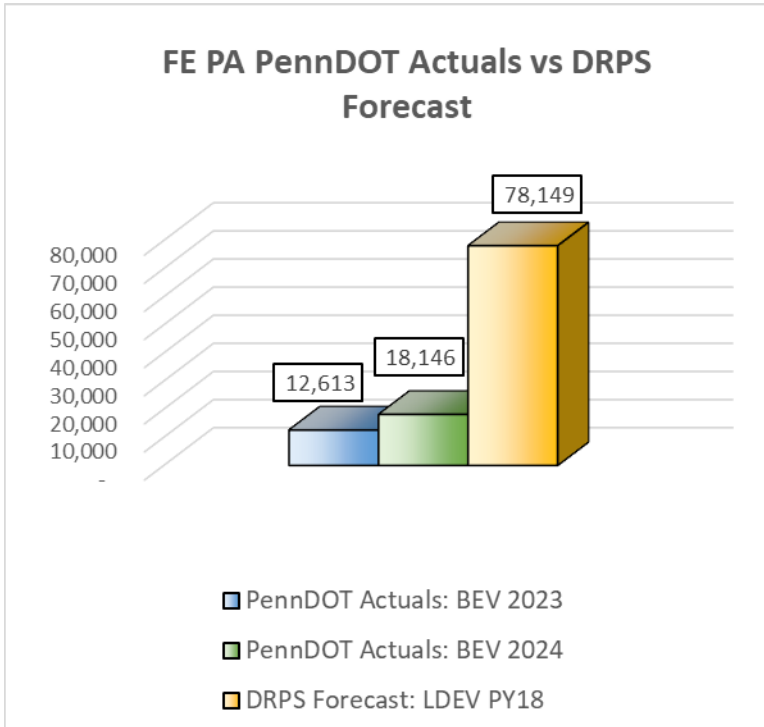
[24] DRPS, Table 30.

[25] DRPS, Table 29.

thermostats. Customer willingness to enroll their cooling and or heating equipment for the hours, days and months required in both summer and winter periods with no incentive to enroll or participate is highly questionable. Also unknown is how many customers will opt out/override control of their equipment. In fact, the TIO noted there is a real threat of participant fatigue with daily load shifting occurring four hours of the day for all non-holiday weekdays over the five-month period. In addition, since winter DR would be entirely new to Pennsylvania customers, reliance on this program to achieve both summer and winter coincident peak demand reductions is highly uncertain and not a good recipe for plan design to ensure compliance with Act 129 targets.

- **Electric Vehicle Management –** While the Company believes that EV Management is the most viable of the daily load shifting programs presented, the Company asserts that the potential for EV Management is significantly overstated. As shown below, the DRPS relies on forecasts for EVs that are over 400% of what are currently registered in the Company's service territory. Figure 4 below provides the count of Battery Electric Vehicles ("BEV") in the Company's service territory based on actual vehicle registrations in PA from Q3 2023 through Q4 2024, compared to the light-duty EV ("LDEV") projections for FE PA in the study. Note that this comparison excludes the DRPS projections for medium- and heavy-duty EVs, which further increases the over-projection of EVs for the Company in the DRPS. These were excluded due to representing only approximately 17% of the EV forecast in the DRPS for FE PA and are more uncertain in terms of their population, type (e.g. semi-trucks, transit and school busses, etc.), ability to participate in this program design,[26] market availability and customer adoption given changing federal policies and the impact of tariffs, among other factors.

Figure 4: FE PA PennDOT Actuals vs DRMPS Forecast[27]



The Company fully recognizes the difficulty associated with considering relatively new, novel and or unproven daily load shifting program designs in support of achieving coincident peak demand reductions during both peak summer and winter hours. The Company also recognizes the challenges associated with developing the broad assumptions and projections given the significant uncertainties involved with these programs and designs. To manage and mitigate those uncertainties and risks, the Company proposes the following recommendations:

[26] Note that semi-trucks and transit and school busses are not considered good candidates to participate in the daily load-shifting program design due to the nature of their usage.
[27] PennDOT data can be found in Map data at link below:
Electric Vehicles and Alternative Fuels | Department of Transportation | Commonwealth of Pennsylvania.

- First, to best promote EDCs to propose new and unproven demand response program designs, such as those the SWE studied, the proposed Peak Demand Reduction Targets should not be subject to Act 129 penalties. The risk of compliance penalties associated with achieving the targets will challenge the ability of EDCs to propose innovative and novel programs that have higher levels of risks and uncertainty. Not subjecting compliance with these targets to the Act 129 penalties best balances the interests of the Commission regarding the development of programs to reduce peak loads during broader summer and winter periods with the interests of the EDCs to develop plans and programs that achieve their Act 129 targets.
- The C&I Load Shifting Program should be excluded from the calculation of the Proposed Peak Demand Reduction targets given the considerable risks and uncertainties discussed above.
- The first-year savings projections for the Daily Load shifting programs should be significantly reduced to recognize the timing required to contract, start up, enroll customers and implement programs. Although the SWE acknowledges that savings are calculated using the average of summer and winter over the five-year period, the values projected for the first program year are much higher than is feasibly possible. There should be acknowledgement in the timing of the significant effort, care and consideration that is required to implement new unproven program designs, market, educate (significant customer education will be required) and enroll customers for participation starting June 2nd (first weekday in June). Additionally, there is limited potential for participation in each following season, and the EDCs will have uncertainty managing the program and achieving the

participation needed in each following season to make up for the underperformance that is sure to occur in the first program year as modelled throughout Phase V.

- The DRPS projections for EV Management should be revised to initially align with the current count of BEV registrations in the Company's territory. Further, the SWE should also consider that customer adoption of new EVs over Phase V will not continue at the same pace as experienced in Phase IV due to uncertainty with the continued availability of tax credits and to better recognize changing federal policies regarding EVs (e.g. development of charging stations, etc.).
- The SWE should adopt a 70% performance factor to the Residential Thermostat daily load shifting program to mitigate the significant uncertainties with customer enrollment, participation, opt-out and load impacts as discussed above.

B.5 – Accumulating Savings in Excess of Peak Demand Reduction Targets

In the TIO, the Commission proposes to allow EDCs to "carryover" 50% of the excess peak demand savings acquired in Phase IV and apply it towards Phase V peak demand reduction targets. Similarly to the argument for carryover of consumption reduction targets and for the reasons stated above, carryover for peak demand reduction should not be limited as proposed, and the EDCs should be able to receive full recognition in Phase V for peak demand achieved through their programs in excess of their MW targets during Phase IV.

C. Coordination with Other State Conservation Programs

C.1 – Braided Funding

The Company appreciates the Commission's recognition of the benefits of braided funding and its interest to produce accurate TRC Test results of the Act 129 program. To this end, the TIO proposes that the EDCs track and report all outside funding by source. The Company, however, expresses concerns about this proposal. First, while the Company can solicit information on any outside funding that a customer received for their participation in a particular project or measure, the Company has no ability to enforce that customers disclose this information, or any ability to police this, and will not be able to reliably identify "all outside funding by source." Second, the Company is concerned with creating barriers to participation by overly expanding applications, and the administration associated with capturing, tracking and reporting "all outside funding by source," given uncertainty with all funding sources that may be available to customers over the course of Phase V.

C.4 – Support with AEPS Registrations

The TIO requires the EDCs to propose a process to help facilitate Alternative Energy Portfolio Standards ("AEPS") Act registrations for C&I participants of Act 129 programs. While the Company agrees with promoting and providing information regarding the AEPS program to its Act 129 program participants, Act 129 budgets should not be used to provide support or assistance to customers to participate in the AEPS program for several reasons. Using Act 129 budgets to provide support or assistance to customers to participate in the AEPS program will increase the Company's administrative cost and reduce budgets available for customer participation and incentives and maximizing benefits of Act 129 programs to all customers. Further, promoting and providing information regarding the AEPS program to Act 129 participants will support their participation without subsidizing certain customers at the expense of others or supplementing other avenues customers have available for participation, either directly or through third-party market participants. If the Commission decides to require EDCs to provide administrative support and other assistance under their Act 129 budgets, the SWE should update its administrative cost assumptions of the C&I programs to accommodate this requirement.

D. **Plan Approval Process**

D.2 – Phase V Planning Timeline

The Commission proposes in the TIO that the Final Implementation Order be on the Public Meeting agenda on June 18, 2025, and for the EDCs to file their EE&C Plans on November 1, 2025. Based on the proposed schedule, the date of the Final Implementation Order is one-week later and the date of the EDCs to file their EE&C Plans is four-weeks earlier than the Phase IV schedule.[28] This represents over a 20% reduction in the time afforded to the EDCs to develop and file their EE&C Plans for Phase V. To balance the interest of the Commission with an earlier filing date while providing the EDCs sufficient time to develop and file their plans, the Company respectively requests for the Commission to establish November 18, 2025, as the filing date for Phase V EE&C Plans.

D.4 – Process to Make EE&C Plan Changes and Recommendations for Additional Measures

The Company supports the Energy Association of Pennsylvania ("EAP") comments filed in this docket which recommends a refinement of the expedited process used for minor plan changes involving budget adjustments or measure changes. The Company highlights that the State's Act 129 program has continued to mature, including the growth in knowledge and

[28] Implementation Order adopted June 11, 2015, under Docket No. M-2014-2424864 at page 92.

experience in all associated regards. To this end, the Company fully supports the proposed refinement of the expedited process as this will leverage the knowledge and experience to increase the administrative efficiency of all parties and support maximizing the benefits of the Act 129 programs to customers.

E. **Plan Effectiveness Evaluation Process**

E.2 – Technical Reference Manual

Similar to Phase IV, the Commission proposes in the TIO the ability to update the Technical Reference Manual ("TRM") mid-phase if deemed necessary after conducting an annual review of code updates to federal standards, ENERGY STAR specifications, and state-adopted building energy codes. The Company appreciates the efforts of the Commission in striving to balance both the value of updating the codes and standard changes during Phase V, with the potential issues of updating the TRM mid-phase; however, the Company is concerned that this may create a disconnect between the assumptions used in the Market Potential Studies to set the utility Act 129 targets versus what will be used to evaluate, measure and verify the savings achieved by the EDCs for compliance with the Act 129 targets. To best balance the Commission's interest with not creating a disconnect that undermines the ability of the EDCs to achieve their Act 129 targets, the Commission should hold the EDCs harmless from changes to the TRM or other evaluation guidance that is shown to negatively impact the ability of an EDC from achieving its targets.

E.3 – EDC and SWE Reports

In the TIO, the Commission proposes to continue the same reporting requirements in Phase V, opting only for semi-annual and annual reports. The Company agrees with the approach and schedule; however, the Commission further proposes that FE PA report savings and expenditures by the four legacy EDCs (Met-Ed, Penelec, Penn Power and West Penn Power) that are now rate districts within the consolidated FE PA. In the TIO, Act 129 Phase V targets and budgets are established for FE PA similar to the other EDCs in Pennsylvania and are not considered for individual rate districts. To maximize the benefits of the Act 129 program and the efficiency of its delivery of programs to its customers, the Company respectively requests that it be able to track and report program participation at the FE PA level in full alignment with the objectives of its consolidation. By requiring FE PA to track and report additional metrics that parse the programs into rate districts will require the Company to develop processes and adopt incremental requirements associated with its programs in order to capture, process, track, allocate, validate and report information in this manner.

G. **Competitive Bidding Requirements and Approval of CSP Contracts**

G.2 – Approval of Contracts

The Commission proposes in the TIO to adopt the same Conservation Service Provider ("CSP") processes as those established for Phase IV. The Company highlights that the Commission has established well developed and mature processes for the Act 129 program including those associated with the requirements associated with the use of CSPs in implementation of the programs. The Company recommends a minor change to the "Approval of Contracts" process to balance the Commission's oversight of the Act 129 plans with improving the administrative efficiency of both the Commission and the EDCs with any amendments to Phase V CSP contracts. Specifically, the Company requests that the Commission permit EDCs the ability to make "minor" CSP contract modifications during Phase V without having to file the CSP contract modification with the Commission for approval. The Company requests this flexibility for any change that is less than 20% of the total contract value. This would allow EDCs to make minor contract changes with its CSPs in a timely manner that better supports their ability to meet their targets, and avoids unnecessary administrative costs associated with the filing and review of minor CSP contract modifications by the EDCs and the Commission.

III. Conclusion

FirstEnergy Pennsylvania Electric Company appreciates the opportunity to provide comments on the Commission's Tentative Implementation Order regarding Phase V of the Energy Efficiency and Conservation Program. The Company looks forward to working with the Commission and the other parties on this matter.

Respectively submitted,

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