

# **Semi-Annual Report to the Pennsylvania Public Utility Commission**

**Phase III of Act 129**

**Program Year 9**

**(June 1, 2017 – May 31, 2018)**

For Pennsylvania Act 129 of 2008

Energy Efficiency and Conservation Plan

Prepared by ADM

and the FirstEnergy Pennsylvania EDCs for:

Metropolitan Edison Company	M-2015-2514767
Pennsylvania Electric Company	M-2015-2514768
Pennsylvania Power Company	M-2015-2514769
West Penn Power Company	M-2015-2514772

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## Acronyms

BDR	Behavioral Demand Response
C&I	Commercial and Industrial
CFL	Compact Fluorescent Lamp
CSP	Conservation Service Provider or Curtailment Service Provider
DLC	Direct Load Control
DR	Demand Response
EDC	Electric Distribution Company
EDT	Eastern Daylight Time
EE&C	Energy Efficiency and Conservation
EM&V	Evaluation, Measurement, and Verification
EUL	Effective Useful Life
GNI	Government, Non-Profit, Institutional
HVAC	Heating, Ventilating, and Air Conditioning
ICSP	Implementation Conservation Service Provider
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-Emitting Diode
LIURP	Low-Income Usage Reduction Program
M&V	Measurement and Verification
MW	Megawatt
MWh	Megawatt-hour
NTG	Net-to-Gross
P3TD	Phase III to Date
PA PUC	Pennsylvania Public Utility Commission
PSA	Phase III to Date Preliminary Savings Achieved; equal to VTD + PYTD
PSA+CO	PSA savings plus Carryover from Phase II
PY	Program Year: e.g. PY8, from June 1, 2016, to May 31, 2017
PYRTD	Program Year Reported to Date
PYVTD	Program Year Verified to Date
RTD	Phase III to Date Reported Gross Savings
SWE	Statewide Evaluator
TRC	Total Resource Cost
TRM	Technical Reference Manual
VTD	Phase III to Date Verified Gross Savings

## Types of Savings

**Gross Savings:** The change in energy consumption and/or peak demand that results directly from program-related actions taken by participants in an EE&C program, regardless of why they participated.

**Net Savings:** The total change in energy consumption and/or peak demand that is attributable to an EE&C program. Depending on the program delivery model and evaluation methodology, the net savings estimates may differ from the gross savings estimate due to adjustments for the effects of free riders, changes in codes and standards, market effects, participant and nonparticipant spillover, and other causes of changes in energy consumption or demand not directly attributable to the EE&C program.

**Reported Gross:** Also referred to as *ex ante* (Latin for “beforehand”) savings. The energy and peak demand savings values calculated by the EDC or its program Implementation Conservation Service Providers (ICSP), and stored in the program tracking system.

**Verified Gross:** Also referred to as *ex post* (Latin for “from something done afterward”) gross savings. The energy and peak demand savings estimates reported by the independent evaluation contractor after the gross impact evaluation and associated M&V efforts have been completed.

**Verified Net:** Also referred to as *ex post* net savings. The energy and peak demand savings estimates reported by the independent evaluation contractor after application of the results of the net impact evaluation. Typically calculated by multiplying the verified gross savings by a net-to-gross (NTG) ratio.

**Annual Savings:** Energy and demand savings expressed on an annual basis, or the amount of energy and/or peak demand an EE&C measure or program can be expected to save over the course of a typical year. Annualized savings are noted as MWh/year or MW/year. The Pennsylvania TRM provides algorithms and assumptions to calculate annual savings, and Act 129 compliance targets for consumption reduction are based on the sum of the annual savings estimates of installed measures.

**Lifetime Savings:** Energy and demand savings expressed in terms of the total expected savings over the useful life of the measure. Typically calculated by multiplying the annual savings of a measure by its effective useful life. The TRC Test uses savings from the full lifetime of a measure to calculate the cost-effectiveness of EE&C programs.

**Program Year Reported to Date (PYRTD):** The reported gross energy and peak demand savings achieved by an EE&C program or portfolio within the current program year. PYTD values for energy efficiency will always be reported gross savings in a semi-annual or preliminary annual report.

**Program Year Verified to Date (PYVTD):** The verified gross energy and peak demand savings achieved by an EE&C program or portfolio within the current program year.

**Phase III to Date (P3TD):** The energy and peak demand savings achieved by an EE&C program or portfolio within Phase III of Act 129. Reported in several permutations described below.

**Phase III to Date Reported (RTD):** The sum of the reported gross savings recorded to date in Phase III of Act 129 for an EE&C program or portfolio.

**Phase III to Date Verified (VTD):** The sum of the verified gross savings recorded to date in Phase III of Act 129 for an EE&C program or portfolio, as determined by the impact evaluation finding of the independent evaluation contractor.

**Phase III to Date Preliminary Savings Achieved (PSA):** The sum of the verified gross savings (VTD) from previous program years in Phase III where the impact evaluation is complete plus the reported gross savings from the current program year (PYTD). For PY8, the PSA savings will always equal the PYTD savings because PY8 is the first program year of the phase (no savings will be verified until the PY8 final annual report).

**Phase III to Date Preliminary Savings Achieved + Carryover (PSA+CO):** The sum of the verified gross savings from previous program years in Phase III plus the reported gross savings from the current program year plus any verified gross carryover savings from Phase II of Act 129. This is the best estimate of an EDC's progress toward the Phase III compliance targets.

Table A below lists savings values for a hypothetical EDC as of the PY10 semi-annual report, when the first six months of PY10 reported savings are available. The calculations below are then used to illustrate the differences between various savings values.

**Table A - P3TD Savings Calculation Example**

Program Period	Reported Gross (MWh/year)	Verified Gross (MWh/year)
Phase II (Carryover)	N/A	400
PY8	800	700
PY9	900	850
PY10 (Q1+Q2)	500	N/A

PYRTD (PY10) = 500 MWh/year

RTD = 800 + 900 + 500 = 2,200 MWh/year

VTD = 700 + 850 = 1,550 MWh / year

PSA = 1,550 + 500 = 2,050 MWh/year

PSA + CO = 2,050 + 400 = 2,450 MWh/year

## Section 1 Introduction

Pennsylvania Act 129 of 2008, signed on October 15, 2008, mandated energy savings and demand reduction goals for the largest electric distribution companies (EDCs) in Pennsylvania for Phase I (2008 through 2013). Phase II of Act 129 began in 2013 and concluded in 2016. In late 2015, each EDC filed a new energy efficiency and conservation (EE&C) plan with the PA PUC detailing the proposed design of its portfolio for Phase III. These plans were updated based on stakeholder input and subsequently approved by the PUC in 2016.

Implementation of Phase III of the Act 129 programs began on June 1, 2016. This report documents the progress and effectiveness of the Phase III EE&C accomplishments in Program Year 9 (PY9) for Metropolitan Edison Company (“Met-Ed” or “ME”), Pennsylvania Electric Company (“Penelec” or “PN”), Penn Power Company (“Penn Power” or “PP”), and West Penn Power Company (“West Penn Power” or “WPP”) (known collectively as the “FirstEnergy Pennsylvania EDCs” or “FirstEnergy” or “Companies”), as well as the cumulative accomplishments of the Phase III programs since inception. This report additionally documents the energy savings carried over from Phase II. The Phase II carryover savings count towards EDC savings compliance targets for Phase III.

This report details the participation, spending, and reported gross impacts of the energy efficiency programs in PY9. Compliance with Act 129 savings goals is ultimately based on verified gross savings. FirstEnergy has retained ADM Associates as an independent evaluation contractor for Phase III of Act 129. ADM Associates is responsible for the measurement and verification of the savings and calculation of verified gross savings. The verified gross savings for PY9 energy efficiency programs will be reported in the final annual report, to be filed on November 15, 2018.

Phase III of Act 129 includes a demand response goal for three of the FirstEnergy Pennsylvania EDCs: Metropolitan Edison, Penn Power and West Penn Power starting in 2017, or PY9. Beginning in 2017, demand response events are limited to the months of June through September, which are the first four months of the Act 129 program year. Because the demand response season is completed early in the program year, it is possible to complete the independent evaluation of verified gross savings for demand response sooner than is possible for energy efficiency programs. Starting with the first semi-annual report in PY9, Section 6.2 of this report will include the verified gross demand response impacts as well as the cumulative demand response performance of the EE&C program to date for Phase III of Act 129.

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## Section 2 Summary of Achievements

### 2.1 CARRYOVER SAVINGS FROM PHASE II OF ACT 129

**Table 2-1** shows total MWh/year carryover savings from Phase II for each of the FirstEnergy EDCs.

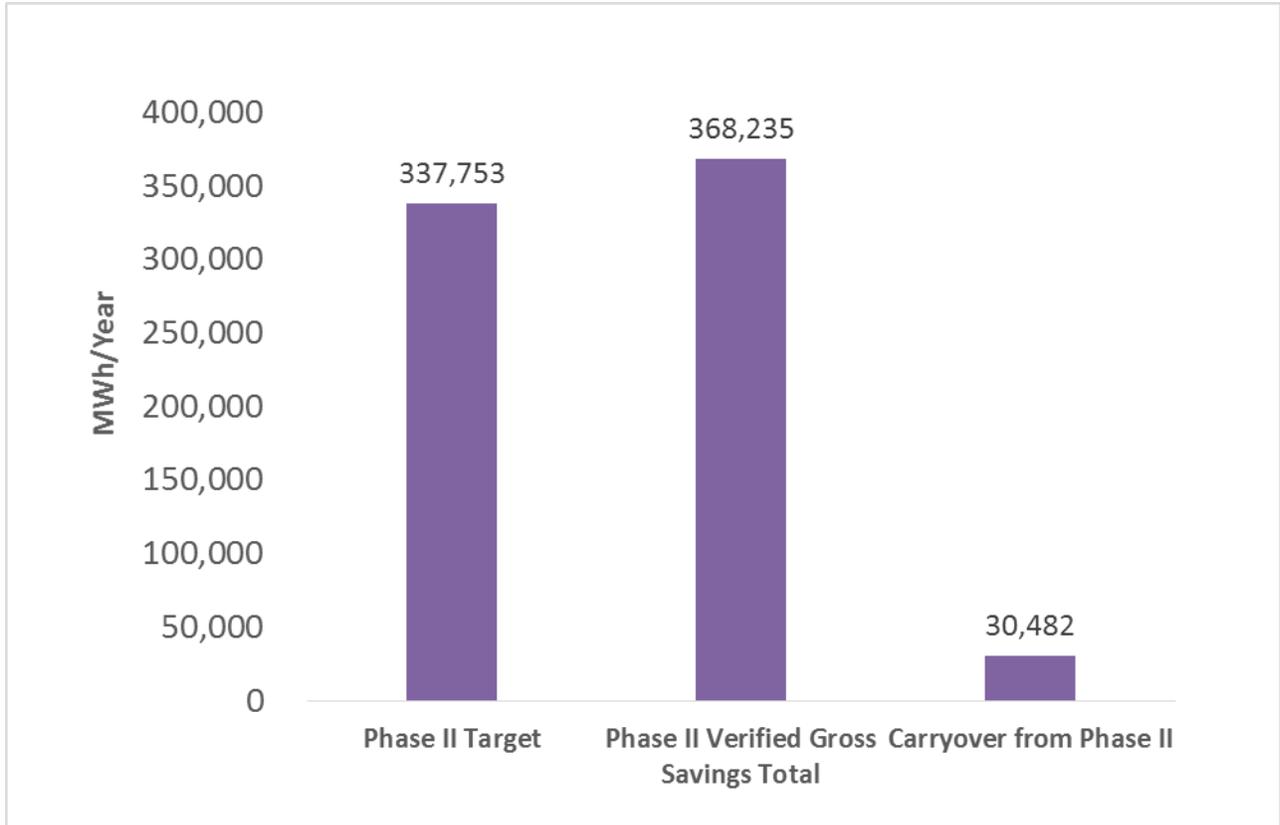
**Table 2-1: Phase II Carryover Savings**

<b>FirstEnergy EDC</b>	<b>Phase II Carryover Savings (MWh/Year)</b>
<b>Met-Ed</b>	30,482
<b>Penelec</b>	49,695
<b>Penn Power</b>	13,866
<b>West Penn Power</b>	20,540

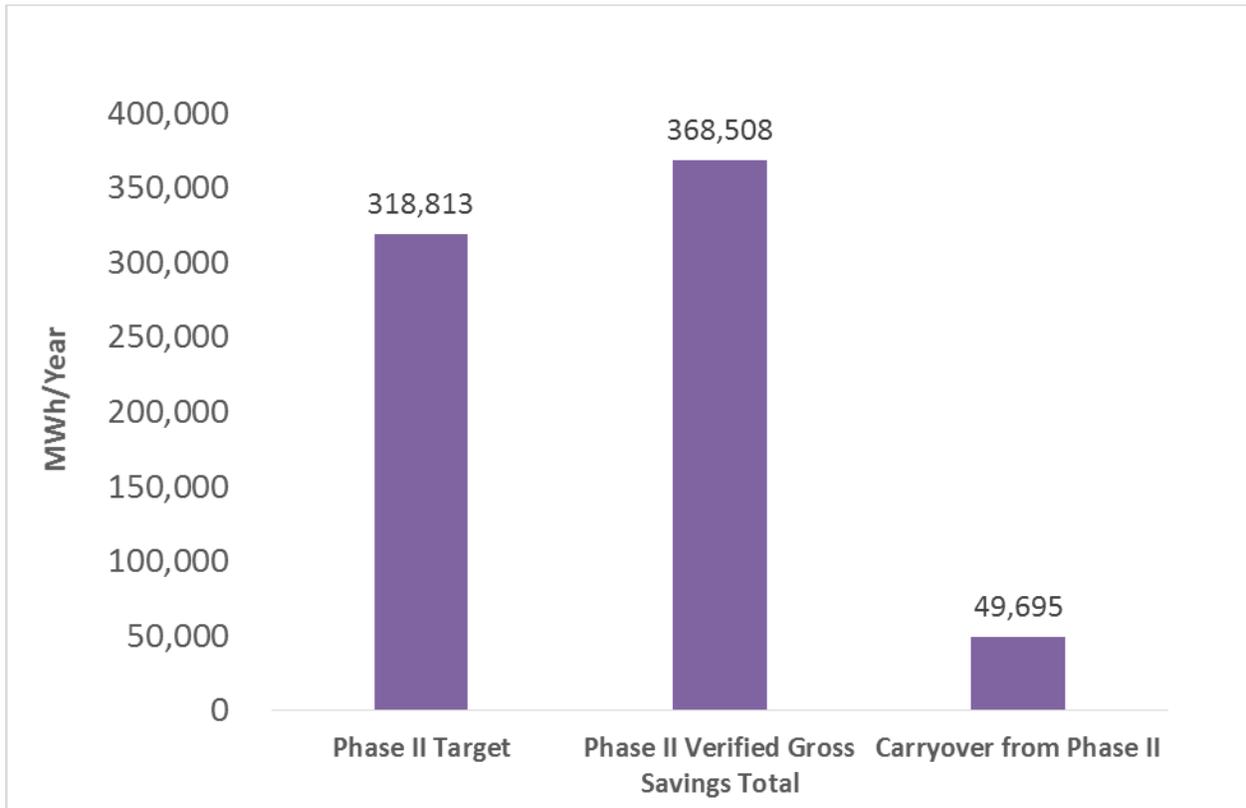
**Figures 1A-1D:** Carryover Savings from Phase II of Act 129 compare each of the EDC’s Phase II verified gross savings total to the Phase II compliance target to illustrate the carryover calculation.

**Figures 1A-1D: Carryover Savings from Phase II of Act 129**

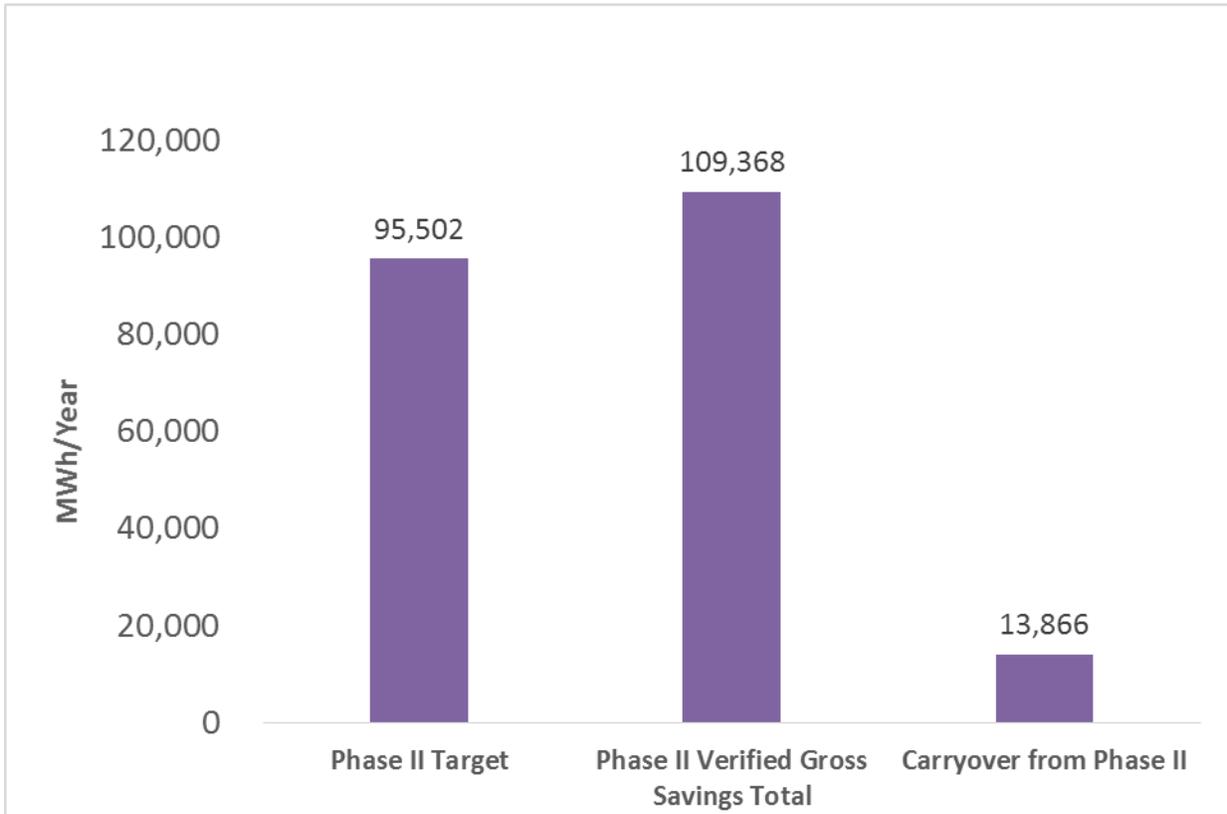
**Figure 1A: Carryover Savings from Phase II of Act 129 - Met-Ed**

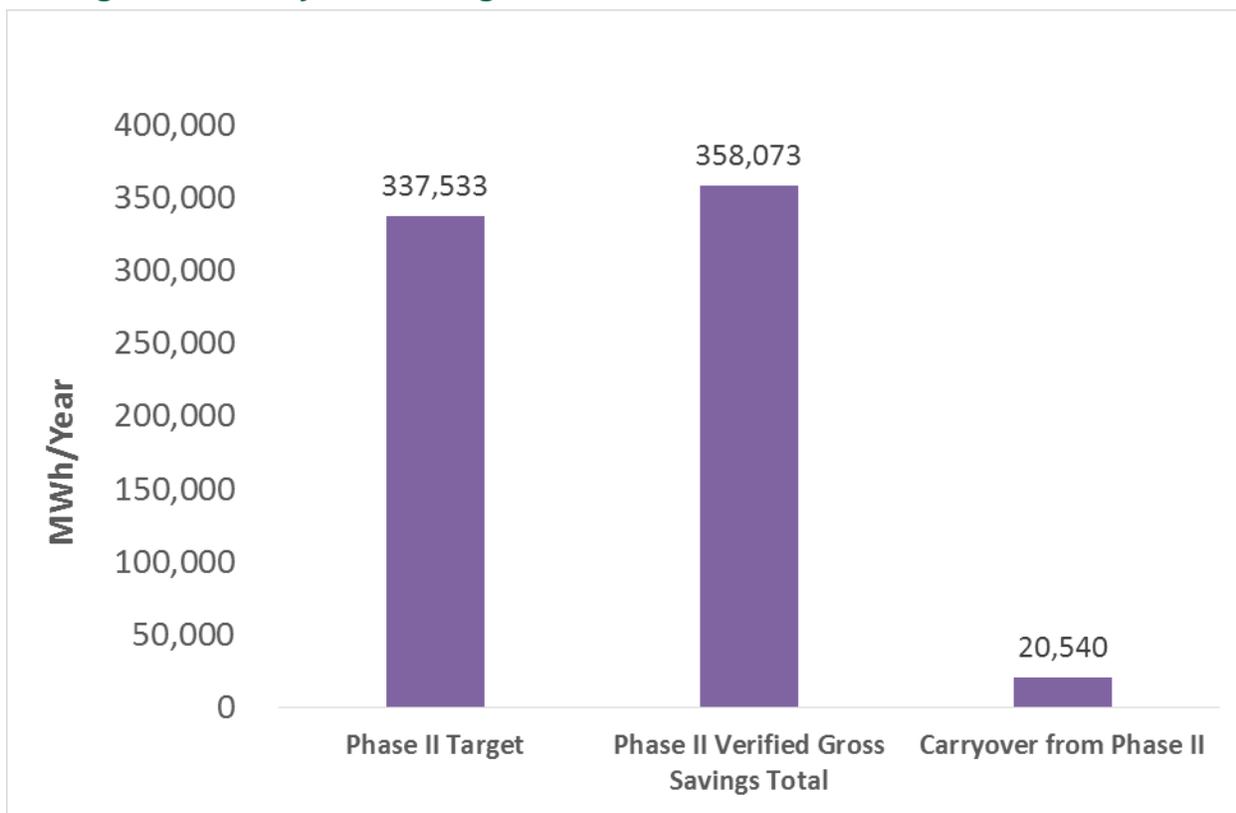


**Figure 1B: Carryover Savings from Phase II of Act 129 – Penelec**



**Figure 1C: Carryover Savings from Phase II of Act 129 – Penn Power**



**Figure 1D: Carryover Savings from Phase II of Act 129 – West Penn Power**

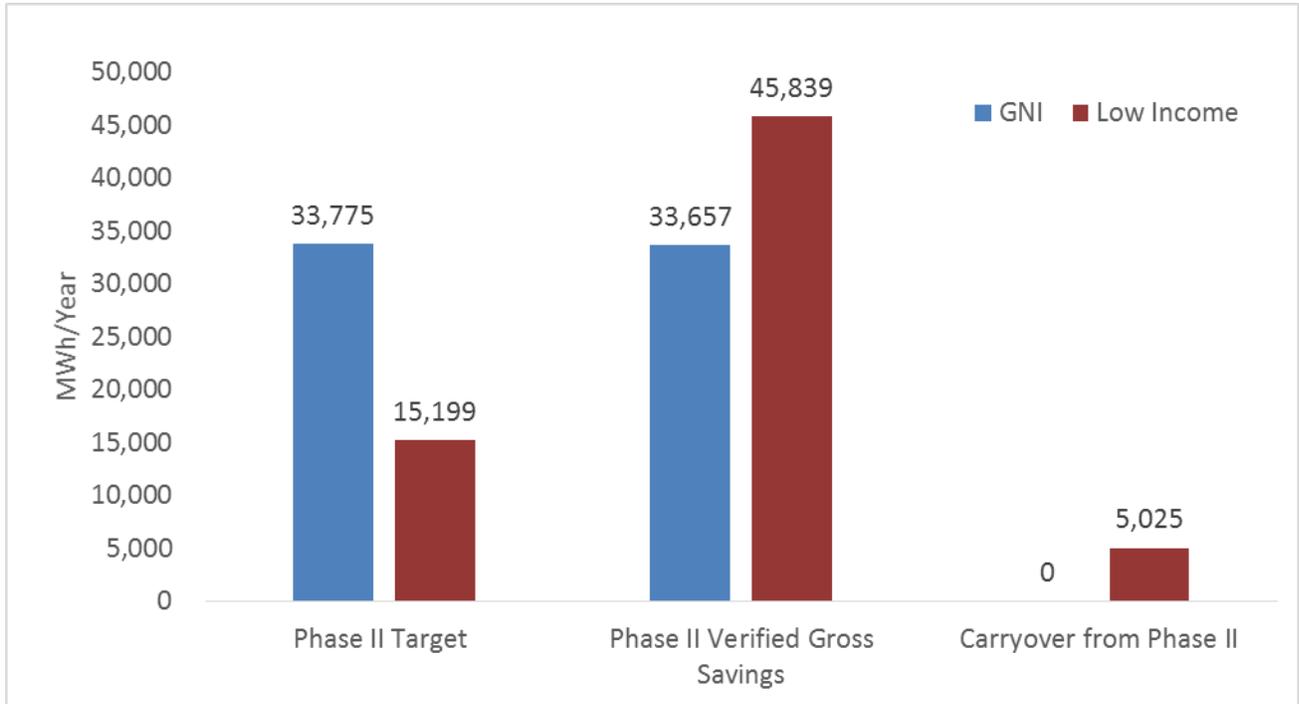
The Commission's Phase III Implementation Order<sup>1</sup> also allowed EDCs to carry over savings more than the Phase II Government, Non-Profit, and Institutional (GNI) savings goal and excess savings from the low-income customer segment.<sup>2</sup> **Figures 2A-2D:** Customer Segment Specific Carryover from Phase II show the calculation of carryover savings for the low-income and GNI targets. To be eligible for Phase II carryover, all the Phase II target must have been met and exceeded by Phase II program spending. For example, if the Phase II target was 1,000 MWh and 500 MWh was carried over from Phase I, the EDC would have had to show verified savings of at least 1,501 MWh to realize a Phase II carryover of 1 MWh. Carryover is calculated according to the allocation factor methodology explained on page 85 of Phase III Implementation order and as reported in the Companies' Phase II Final Annual reports.

<sup>1</sup> Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Implementation Order*, at Docket No. M-2014-2424864, (*Phase III Implementation Order*), entered June 11, 2015.

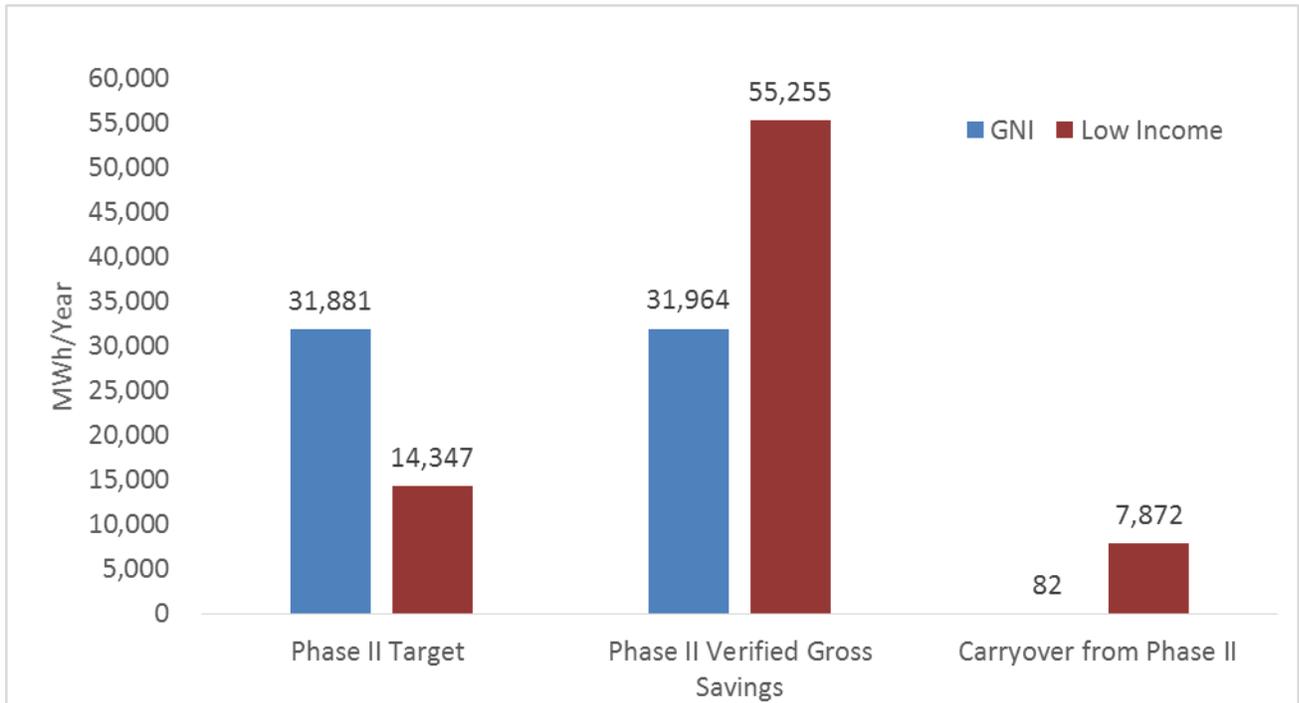
<sup>2</sup> Proportionate to those savings achieved by dedicated low-income programs in Phase III.

**Figures 2A-2D: Customer Segment-Specific Carryover from Phase II**

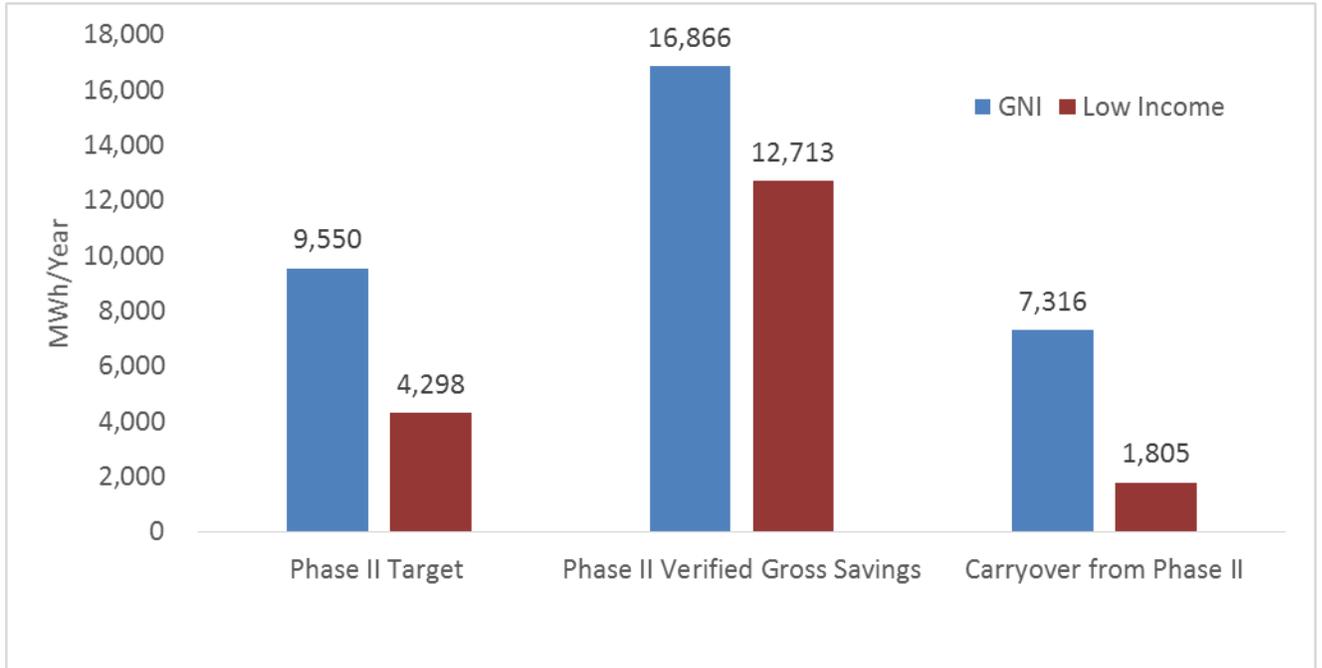
**Figure 2A: Customer Segment-Specific Carryover from Phase II - Met-Ed**



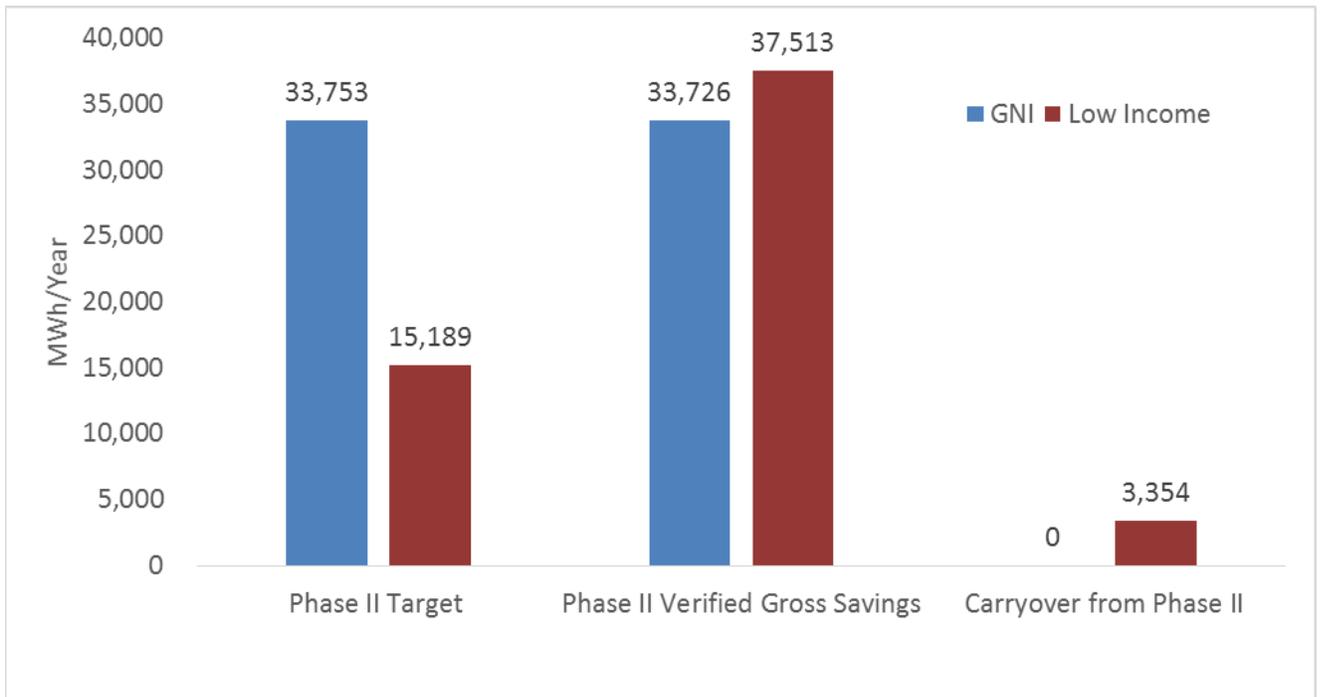
**Figure 2B: Customer Segment-Specific Carryover from Phase II – Penelec**



**Figure 2C: Customer Segment-Specific Carryover from Phase II – Penn Power**



**Figure 2D: Customer Segment-Specific Carryover from Phase II – West Penn Power**



## 2.2 PHASE III ENERGY EFFICIENCY ACHIEVEMENTS TO DATE

**Table 2-2** presents performance to date for each of the FirstEnergy EDCs since the beginning of Program Year 9 on June 1, 2017. **Table 2-3** and **Table 2-4** show achievements to date in Phase III; **Figures 3A-3D**: Plan Performance toward Phase III Portfolio Compliance show results in graphic form.

Since the beginning of Phase III of Act 129 on June 1, 2016, the FirstEnergy EDCs have achieved:

**Table 2-2: Gross Electric and Demand Savings for PY9**

EDC	Gross MWh/yr Savings (PYRTD)	Gross Peak Demand MW Savings (PYRTD)
Met-Ed	162,073	21.90
Penelec	153,681	19.57
Penn Power	53,243	7.07
West Penn Power	181,595	23.31

**Table 2-3: Gross Electric and Demand Savings since the beginning of Phase III of Act 129**

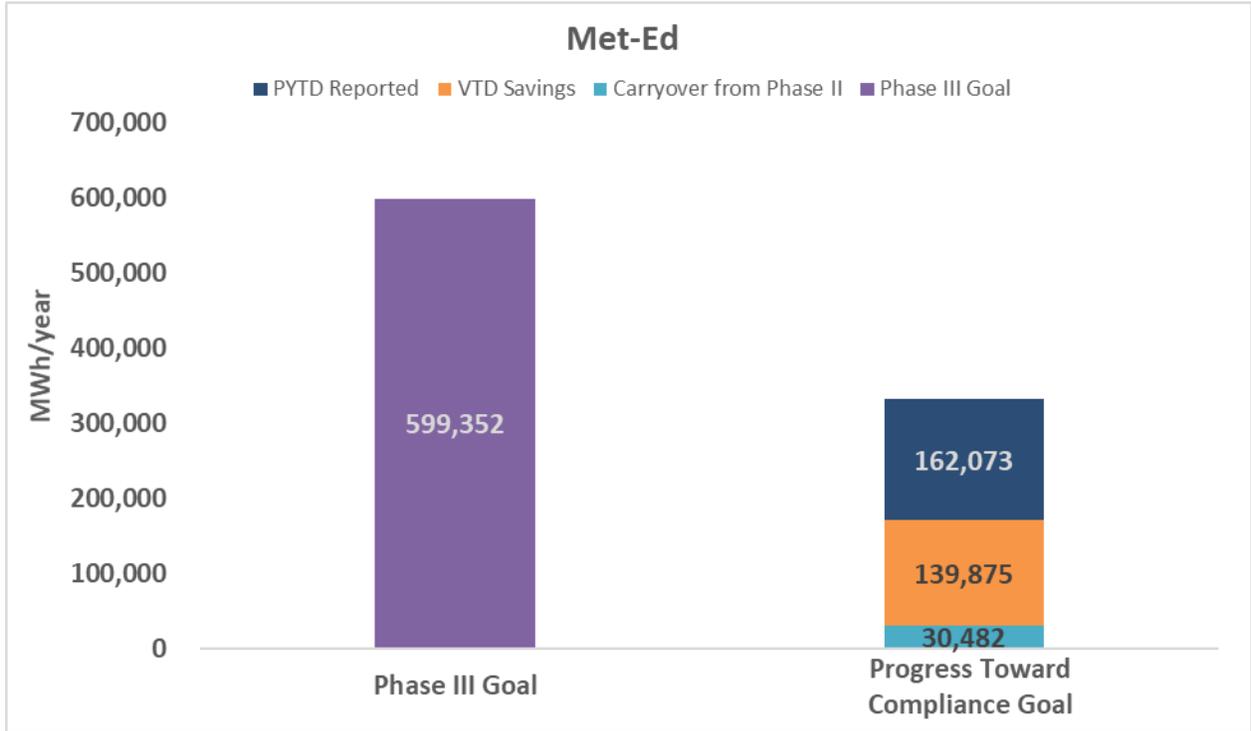
EDC	Reported Gross Electric Energy Savings MWh/yr Savings (RTD)	Reported Gross Peak Demand MW Savings (RTD)	Gross Electric Energy Savings MWh/yr Savings (PSA)	Gross Peak Demand MW Savings (PSA)
Met-Ed	292,495	39.38	301,948	40.27
Penelec	275,216	34.80	286,130	35.59
Penn Power	88,089	11.90	90,373	12.20
West Penn Power	304,055	40.49	312,925	40.15

**Table 2-4: Phase III Electric Savings including Phase II carryover**

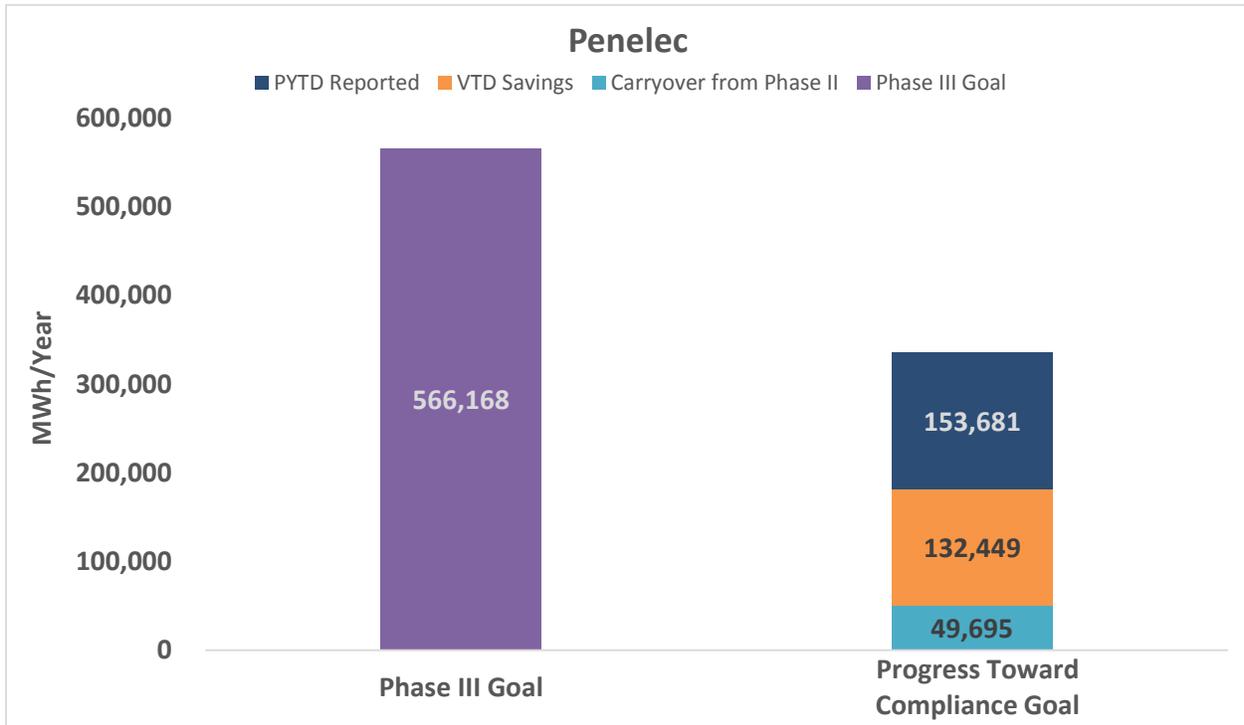
EDC	Gross/Verified MWh/yr Savings (PSA)	Carryover Savings MWh/yr (CO)	CO + Gross/Verified MWh/yr Savings (PSA + CO)	% of Compliance Target
Met-Ed	301,948	30,482	332,430	55%
Penelec	286,130	49,695	335,825	59%
Penn Power	90,373	13,866	104,239	66%
West Penn Power	312,925	20,540	333,465	62%

Figures 3A-3D: Plan Performance toward Phase III Portfolio Compliance

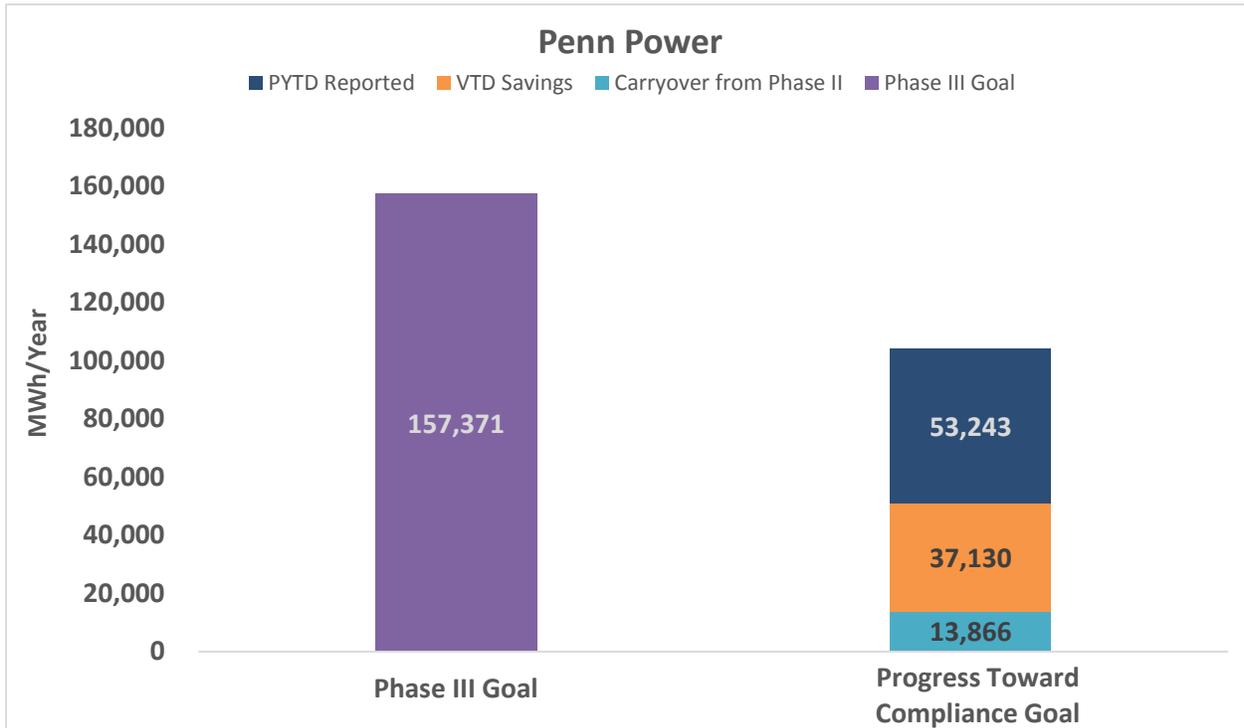
Figure 3A: EE&C Plan Performance toward Phase III Portfolio Compliance Target – Met-Ed



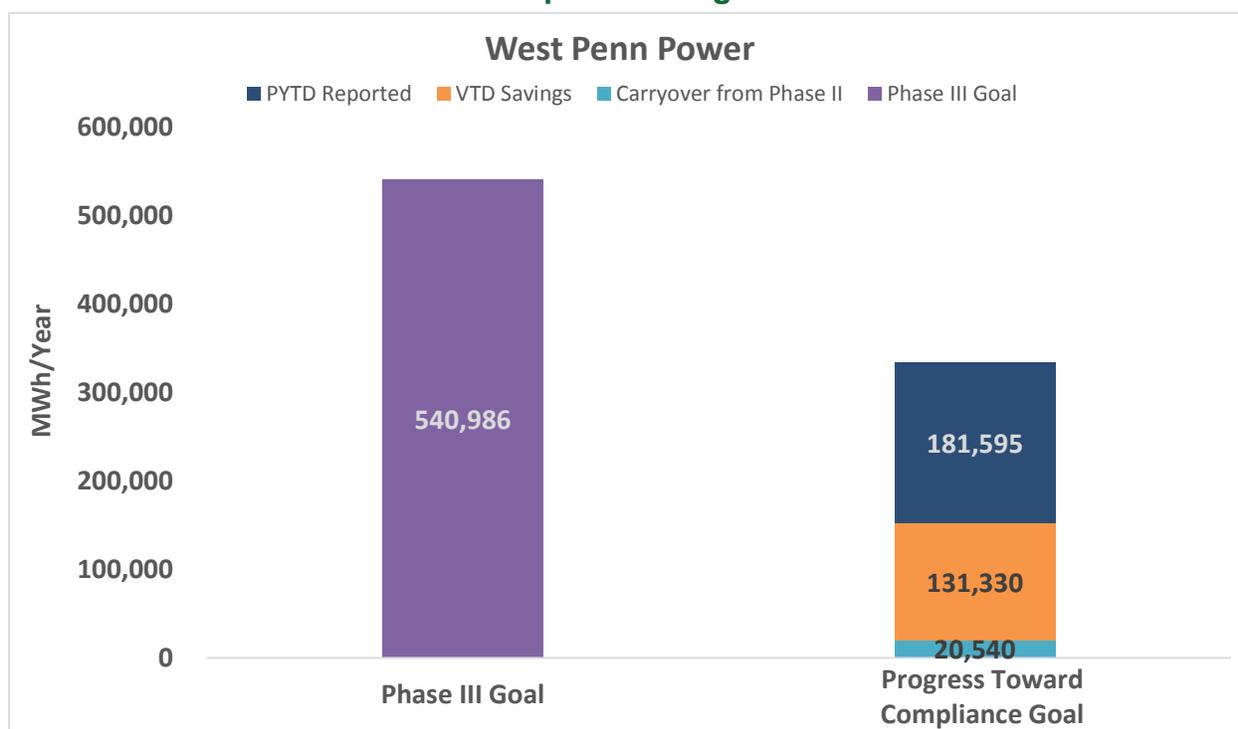
**Figure 3B: EE&C Plan Performance toward Phase III Portfolio Compliance Target – Penelec**



**Figure 3C: EE&C Plan Performance toward Phase III Portfolio Compliance Target – Penn Power**



**Figure 3D: EE&C Plan Performance toward Phase III Portfolio Compliance Target – West Penn Power**



The Phase III Implementation Order directed EDCs to offer conservation measures to the low-income customer segment based on the proportion of electric sales attributable to low-income households. The proportionate number of measures target for each FirstEnergy EDC is 8.79% for Met-Ed, 10.23% for Penelec, 10.64% for Penn Power and 8.79% for West Penn Power. Each FirstEnergy EDC offers a total of 158 EE&C measures to its residential and non-residential customer classes. There are 59 measures available to each of the FirstEnergy EDC low-income customer segments at no cost to the customer. This represents 37.34% of the total measures offered in the EE&C plan and exceeds the proportionate number of measures target for each of the EDCs.

The PA PUC also established a low-income energy savings target of 5.5% of the portfolio savings goal. The low-income savings target for the FirstEnergy EDCs is presented in **Table 2.5** and is based on verified gross savings. **Table 2-5** and **Figures 4A-4D: Plan Performance toward Phase III**

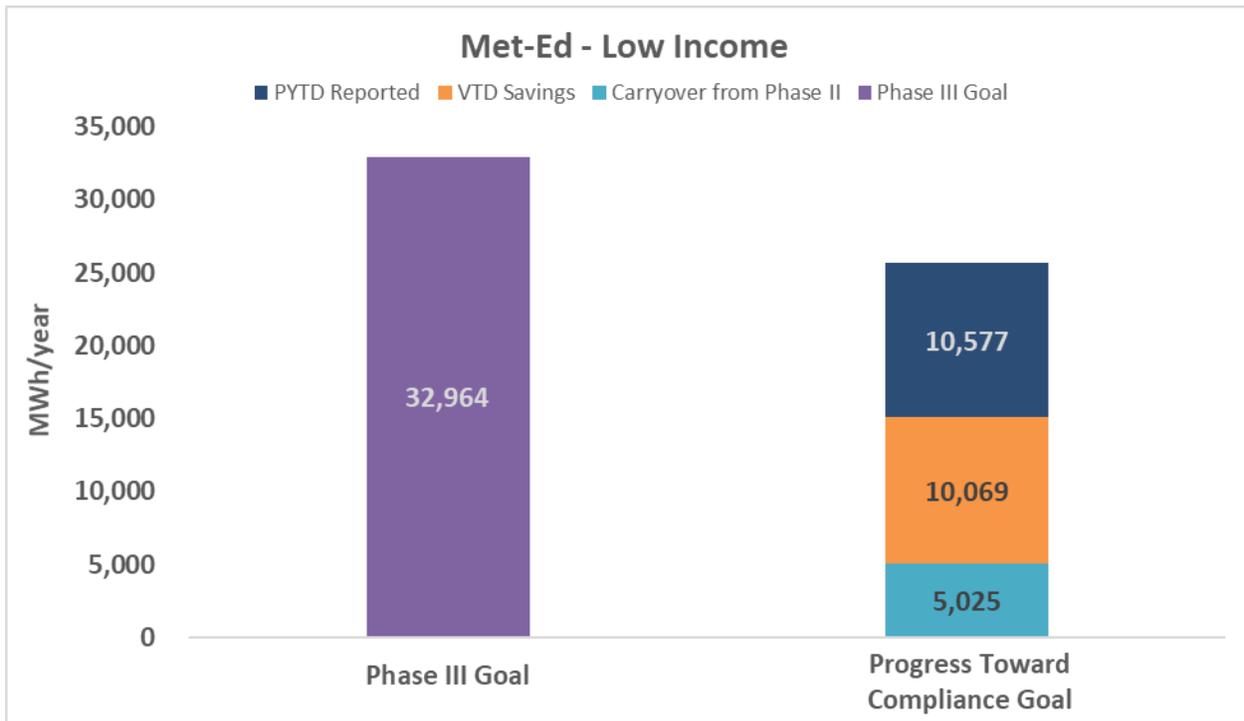
Low-Income Compliance Target compare the PSA+CO performance to date for the low-income customer segments to the Phase III savings targets as well as the percent achievement of each EDC's Phase III low-income energy savings target based on the latest available information.

**Table 2-5: Low-Income Program Energy Savings and Targets**

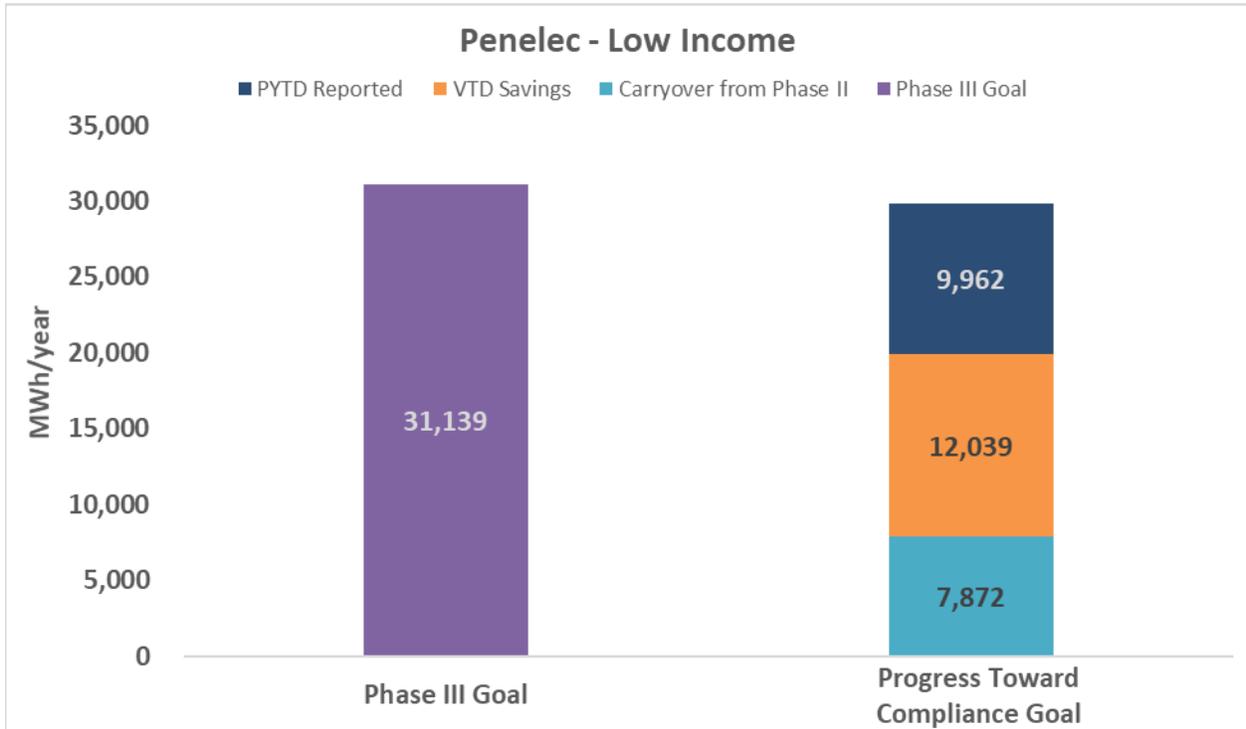
EDC	Low-Income Target (MWh/yr) (PYRTD)	PSA + CO (MWh/yr)	% of Low-Income Savings Target Achieved
Met-Ed	32,964	25,670	78%
Penelec	31,139	29,873	96%
Penn Power	8,655	8,292	96%
West Penn Power	29,754	23,866	80%

**Figures 4A-4D: Plan Performance toward Phase III Low-Income Compliance Target**

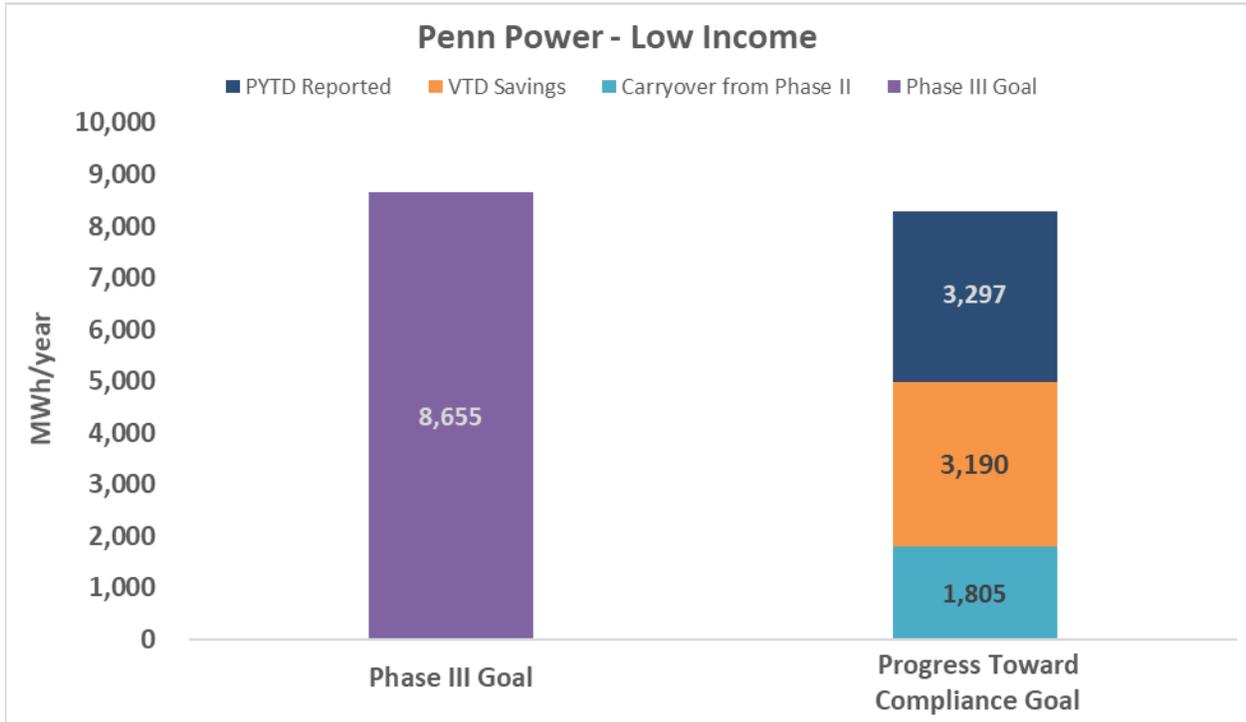
**Figure 4A: EE&C Plan Performance toward Phase III Low-Income Compliance Target – Met-Ed**



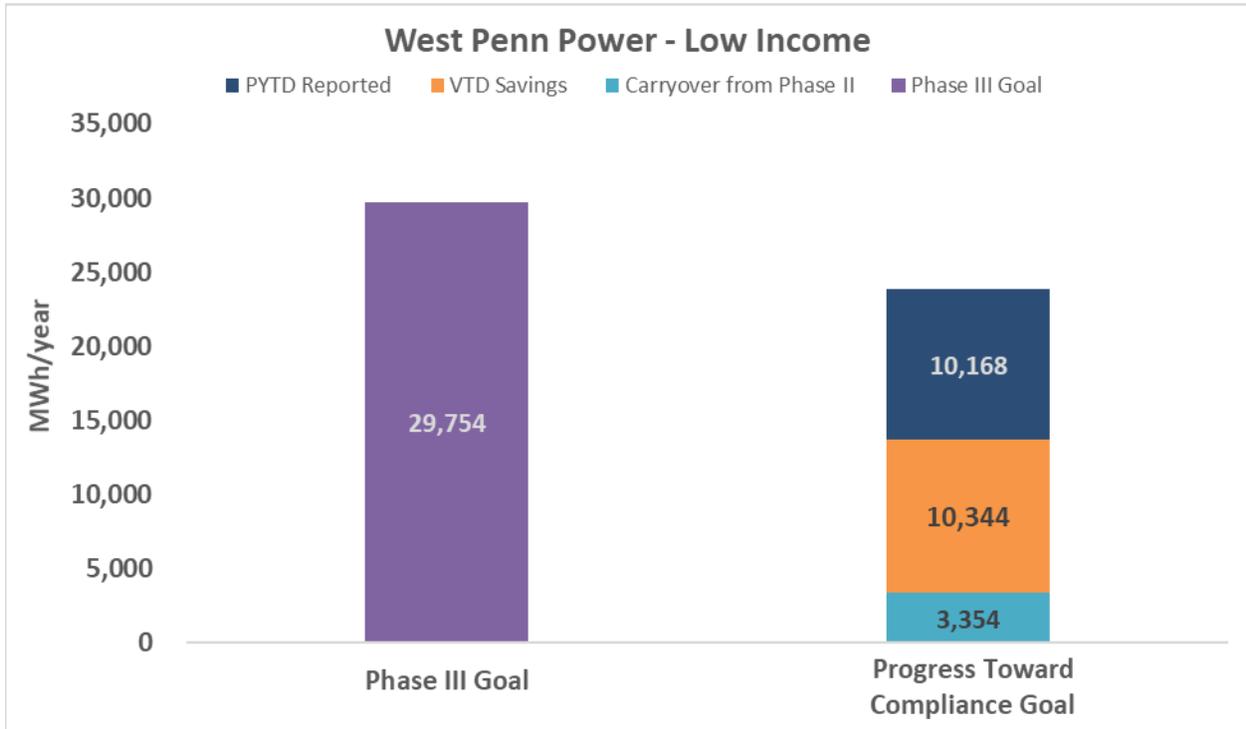
**Figure 4B: EE&C Plan Performance toward Phase III Low-Income Compliance Target – Penelec**



**Figure 4C: EE&C Plan Performance toward Phase III Low-Income Compliance Target – Penn Power**



**Figure 4D: EE&C Plan Performance toward Phase III Low-Income Compliance Target – West Penn Power**



The Phase III Implementation Order established a government, non-profit, and institutional energy savings target of 3.5% of the portfolio savings goal. The GNI savings targets for the FirstEnergy EDCs is presented in **Table 2-6** and is based on verified gross savings.

**Table 2-6: GNI Savings and Targets**

EDC	GNI Target (MWh/yr)	GNI Savings PSA + CO (MWh/yr)	% of GNI Savings Target Achieved
Met-Ed	20,977	12,805	61%
Penelec	19,816	17,654	89%
Penn Power	5,508	13,042	237%
West Penn Power	18,935	45,797	242%

**Figures 5A-5D:** Plan Performance against Phase III GNI Compliance Target compare the PSA+CO performance to date for the GNI customer segment to the Phase III savings target, as well as the percent achievement of each EDC’s Phase III GNI energy savings target based on the latest available information.

Figures 5A-5D: Plan Performance against Phase III GNI Compliance Target

Figure 5A: EE&C Plan Performance against Phase III GNI Compliance Target – Met-Ed

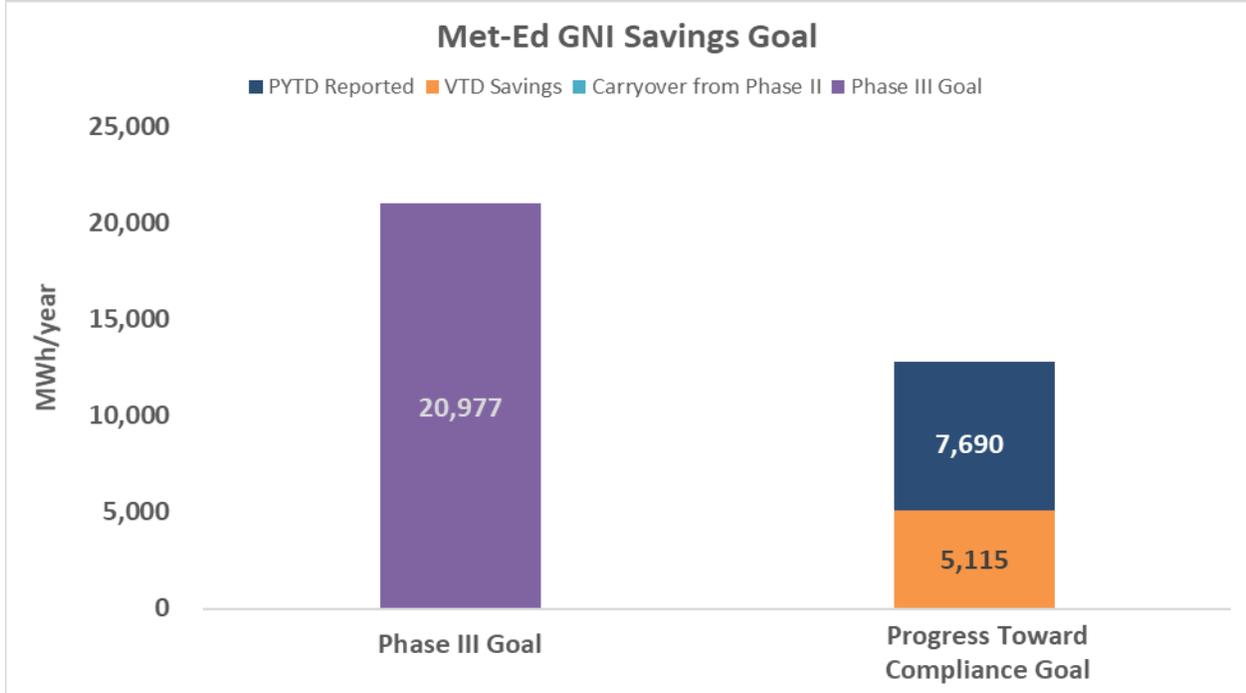
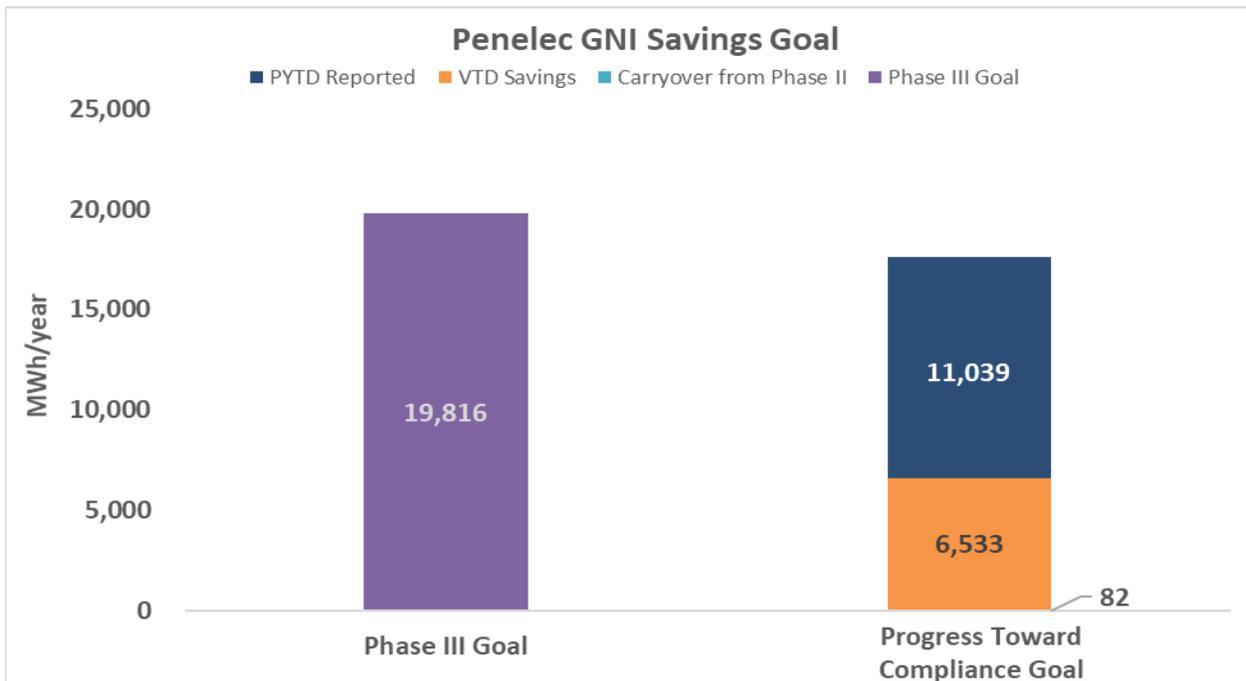
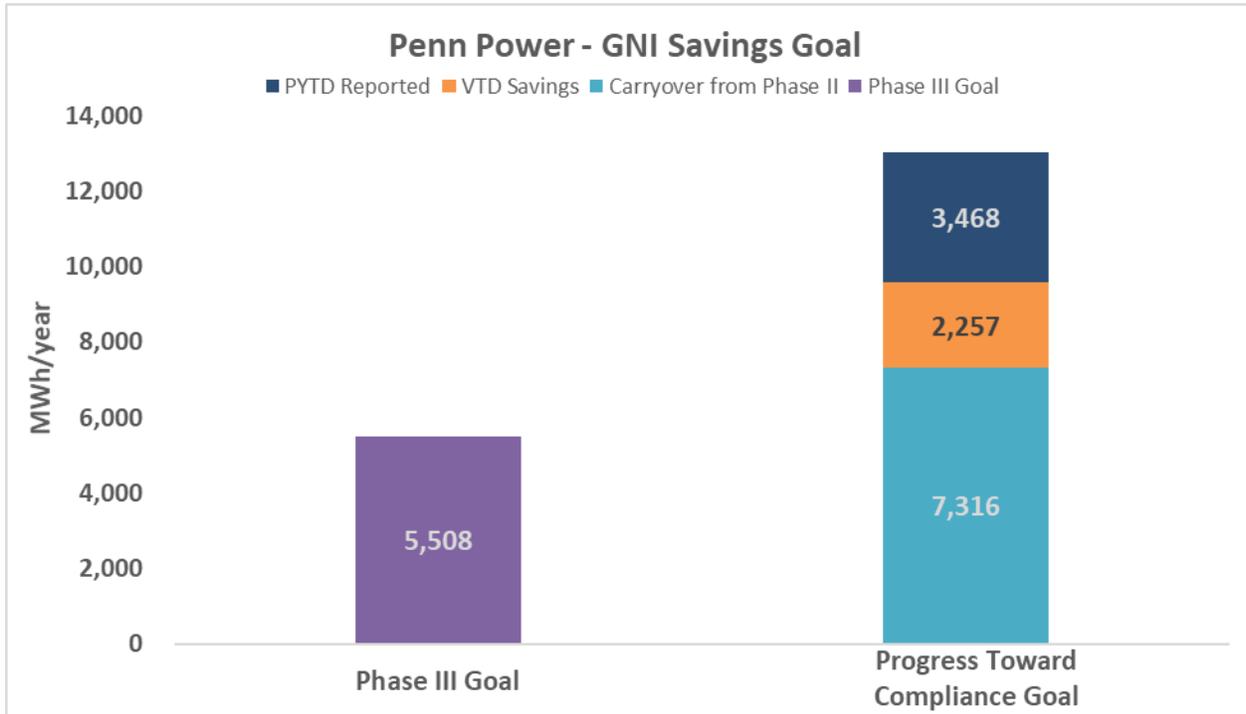


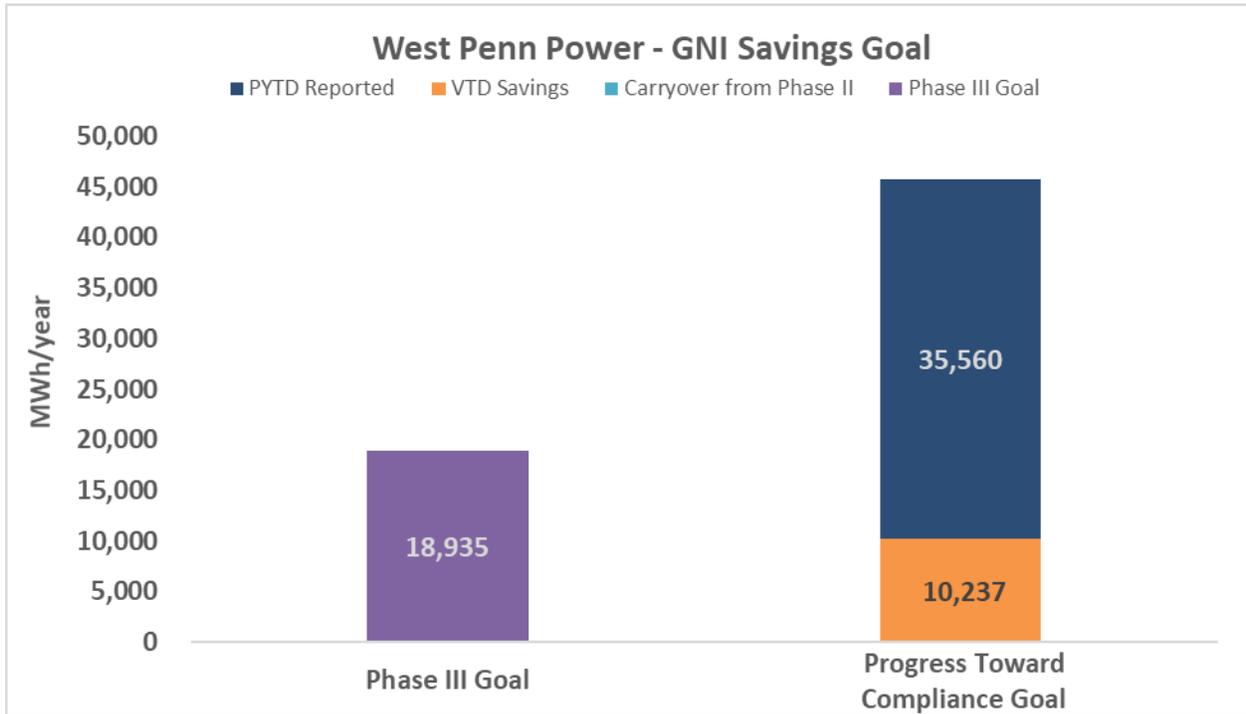
Figure 5B: EE&C Plan Performance against Phase III GNI Compliance Target – Penelec



**Figure 5C: EE&C Plan Performance against Phase III GNI Compliance Target – Penn Power**



**Figure 5D: EE&C Plan Performance against Phase III GNI Compliance Target – West Penn Power**



## 2.3 PHASE III DEMAND RESPONSE ACHIEVEMENTS TO DATE

The Phase III demand response performance targets for the FirstEnergy EDCs are 49, 17 and 64 MW for Met-Ed, Penn Power and West Penn Power respectively. Penelec does not have a demand response target. Compliance with targets for demand response programs will be based on average performance across events for the entire phase, and targets were established at the system level, which means the load reductions measured at the customer meter must be escalated to reflect transmission and distribution losses.

Based on the magnitude of the DR goals and the reliance on a small number of large customers' ability and willingness to curtail sufficient load on Act 129 event days with a one-day notice, attainment of the DR goals can be challenging. Thus, the Companies will continue to work closely with its implementation providers, evaluation CSPs, and customers to enhance participation and performance to achieve the aggressive Act 129 DR targets.

Act 129 DR events are triggered by PJM's day-ahead load forecast. When the day-ahead forecast is above 96% of the peak load forecast for the year, an Act 129 DR event is initiated for the following day. In PY9, three (3) Act 129 DR events were called. **Tables 2-7A-C** list the days that DR events were called along with the verified gross demand reductions achieved by each program. **Tables 2-7A-C** also list the average DR performance for PY9 and for Phase III to date. The FirstEnergy EDCs' DR performance to date, with consideration of the measurement confidence intervals reflecting the uncertainty of average values, is 1% above, 203% above, and 75% above the Phase III compliance reduction targets for Met-Ed, Penn Power and West Penn Power respectively. Without consideration of measurement confidence intervals around the average values, the EDC's average DR performance is 6% below,<sup>3</sup> 96% above, and 28% above the Phase III compliance reduction target for Met-Ed, Penn Power and West Penn Power respectively.

Met-Ed's demand response achievement to date demonstrates compliance with Act 129 target, as the confidence interval associated with measurements exceeds the Act 129 target value. The 42.3 – 49.6 MW confidence interval of the measurement exceeds the 49.0 MW target from a statistical point of view.

Penn Power's demand response achievement to date demonstrates compliance with Act 129 target, as the confidence interval associated with measurements exceeds the Act 129 target value. The 15.4 – 51.5 MW confidence interval of the measurement exceeds the 17.0 MW target from a statistical point of view.

West Penn Power's demand response achievement to date demonstrates compliance with Act 129 target, as the confidence interval associated with measurements exceeds the Act 129 target value. The 52.0 – 111.8 MW confidence interval of the measurement exceeds the 64.0 MW target from a statistical point of view.

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<sup>3</sup> This is based on a central estimate of 45.9 MW for Met-Ed, which is obtained by taking the weighted average of the top three performing customer baseline load (CBL) algorithms (based on relative root mean square error calculations) for each participant. It is also possible to measure results based solely on the best performing CBL algorithm for each participant. This would increase the central estimate to 46.9 MW. We report the lower result to be consistent with ADM's PY9 Demand Response Evaluation Plan, but take the 0.9 MW difference as a systematic uncertainty (we call it "CBL selection uncertainty" instead of "CBL uncertainty").

### Tables 2-7A-C: PY9 Demand PYVTD Performance by Event

**Table 2-7A: PY9 Demand Response PYVTD Performance by Event  
Met-Ed**

<i>Event Date</i>	<i>Start Hour*</i>	<i>End Hour*</i>	<i>C&amp;I Demand Response - Small</i>	<i>C&amp;I Demand Response - Large</i>	<i>Residential Energy Efficient Homes</i>	<i>Average Portfolio MW Impact</i>
June 13	15	18	3.0 +/- 0.3	45.0 +/- 5.2	0.0 ± 0.0	48.0 ± 5.2
July 20	15	18	3.0 +/- 0.4	44.1 +/- 5.7	0.0 ± 0.0	47.1 ± 5.7
July 21	15	18	1.9 +/- 0.3	40.8 +/- 6.2	0.0 ± 0.0	42.7 ± 6.2
PYVTD - Average PYX DR Event Performance						46.0 ± 3.6
						(42.3 - 49.6)
VTD - Average Phase III DR Event Performance						46.0 ± 3.6
						(42.3 - 49.6)

\* Hours reflect "hour ending" convention (e.g., hour 14 is 1-2PM).

**Table 2-7B: PY9 Demand Response PYVTD Performance by Event  
Penn Power**

<i>Event Date</i>	<i>Start Hour*</i>	<i>End Hour*</i>	<i>C&amp;I Demand Response - Small</i>	<i>C&amp;I Demand Response - Large</i>	<i>Residential Energy Efficient Homes</i>	<i>Average Portfolio MW Impact</i>
June 13	15	18	0.1 +/- 0.1	48.7 +/- 24.2	2.0 ± 0.6	50.8 ± 24.2
July 20	15	18	0.2 +/- 0.2	26.4 +/- 24.3	2.5 ± 0.6	29.2 ± 24.3
July 21	15	18	0.2 +/- 0.3	18.1 +/- 24.1	2.0 ± 0.6	20.4 ± 24.1
PYVTD - Average PYX DR Event Performance						33.5 ± 18.1
						(15.4-51.5)
VTD - Average Phase III DR Event Performance						33.5 ± 18.1
						(15.4-51.5)

\* Hours reflect "hour ending" convention (e.g., hour 14 is 1-2PM).

**Table 2-7C: PY9 Demand Response PYVTD Performance by Event  
West Penn Power**

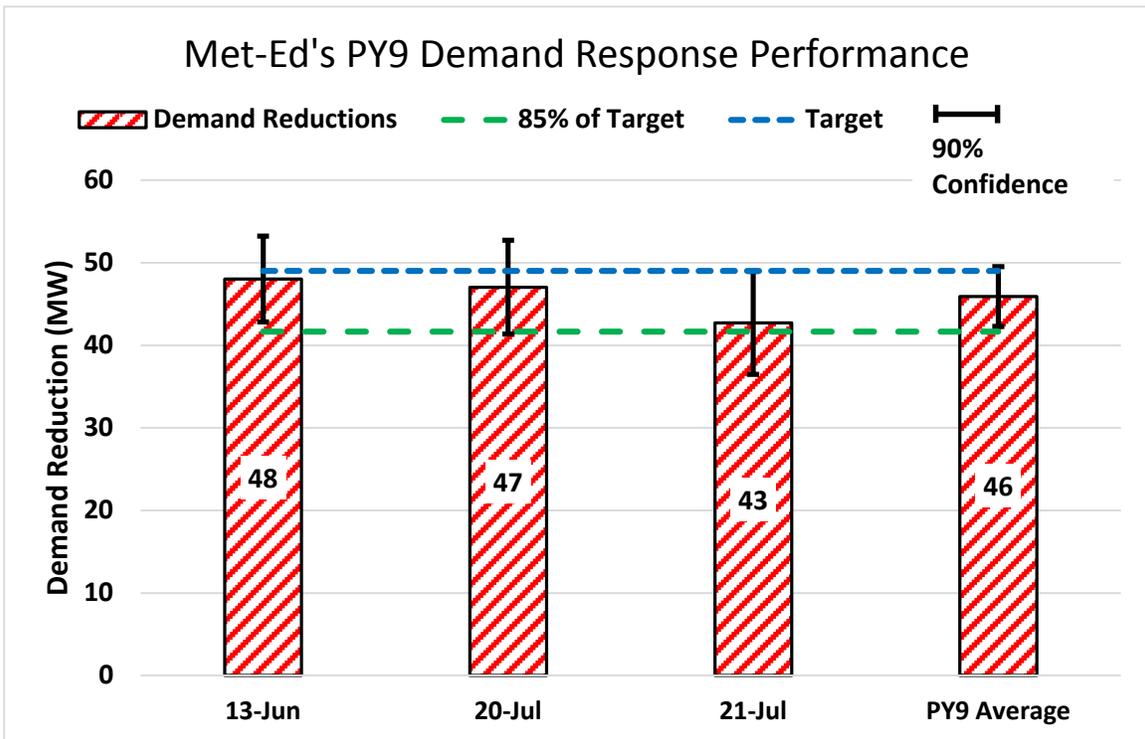
<b>Event Date</b>	<b>Start Hour*</b>	<b>End Hour*</b>	<b>C&amp;I Demand Response - Small</b>	<b>C&amp;I Demand Response - Large</b>	<b>Residential Energy Efficient Homes</b>	<b>Average Portfolio MW Impact</b>
June 13	15	18	3.3 +/- 1.4	119.9 +/- 48.5	0.0 ± 0.0	123.3 ± 48.5
July 20	15	18	2.4 +/- 1.6	72.3 +/- 46.7	0.0 ± 0.0	74.7 ± 46.7
July 21	15	18	2.3 +/- 2.4	45.4 +/- 47.0	0.0 ± 0.0	47.7 ± 47
PYVTD - Average PYX DR Event Performance						81.9 ± 29.9
						(52.0-111.8)
VTD - Average Phase III DR Event Performance						81.9 ± 29.9
						(52.0-111.8)

\* Hours reflect "hour ending" convention (e.g., hour 14 is 1-2PM)

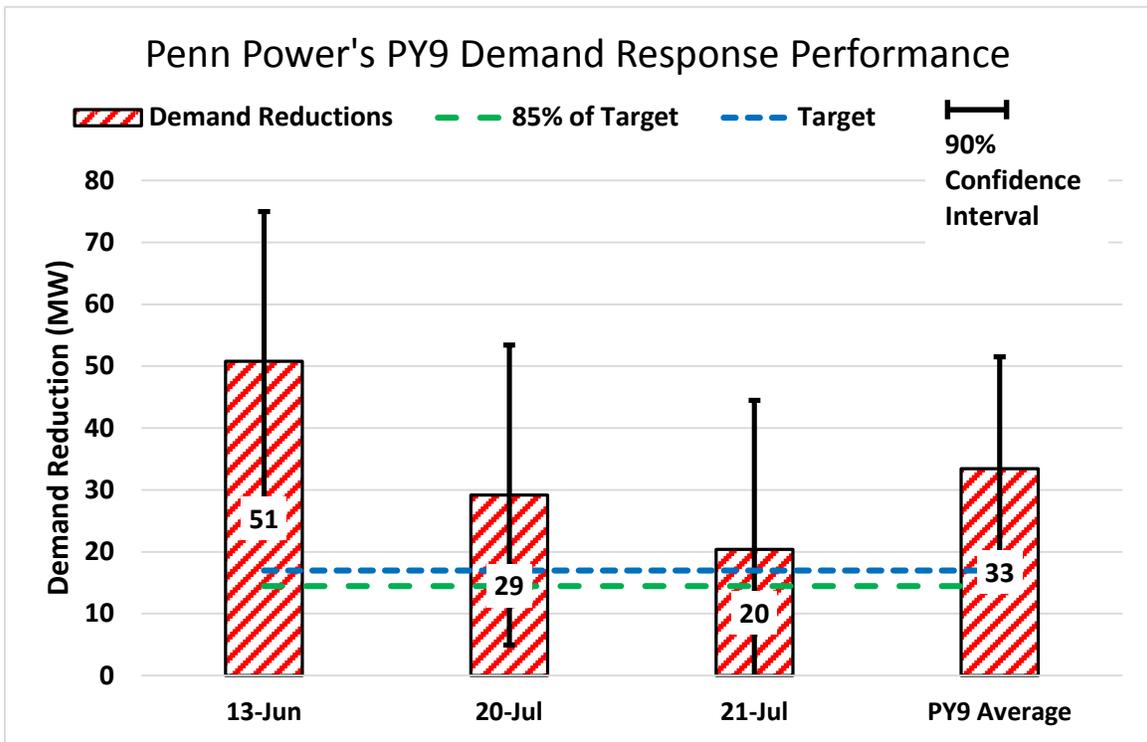
The Commission’s Phase III Implementation Order also established a requirement that EDCs achieve at least 85% of the Phase III compliance reduction target in each DR event. This translates to a 41.7, 14.5, and 54.4 MW minimum for each DR event for Met-Ed, Penn Power and West Penn Power respectively. **Figures 6 A-C** compare the performance of each of the DR events in PY9 to the event-specific minimum and average targets for Met-Ed, Penn Power and West Penn Power including presentation of error bands.

**Figures 6A-6C: Event Performance Compared to 85% Per-Event Target**

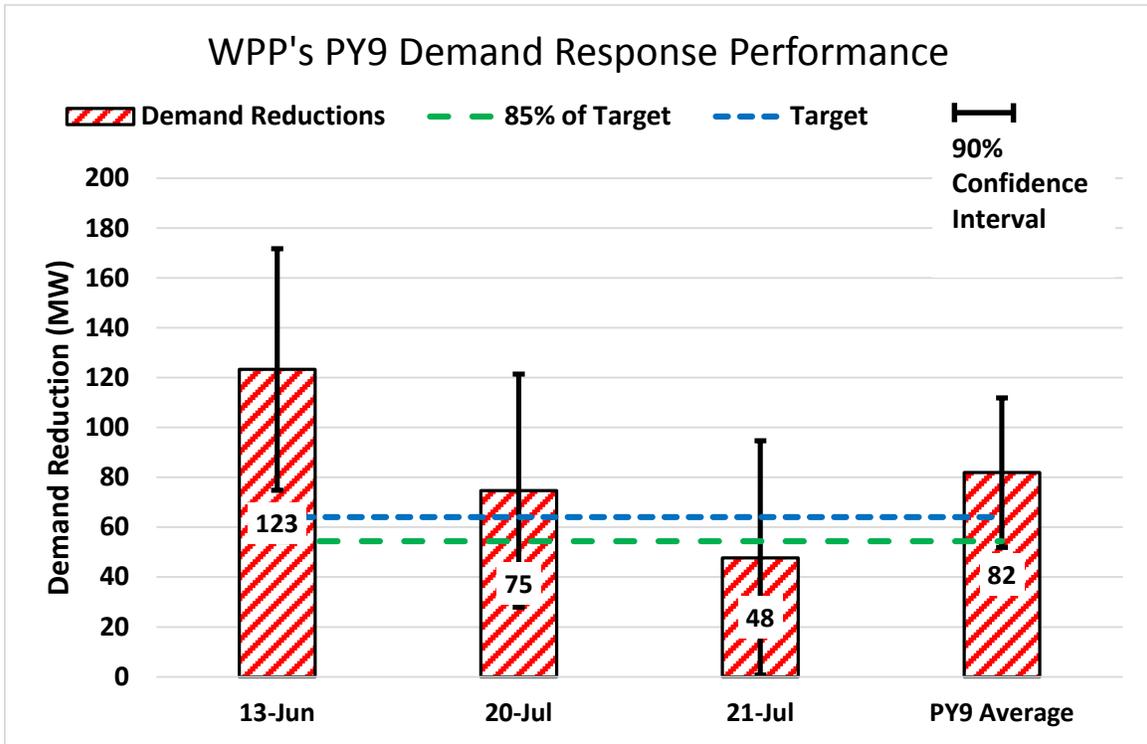
**Figure 6A: Event Performance Compared to 85% Per-Event Target  
Met-Ed**



**Figure 6B: Event Performance Compared to 85% Per-Event Target  
Penn Power**



**Figure 6C: Event Performance Compared to 85% Per-Event Target  
West Penn Power**



## 2.4 PHASE III PERFORMANCE BY CUSTOMER SEGMENT

**Table 2-8** below presents the participation, savings, and spending by customer sector for PY8. The residential, small C&I, large C&I sectors are defined by EDC tariff and the residential low-income and governmental/educational/non-profit sector were defined by statute (66 Pa. C.S. § 2806.1). The residential low-income segment is a subset of the residential customer class and the GNI segment will include customers who are part of the Small C&I or Large C&I rate classes. The savings, spending, and participation values for the LI and GNI segments are presented individually after being removed from the parent sectors in **Table 2-8**.

Table 2-8: PY9 Summary Statistics by Customer Segment

EDC	Parameter	Residential (Non-LI)	Residential LI	Small C&I (Non-GNI)	Large C&I (Non-GNI)	GNI
Met-Ed	# participants	546,089	27,843	404	209	185
	PYRTD MWh/yr	82,608	10,577	35,387	25,810	7,690
	PYRTD MW/yr (Energy Efficiency)	10.5	1.3	5.2	3.6	1.3
	PYVTD MW (Demand Response)	0	0	2.7	43.3	0
	Incentives (\$1000)	\$5,276.46	\$133.41	\$1,370.74	\$1,250.57	\$395.76
Penelec	# participants	492,889	33,502	589	126	512
	PYRTD MWh/yr	68,577	9,962	22,875	41,228	11,039
	PYRTD MW/yr (Energy Efficiency)	8.5	1.2	3.2	5.3	1.4
	PYVTD MW (Demand Response)	0	0	0	0	0
	Incentives (\$1000)	\$4,321.42	\$86.26	\$1,254.00	\$2,011.14	\$559.49
Penn Power	# participants	170,783	7,937	280	49	161
	PYRTD MWh/yr	24,163	3,297	11,132	11,183	3,468
	PYRTD MW/yr (Energy Efficiency)	3.4	0.4	1.5	1.3	0.4
	PYVTD MW (Demand Response)	2.2	0	0.2	31.1	0
	Incentives (\$1000)	\$1,646.68	\$50.63	\$570.59	\$722.98	\$210.56
West Penn Power	# participants	530,497	28,616	620	108	520
	PYRTD MWh/yr	88,468	10,168	25,040	22,360	35,560
	PYRTD MW/yr (Energy Efficiency)	12.6	1.3	3.4	3.2	2.8
	PYVTD MW (Demand Response)	0	0	2.7	79.2	0
	Incentives (\$1000)	\$5,396.44	\$98.80	\$1,338.80	\$1,675.40	\$1,499.12

Table 2-9 summarizes plan performance by sector since the beginning of Phase III.

**Table 2-9: Phase III Summary Statistics by Customer Segment**

EDC	Parameter	Residential (Non-LI)	Residential LI	Small C&I (Non-GNI)	Large C&I (Non-GNI)	GNI
Met-Ed	# participants	1,044,256	54,798	23,253	288	2,198
	PSA MWh/yr	167,011	20,682	49,463	51,988	12,805
	PSA MW (Energy Efficiency)	20.6	2.4	7.8	7.3	2.1
	Phase III MW (Demand Response)	0.0	0.0	2.7	43.3	0.0
	Incentives (\$1000)	\$9,653.26	\$191.68	\$1,950.37	\$2,613.58	\$644.39
Penelec	# participants	1,048,053	70,831	28,650	208	3,201
	PSA MWh/yr	151,439	22,321	41,626	53,172	17,572
	PSA MW (Energy Efficiency)	17.5	2.5	6.6	6.7	2.2
	Phase III MW (Demand Response)	0.0	0.0	0.0	0.0	0.0
	Incentives (\$1000)	\$8,639.70	\$165.36	\$2,140.50	\$2,609.41	\$913.68
Penn Power	# participants	274,754	15,418	5,091	65	769
	PSA MWh/yr	44,988	6,377	19,341	13,941	5,726
	PSA MW (Energy Efficiency)	6.1	0.8	3.0	1.7	0.6
	Phase III MW (Demand Response)	2.2	0.0	0.2	31.1	0.0
	Incentives (\$1000)	\$2,909.29	\$73.46	\$1,006.01	\$890.07	\$338.78
West Penn Power	# participants	1,080,605	59,854	26,235	164	2,945
	PSA MWh/yr	173,843	21,083	42,436	29,766	45,797
	PSA MW (Energy Efficiency)	23.3	2.6	6.3	4.1	3.8
	Phase III MW (Demand Response)	0.0	0.0	2.7	79.2	0.0
	Incentives (\$1000)	\$9,259.09	\$159.13	\$2,037.41	\$2,048.84	\$2,000.70

## Section 3 Updates and Findings

### 3.1 IMPLEMENTATION UPDATES AND FINDINGS

Implementation updates and findings through Q4 of PY9 are as follows:

- **Appliance Turn-In:** This program has been marketed through a variety of avenues including bill inserts, e-mail, direct mail campaigns, newspaper ads, internet searches, and radio ads. Most customers that schedule a recycling appointment with ARCA cite hearing about the program through bill inserts. Honeywell also cross-promotes this program while educating retailers about the Appliance Rebates program.
- **Energy Efficient Products Program:** This program continues to be marketed by Honeywell through a variety of avenues including in-store displays, outreach events, radio ads, digital ads, bill inserts, and e-mail and direct mail campaigns. Below are the subprogram updates:
  - **Appliances & Electronics:** Subprogram is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
  - **Lighting:** Subprogram is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
  - **HVAC:** Subprogram is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
- **Energy Efficient Homes Program:**
  - **Behavioral:** Customers enrolled in the program received 2-print reports from Oracle during the second half of PY9. The HVAC Program was highlighted in the March 2018 reports to customers. Customers with e-mail addresses receive monthly energy reports with energy consumption patterns and tips on how to save energy.
  - **Energy Audits:** This subprogram implemented by GoodCents is performing well. Through multiple marketing efforts such as bill inserts and Facebook ads, it is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
  - **New Homes:** The New Homes subprogram continues with implementing vendor, Performance Systems Development (PSD), across all four PA EDCs. The program continues to perform well. Outreach activities include builder outreach, e-Newsletters, and builder showcases.
  - **School Kits:** This subprogram implemented by AM Conservation is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.

- **Energy Efficiency Kits:** The Kits subprogram implemented by Power Direct has been marketed through outbound phone calls, e-mails, bill inserts, and direct mail pieces during the second half of PY9.
- **The Online Audit:** The Companies launched new Online Audit tool with Oracle in April 2018. The software tool, referred to as the Home Energy Analyzer, is available on the Companies' website. Customers enter information about their home into the Analyzer and customers receive tips on how to save energy. Some of the tips direct customers to other Energy Efficiency programs. There is also a graph that displays where most of the energy use in the home occurs. Upon completion of an online audit, a kit is sent to a customer to help assist customers in saving energy in the home. There is also educational material in the kit – such as 100 Ways to Save Electricity and a brochure with other energy efficiency programs.
- **Low Income Energy Efficiency Program:**
  - **Appliance Rebate:** The CSP Honeywell is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
  - **New Homes:** Subprogram for this semi-annual period performed well with the PSD. Outreach to builders of multiple low-income projects across all four EDCs.
  - **School Kits:** The CSP AM Conservation is performing well and is expected to remain under budget and continue to accumulate savings across all four PA EDCs.
  - **Appliance Turn-in subprogram:** Customers identified as low-income receive an enhanced incentive when recycling a refrigerator, freezer, room air conditioner, or dehumidifier. The low-income portion of this program is marketed primarily through e-mails and direct mail. Customers are asked questions at enrollment to identify additional low-income customers. The CSP for this program is ARCA.
  - **Behavioral subprogram:** Oracle has continued to implement the LI Behavioral subprogram. Customers identified as low-income receive Home Energy Reports with low or no cost tips to educate customers on how to use less energy.
  - **Energy Efficiency Kits:** Customers identified as low-income will receive an enhanced kit through the Low-Income Energy Efficiency Kits subprogram. The kit also contains educational material on ways to save electricity, other energy efficiency programs available through the Companies, and information about the WARM program. The CSP for this program is Power Direct.
  - **Weatherization:** Subprograms continued to perform well and are on track to meet the target in all four PA EDCs. A new measure, Advanced Smart Power Strip-Tier2, was added to the programs for installation by contractors.

- **Multifamily:** The subprogram is performing well and continues to accumulate savings across all four PA EDCs.
- **C/I Efficient Solutions for Business – Small:** The CSP Sodexo continues to promote and market the program through multiple channels – outreach and presentation to program allies, participation in trade shows and hosting customer outreach events. The CSP's outreach team, in addition to recruiting new program allies into the program, have developed close working relationships with major distributors that have presence across all four (4) OpCOs. From December 1, 2017 through May 31, 2018, Sodexo developed and put into production five (5) flyers and five (5) mailers that were targeted at different market segments – schools, car dealers, agricultural sector and convenience/grocery stores. Sodexo also sent out e-Blasts to both customers and program allies to further increase program awareness and participation. During this Reporting Period, Sodexo participated in five (5) trade shows and hosted four (4) workshops which were mainly targeted at C&I customers. To support the CSP's outreach team in their effort to promote these workshops, the Companies leverage their internal resources – Customer Support Staff and Area Managers – to promote the workshops to their assigned accounts. Sodexo also made presentations at events that were sponsored and hosted by other entities, e.g., West Penn Power Sustainable Energy Fund, PA DEP, and the Chamber of Commerce. These events help the Company reach a wider audience and increase program participation.
- **C/I Efficient Solutions for Business – Large:** The CSP Sodexo continues to promote and market the program through multiple channels – outreach and presentation to program allies, participation in trade shows and hosting customer outreach events. The CSP's outreach team, in addition to recruiting new program allies into the program, has developed a close working relationship with major distributors that have presence across all four (4) OpCOs. From December 1, 2017 through May 31, 2018, Sodexo developed and put into production five (5) flyers and five (5) mailers that were targeted at different market segments – schools, car dealers, agricultural sector and convenience/grocery stores. Sodexo also sent out e-Blasts to both customers and program allies to further increase program awareness and participation. During this Reporting Period, Sodexo participated in five (5) trade shows and hosted four (4) workshops which were mainly targeted at C&I customers. To support the CSP's outreach team in their effort to promote these workshops, the Companies leverage their internal resources – Customer Support Staff and Area Managers – to promote the workshops to their assigned accounts. Sodexo also made presentation at events that were sponsored and hosted by other entities, e.g., West Penn Power Sustainable Energy Fund, PA DEP, and the Chamber of Commerce. These events help the Company reach a wider audience and increase program participation.
- **Government & Institutional Tariff Program:** Sodexo continues with its marketing and outreach efforts working closely with government and institutional customers. During this Reporting Period, Sodexo sent out multiple e-Blasts that targeted municipal customers. Sodexo made presentations at six (6) events that were hosted by the West

Penn Power Sustainable Energy Fund; municipal government customers were a part of the invited audience at these events. Sodexo also made a presentation at an event hosted by the Sustainable Community Development Network – this event focused on municipalities in the Southwestern PA. The CSP's outreach team continues to recruit new program allies that specialize in working with customers in this market segment. Sodexo hosted four (4) workshops in which municipal customers were a part of the invited customers. To support the CSP's outreach team in their efforts to promote and market these workshops, the Companies leverage Area Managers to target their assigned municipal accounts.

- **Demand Response Residential, Small, and Large:** C&I DR contracts for ME, PP and WPP were executed with two Conservation Service Providers and received Commission approval in late December 2016. Program implementation meetings began in late October 2016 with the C&I DR Conservation Service Providers.
  - Residential Behavior DR contracts were executed with Oracle in May 2017 for Penn Power and May 2018 for Met-Ed and West Penn Power for administration of the Residential Demand Response Program. Approximately 200,000 residential customers received postcards in May educating them about conserving energy during peak days.
  - The C&I DR Programs and Residential Behavioral Programs were both implemented starting in June of 2017.

## 3.2 EVALUATION UPDATES AND FINDINGS

Evaluation updates and findings through Q4 of PY9 are as follows:

- **Portfolio level:** ADM has reviewed the Companies' Tracking and Reporting (T&R) database and has collaborated with the T&R vendor, AEG, to develop automated QA/QC processes. The QA/QC process is in place now with the tracking data being entered by CSPs are subject to automated checks within the T&R system.
- **Appliance Turn-In Program:** Participant surveys for PY9 were launched in December 2017 and are conducted on an ongoing basis.
- **Energy Efficient Products Program:** ADM has reviewed invoices and applications to support our desk review process in PY9. Reviews from the first three quarters are completed, and a data request has been made for Q4 data. Verification surveys for HVAC and downstream appliances are conducted on an ongoing basis and are approaching sampling quotas for PY9.
- **Energy Efficient Homes Program:** PY9 participant surveys for the kits component were launched in December 2017 and are conducted on an ongoing basis. ADM has concluded on-site inspections for the New Homes program component.
- **Low-Income Energy Efficiency Program:** ADM has launched participant surveys for the Low-Income Appliance Turn-In program and the Low-Income Energy Efficiency Kits. ADM has also started to review data from on-site inspections for the direct install program component.
- **C&I Energy Solutions for Business – Small, C&I Energy Solutions for Business – Large, and Governmental & Institutional Tariff programs:** ADM has started evaluation work on several large lighting and custom projects in our “certainty” evaluation strata. On-site inspections and metering has started for sampled projects, and ADM coordinates with the SWE for ride-along inspections. The last evaluation sample of the year was pulled in early July 2018.
- **C&I Demand Response Programs:** ADM has completed initial evaluation of the C&I Demand Response Programs, with results reported herein. ADM has prepared for quick post-event feedback for the PY10 Demand Response season.
- **Residential Behavior Demand Response:** ADM has concluded our initial evaluation of the Behavioral Demand Response program component for PY9, with results reported herein.

## Section 4 Summary of Participation by Program

Participation is defined differently for certain programs depending on the program delivery channel and data tracking practices. The nuances of the participant definition vary by program and are summarized by program in the bullets below. **Table 4-1** provides the current participation totals for PY9 and Phase III.

- **Appliance Turn-In Program:** the count of customer recycling pick-up incidents. If a homeowner recycles multiple appliances at one pick-up event, it is recorded as a single participant.
- **Energy Efficient Homes Program**
  - **School kits:** the number of energy savings kits delivered to students' homes.
  - **Energy Efficiency Kits:** the number of energy savings kits delivered to customer homes.
  - **Energy Audits:** the count of customers who have had an energy audit with direct install measures installed.
  - **Behavioral:** the number of customers currently receiving energy usage reports. P3TD participation numbers reflect the total number of customers that participated in the program since the beginning of Phase III.
  - **Behavioral Demand Response:** the number of individual accounts in Oracle's treatment group for the summer of 2017.
- **New Homes:** the count of new energy efficient homes being built with EnergyStar standards or a higher efficiency level than the current building code.
- **Energy Efficient Products Program**
  - **Appliances and Electronics:** the count of appliances sold.
  - **Lighting:** the number of packages that are sold
- **HVAC:** the number of HVAC units or programmable thermostats that are purchased and installed. If a customer purchases and installs both units at the same time they are counted as one participant.
- **Low Income Energy Efficiency Program**
  - **Energy Efficiency Kits:** the number of energy savings kits delivered to customer's homes.
  - **Weatherization:** the count of applications including weatherization measures.
  - **Multifamily/LILU:** the number of energy savings kits delivered to multifamily units.

- **Behavioral:** the number of customers currently receiving energy usage reports. P3TD participation numbers reflect the total number of customers that participated in the program since the beginning of Phase III.
- **New Homes:** the count of new energy efficient homes being built with EnergyStar standards or higher efficiency level than the current building code.
- **Appliances and Electronics:** the count of appliances sold.
- **Appliance Turn In:** the count of customer recycling pick-up incidents. If a homeowner recycles multiple appliances at one pick-up event, it is recorded as a single participant.
- **School Kits:** the number of energy savings kits delivered to students' homes.
- **C&I Energy Solutions for Business Program – Small:** The count of completed project applications.
- **C&I Energy Solutions for Business Program –Large:** The count of completed project applications.
- **C&I Demand Response Program – Small:** The number of participants who participated in one or more demand response events.
- **C&I Demand Response Program – Large:** The number of participants who participated in one or more demand response events.
- **Government & Institutional Tariff Program:** The count of completed project applications.

Table 4-1: EE&C Plan Participation by Program<sup>4</sup>

Utility	Program	PYTD Participation	P3TD Participation
Met-Ed	Appliance Turn-in	4,787	8,761
	Energy Efficient Homes	188,643	391,599
	Energy Efficient Products	352,659	668,340
	Low Income Energy Efficiency	27,843	54,798
	C&I Energy Solutions for Business - Small	429	777
	C&I Demand Response - Small	37	37
	C&I Energy Solutions for Business - Large	208	324
	C&I Demand Response - Large	67	67
	Governmental & Institutional Tariff	57	89
	<b>Portfolio Total</b>	<b>574,730</b>	<b>1,124,792</b>
Penelec	Appliance Turn-in	4,155	7,638
	Energy Efficient Homes	181,483	390,571
	Energy Efficient Products	307,251	679,726
	Low Income Energy Efficiency	33,502	70,831
	C&I Energy Solutions for Business - Small	743	1,351
	C&I Demand Response - Small	0	0
	C&I Energy Solutions for Business - Large	177	287
	C&I Demand Response - Large	0	0
	Governmental & Institutional Tariff	307	540
	<b>Portfolio Total</b>	<b>527,618</b>	<b>1,150,944</b>
Penn Power	Appliance Turn-in	1,528	2,695
	Energy Efficient Homes	68,742	109,146
	Energy Efficient Products	100,513	167,895
	Low Income Energy Efficiency	7,937	15,418
	C&I Energy Solutions for Business - Small	351	600
	C&I Demand Response - Small	3	3
	C&I Energy Solutions for Business - Large	49	67
	C&I Demand Response - Large	6	6
	Governmental & Institutional Tariff	81	267
	<b>Portfolio Total</b>	<b>179,210</b>	<b>296,097</b>
West Penn Power	Appliance Turn-in	5,500	10,160
	Energy Efficient Homes	207,517	415,938
	Energy Efficient Products	317,480	681,800
	Low Income Energy Efficiency	28,616	59,854
	C&I Energy Solutions for Business - Small	789	1,295
	C&I Demand Response - Small	19	19
	C&I Energy Solutions for Business - Large	126	194
	C&I Demand Response - Large	12	12
	Governmental & Institutional Tariff	302	531
	<b>Portfolio Total</b>	<b>560,361</b>	<b>1,169,803</b>

<sup>4</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

## Section 5 Summary of Energy Impacts by Program

A summary of energy impacts by program through the current Reporting Period is presented in Table 5-1<sup>5</sup>.

**Table 5-1: Energy Savings by Program (MWh/Year)**

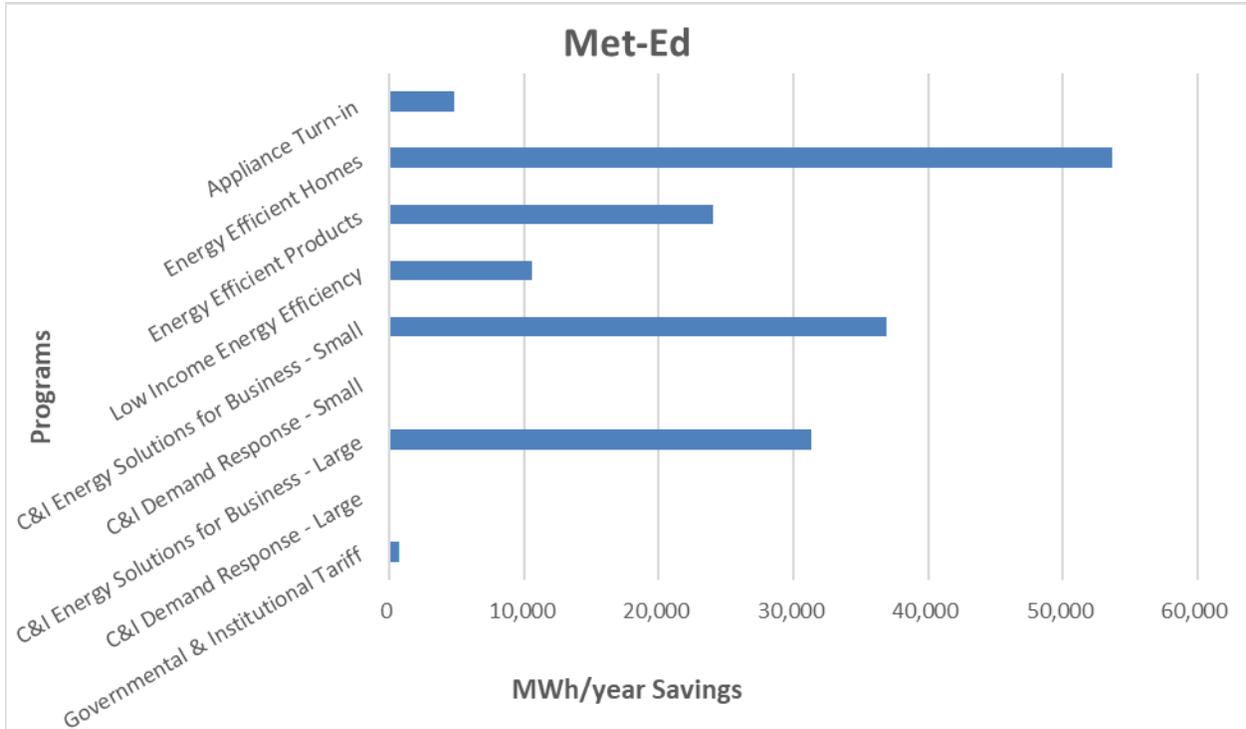
Utility	Program	PYRTD	VTD	PSA	RTD
Met-Ed	Appliance Turn-in	4,808	4,014	8,822	8,817
	Energy Efficient Homes	53,719	53,569	107,288	101,845
	Energy Efficient Products	24,082	30,825	54,907	49,542
	Low Income Energy Efficiency	10,577	10,105	20,682	19,684
	C&I Energy Solutions for Business - Small	36,935	11,469	48,404	49,461
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	31,334	29,643	60,977	62,253
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	619	250	869	892
	Portfolio Total	<b>162,073</b>	<b>139,875</b>	<b>301,948</b>	<b>292,495</b>
Penelec	Appliance Turn-in	4,565	3,407	7,973	8,392
	Energy Efficient Homes	36,963	45,106	82,069	75,486
	Energy Efficient Products	27,049	39,241	66,290	60,550
	Low Income Energy Efficiency	9,962	12,359	22,321	20,912
	C&I Energy Solutions for Business - Small	28,898	16,874	45,773	46,970
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	45,092	14,666	59,758	60,902
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	1,152	796	1,948	2,004
	Portfolio Total	<b>153,681</b>	<b>132,449</b>	<b>286,130</b>	<b>275,216</b>
Penn Power	Appliance Turn-in	1,695	1,007	2,702	2,983
	Energy Efficient Homes	12,218	12,883	25,101	23,120
	Energy Efficient Products	10,250	7,896	18,147	16,452
	Low Income Energy Efficiency	3,297	3,080	6,377	6,577
	C&I Energy Solutions for Business - Small	13,729	8,151	21,880	22,432
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	11,449	2,768	14,216	14,495
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	605	1,345	1,950	2,030
	Portfolio Total	<b>53,243</b>	<b>37,130</b>	<b>90,373</b>	<b>88,089</b>
West Penn Power	Appliance Turn-in	5,884	4,565	10,449	10,882
	Energy Efficient Homes	55,533	48,291	103,824	100,752
	Energy Efficient Products	27,051	37,095	64,146	58,400
	Low Income Energy Efficiency	10,168	10,915	21,083	20,556
	C&I Energy Solutions for Business - Small	31,549	14,523	46,071	46,089
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	41,790	10,414	52,204	52,268
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	9,620	5,528	15,147	15,109
	Portfolio Total	<b>181,595</b>	<b>131,330</b>	<b>312,925</b>	<b>304,055</b>

<sup>5</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

**Figures 7A-7D:** Reported Gross Energy Savings by Program present a summary of the PYTD reported gross energy savings by program for Program Year 9. The energy impacts in this report are presented at the meter level and do not reflect adjustments for transmission and distribution losses.

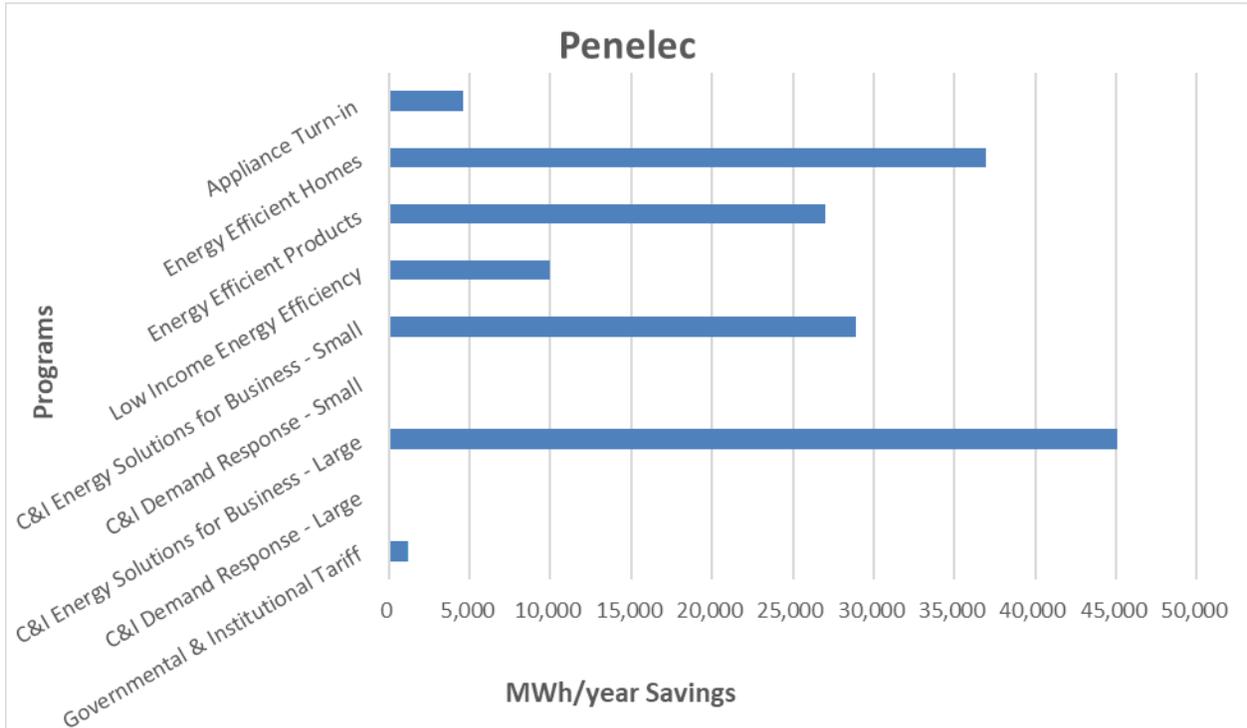
**Figures 7A-7D: Reported Gross Energy Savings by Program<sup>6</sup>**

**Figure 7A: PYTD Reported Gross Energy Savings by Program - Met-Ed**

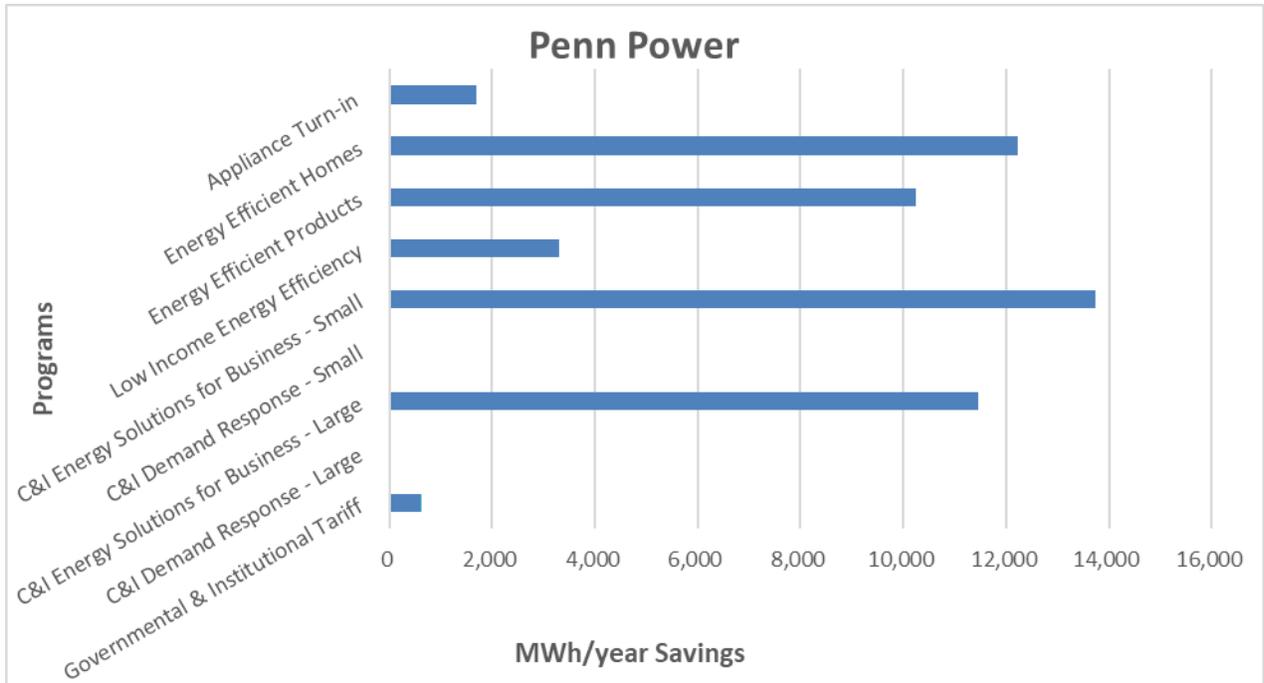


<sup>6</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

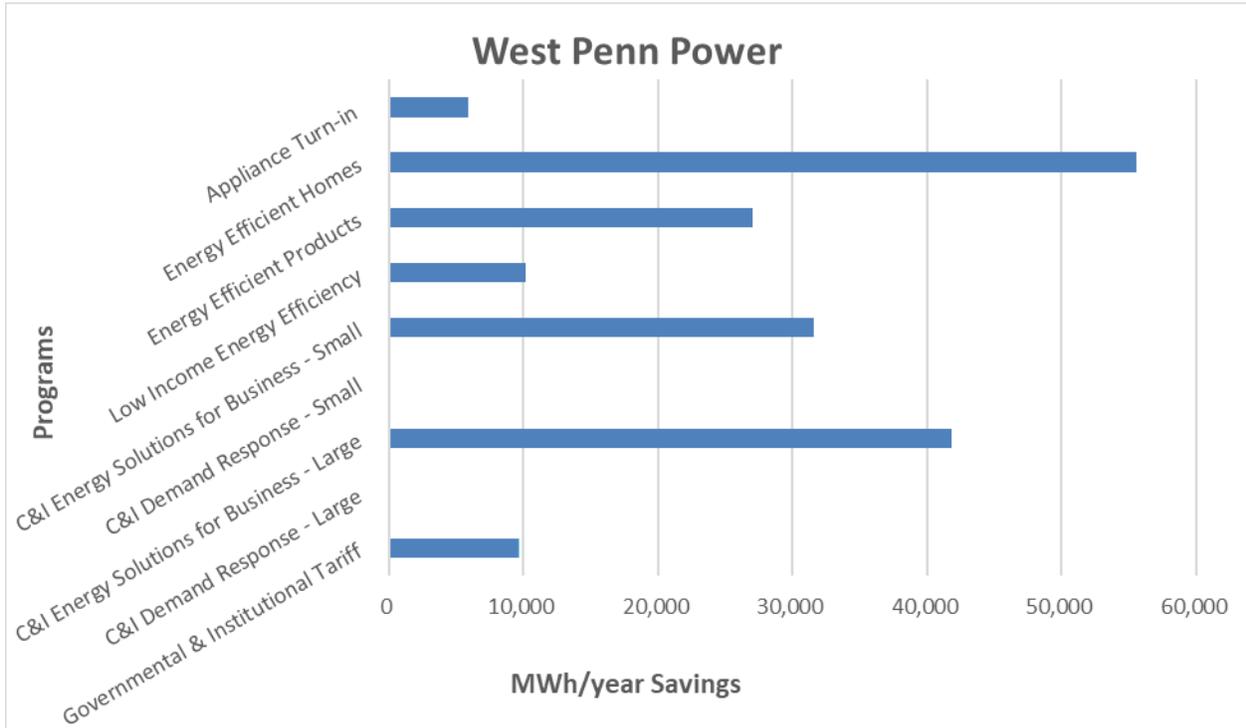
**Figure 7B: PYTD Reported Gross Energy Savings by Program – Penelec**



**Figure 7C: PYTD Reported Gross Energy Savings by Program - Penn Power**



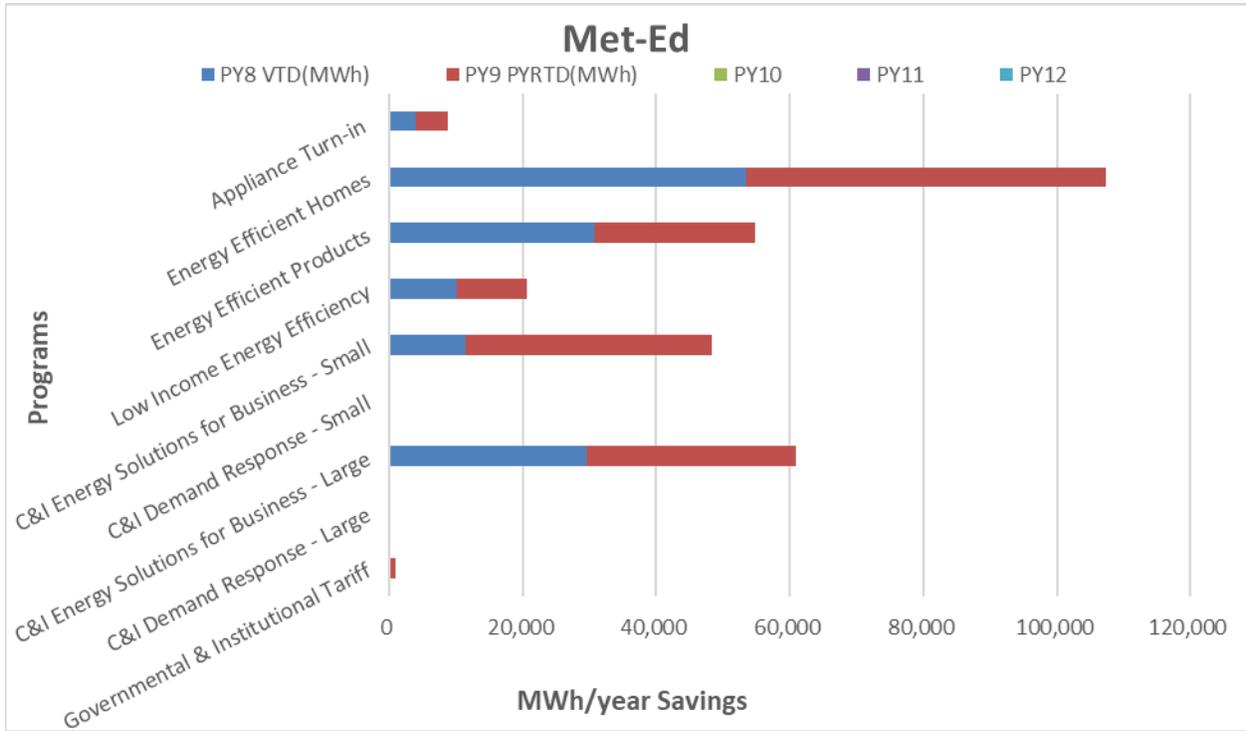
**Figure 7D: PYTD Reported Gross Energy Savings by Program - West Penn Power**



**Figures 8A-8D:** PSA Energy Savings by Program for Phase III present a summary of the PSA gross energy savings by program for Phase III of Act 129. PSA savings include verified gross savings from previous program years and the PYTD savings from the current program year.

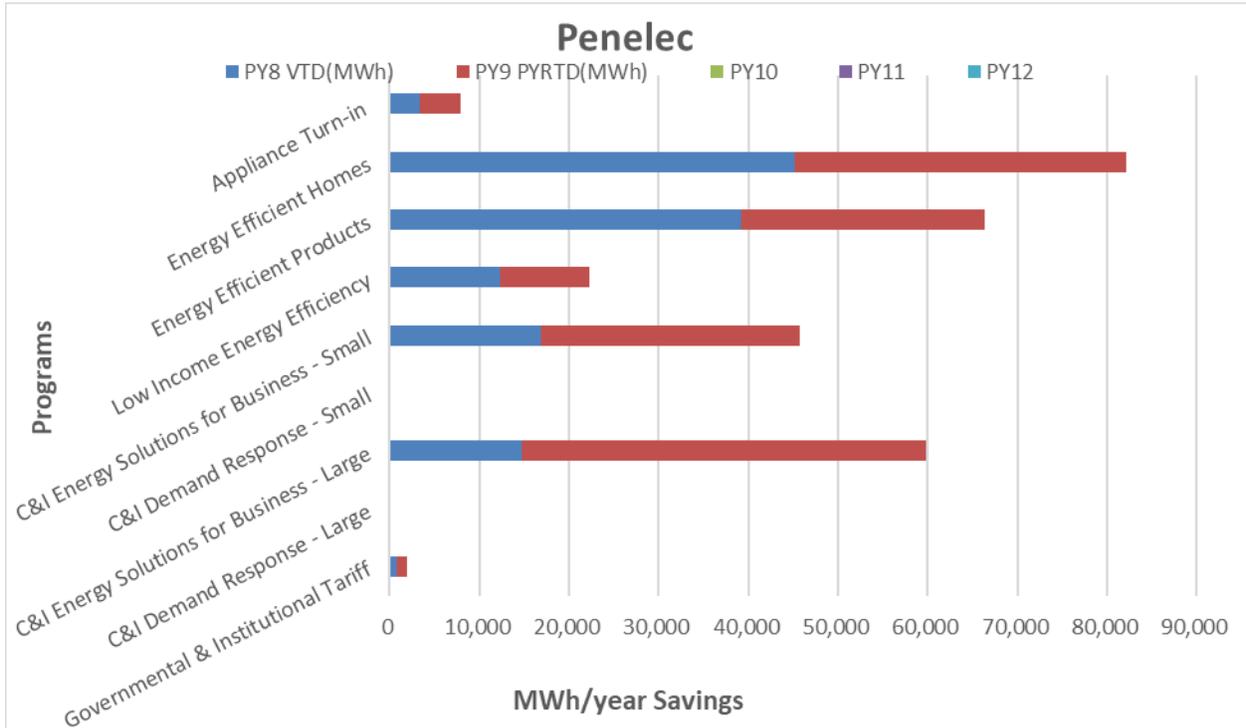
**Figures 8A-8D: PSA Energy Savings by Program for Phase III<sup>7</sup>**

**Figure 8A: PSA Energy Savings by Program for Phase III - Met-Ed**

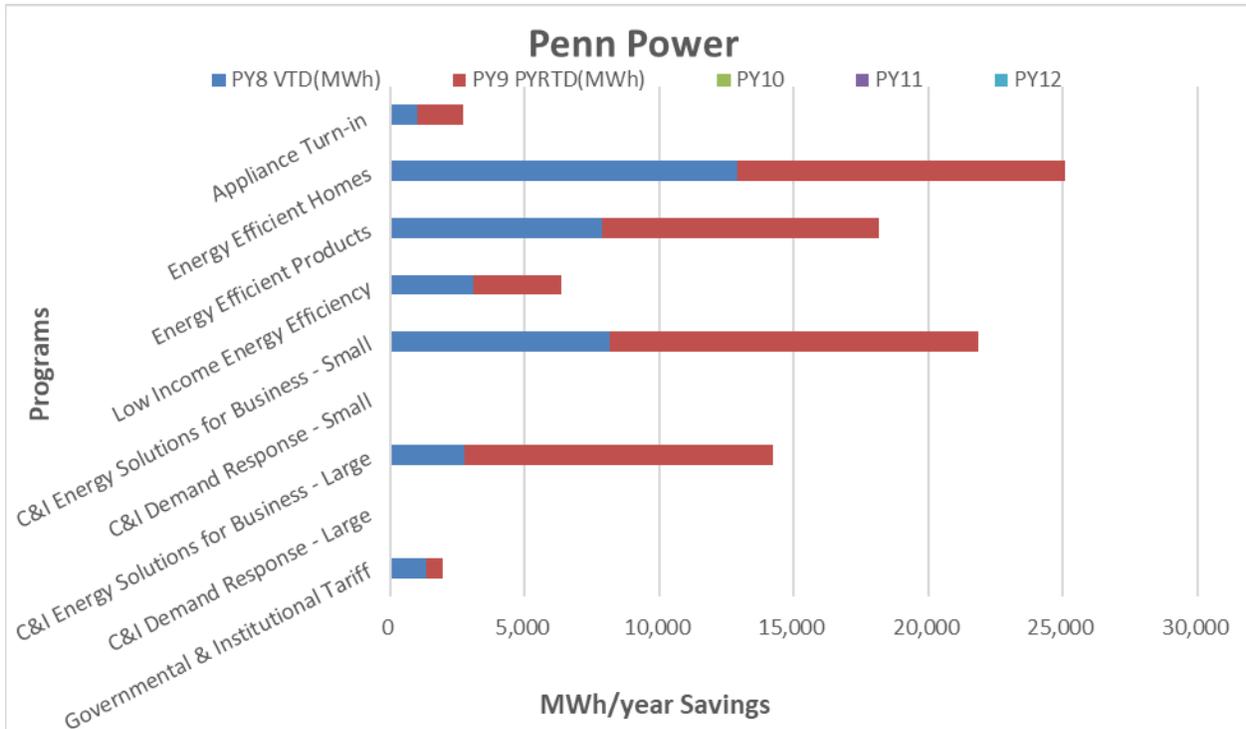


<sup>7</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

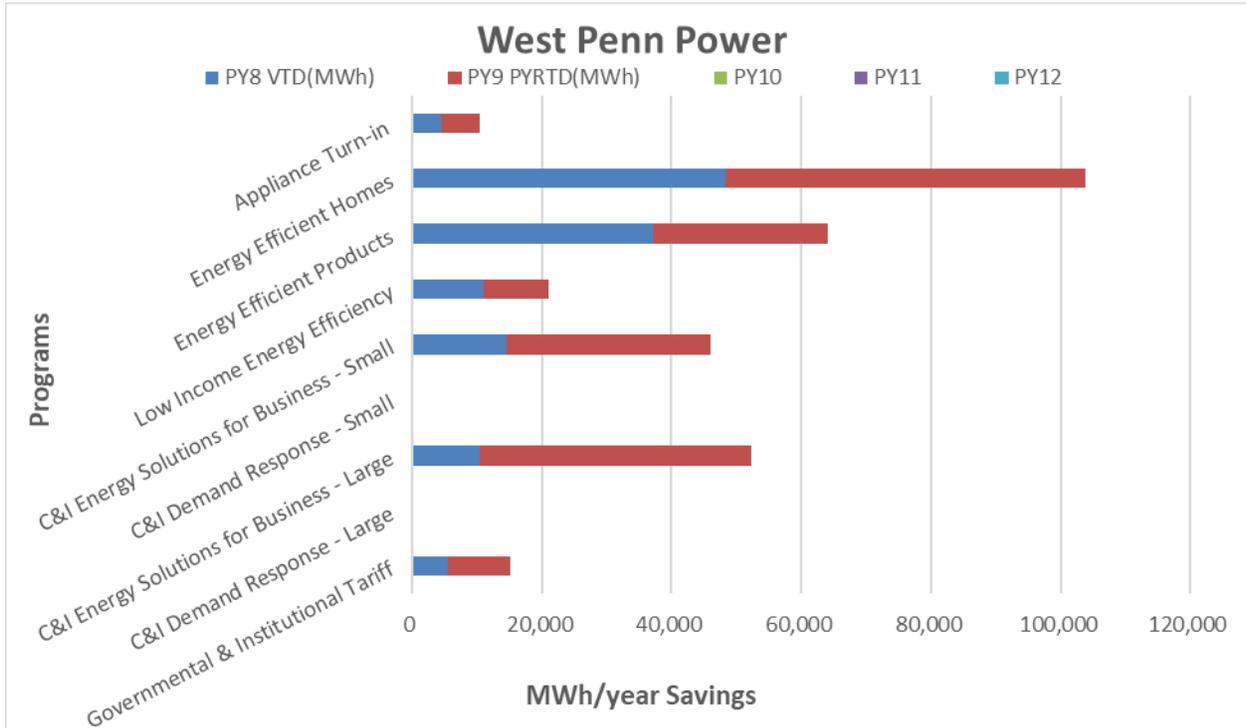
**Figure 8B: PSA Energy Savings by Program for Phase III – Penelec**



**Figure 8C: PSA Energy Savings by Program for Phase III - Penn Power**



**Figure 8D: PSA Energy Savings by Program for Phase III - West Penn Power**



## Section 6 Summary of Demand Impacts by Program

FirstEnergy Pennsylvania EDCs Phase III EE&C programs achieve peak demand reductions in two primary ways. The first is through coincident reductions from energy efficiency measures and the second is through dedicated demand response offerings that exclusively target temporary demand reductions on peak days. Energy efficiency reductions coincident with system peak hours are reported and used in the calculation of benefits in the TRC Test, but do not contribute to Phase III peak demand reduction compliance goals. Phase III peak demand reduction targets are exclusive to demand response programs.

The two types of peak demand reduction savings are also treated differently for reporting purposes. Peak demand reductions from energy efficiency are generally additive across program years, meaning that the P3TD savings reflect the sum of the first-year savings in each program year. Conversely, demand response goals are based on average portfolio impacts across all events so cumulative DR performance is expressed as the *average* performance of each of the DR events called in Phase III to date. Because of these differences, demand impacts from energy efficiency and demand response are reported separately in the following sub-sections.

### 6.1 ENERGY EFFICIENCY

Act 129 defines peak demand savings from energy efficiency as the average expected reduction in electric demand from 2:00 p.m. to 6:00 p.m. EDT on non-holiday weekdays from June to August. The peak demand impacts from energy efficiency in this report are presented at the meter level and do not reflect adjustments for transmission and distribution losses.

A summary of the peak demand impacts by energy efficiency program through the current Reporting Period are presented in **Table 6-1**:

**Table 6-1: Peak Demand Savings by Program (MW/Year)<sup>8</sup>**

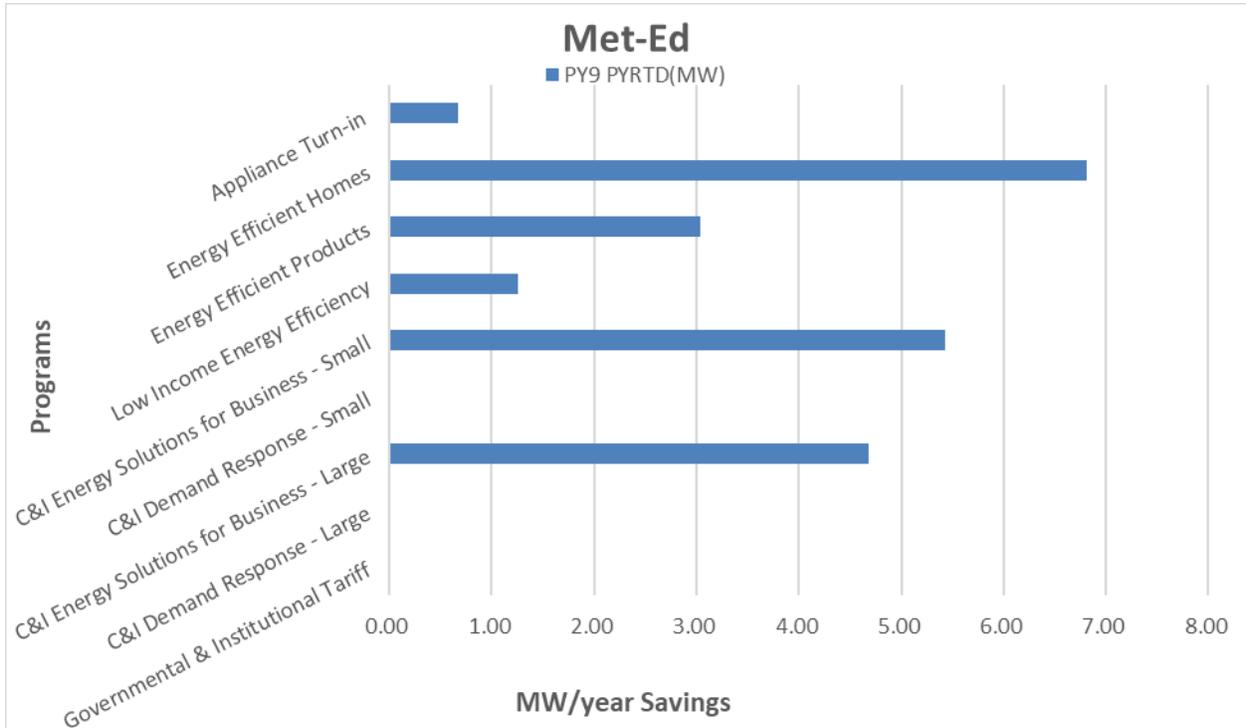
	Program	PYRTD	VTD	PSA	RTD
Met-Ed	Appliance Turn-in	0.68	0.53	1.21	1.24
	Energy Efficient Homes	6.81	6.22	13.03	13.36
	Energy Efficient Products	3.04	4.17	7.21	6.22
	Low Income Energy Efficiency	1.25	1.16	2.41	2.40
	C&I Energy Solutions for Business - Small	5.43	2.01	7.44	7.35
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	4.69	4.27	8.96	8.79
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	0.00	0.01	0.01	0.01
<b>Portfolio Total</b>	<b>21.90</b>	<b>18.37</b>	<b>40.27</b>	<b>39.38</b>	
	Program	PYRTD	VTD	PSA	RTD
Penelec	Appliance Turn-in	0.61	0.44	1.05	1.11
	Energy Efficient Homes	4.80	4.90	9.70	9.76
	Energy Efficient Products	3.07	4.74	7.82	6.68
	Low Income Energy Efficiency	1.18	1.33	2.51	2.48
	C&I Energy Solutions for Business - Small	4.11	2.94	7.04	7.10
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	5.78	1.66	7.44	7.64
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	0.02	0.01	0.04	0.04
<b>Portfolio Total</b>	<b>19.57</b>	<b>16.02</b>	<b>35.59</b>	<b>34.80</b>	
	Program	PYRTD	VTD	PSA	RTD
Penn Power	Appliance Turn-in	0.22	0.13	0.35	0.38
	Energy Efficient Homes	1.92	1.75	3.67	3.65
	Energy Efficient Products	1.24	1.04	2.28	1.98
	Low Income Energy Efficiency	0.42	0.35	0.76	0.85
	C&I Energy Solutions for Business - Small	1.93	1.48	3.41	3.35
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	1.34	0.32	1.66	1.63
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	0.00	0.07	0.07	0.06
<b>Portfolio Total</b>	<b>7.07</b>	<b>5.13</b>	<b>12.20</b>	<b>11.90</b>	
	Program	PYRTD	VTD	PSA	RTD
West Penn Power	Appliance Turn-in	0.76	0.61	1.37	1.39
	Energy Efficient Homes	8.10	5.93	14.04	15.11
	Energy Efficient Products	3.72	5.18	8.90	7.86
	Low Income Energy Efficiency	1.34	1.26	2.60	2.73
	C&I Energy Solutions for Business - Small	4.43	2.22	6.65	6.74
	C&I Demand Response - Small	n/a	n/a	n/a	n/a
	C&I Energy Solutions for Business - Large	4.95	1.47	6.42	6.47
	C&I Demand Response - Large	n/a	n/a	n/a	n/a
	Governmental & Institutional Tariff	0.02	0.16	0.18	0.18
<b>Portfolio Total</b>	<b>23.31</b>	<b>16.84</b>	<b>40.15</b>	<b>40.49</b>	

<sup>8</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

**Figures 9A-9D:** PYRTD Gross Demand Savings by Energy Efficiency Program present a summary of the PYRTD reported gross peak demand savings by energy efficiency program for Program Year 9.

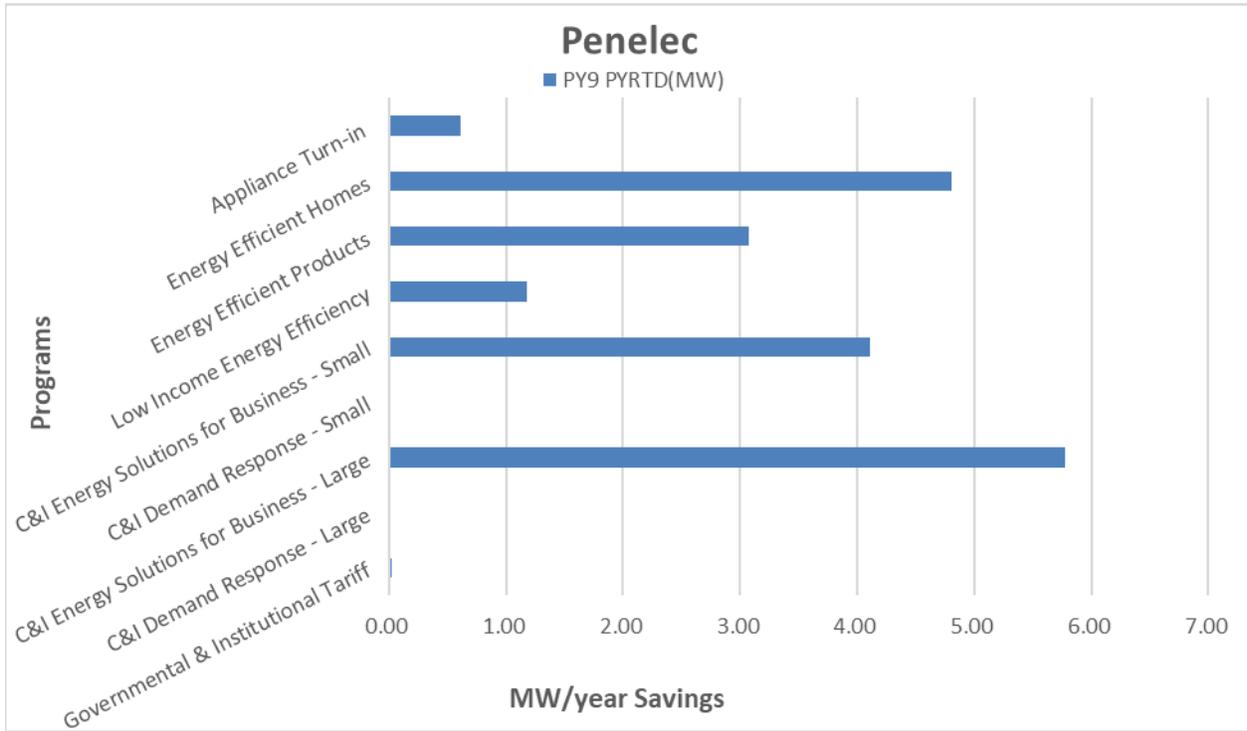
**Figures 9A-9D: PYRTD Gross Demand Savings by Energy Efficiency Program<sup>9</sup>**

**Figure 9A: PYRTD Gross Demand Savings by Energy Efficiency Program - Met-Ed**

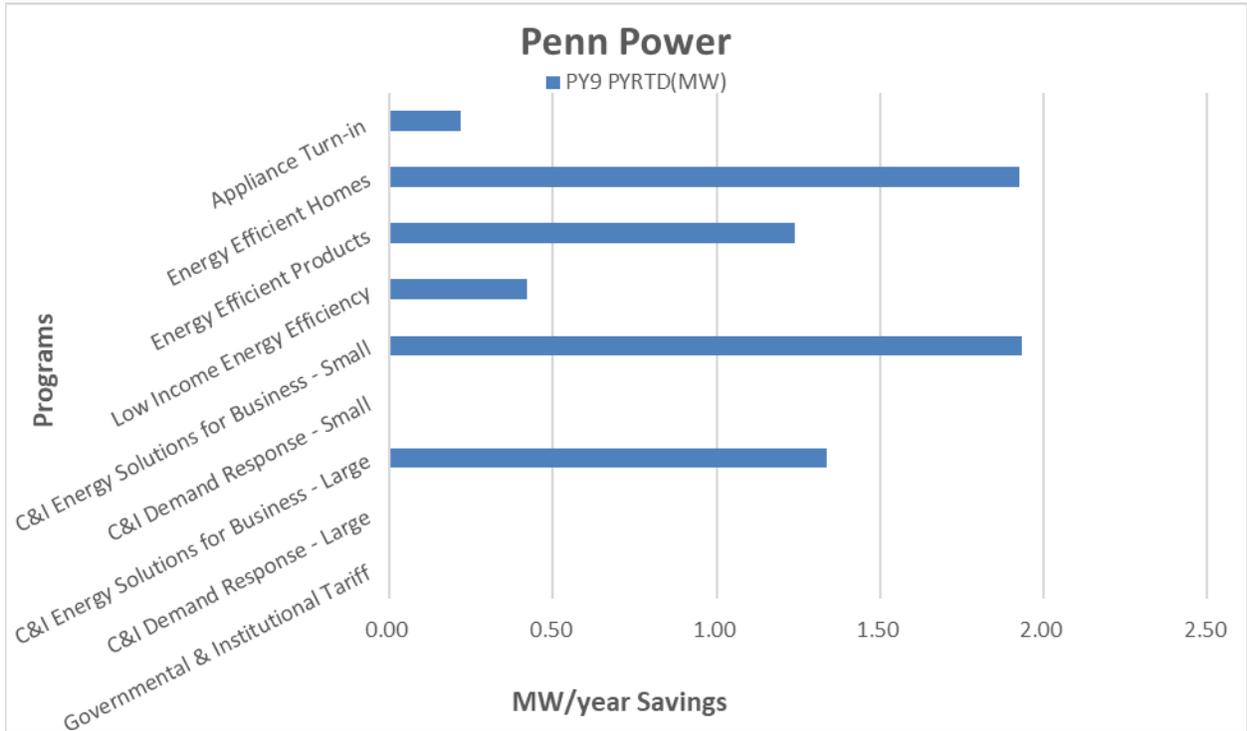


<sup>9</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

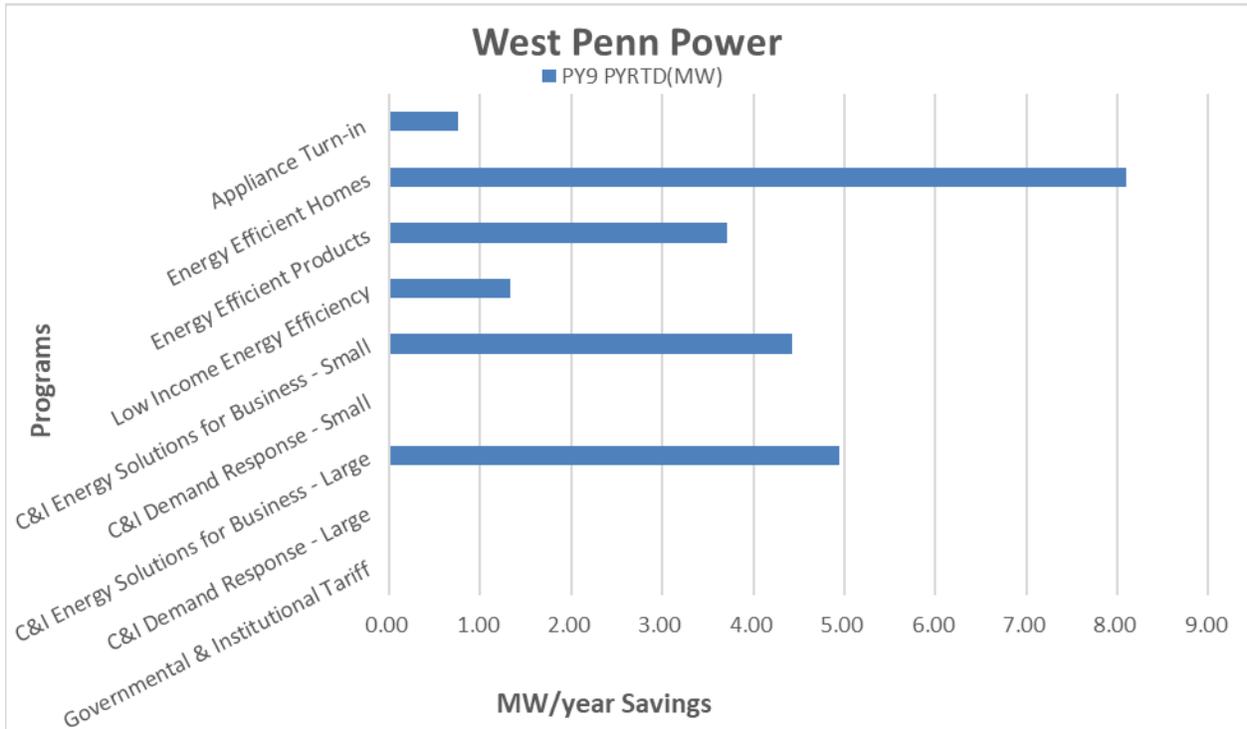
**Figure 9B: PYRTD Gross Demand Savings by Energy Efficiency Program – Penelec**



**Figure 9C: PYRTD Gross Demand Savings by Energy Efficiency Program - Penn Power**



**Figure 9D: PYRTD Gross Demand Savings by Energy Efficiency Program - West Penn Power**

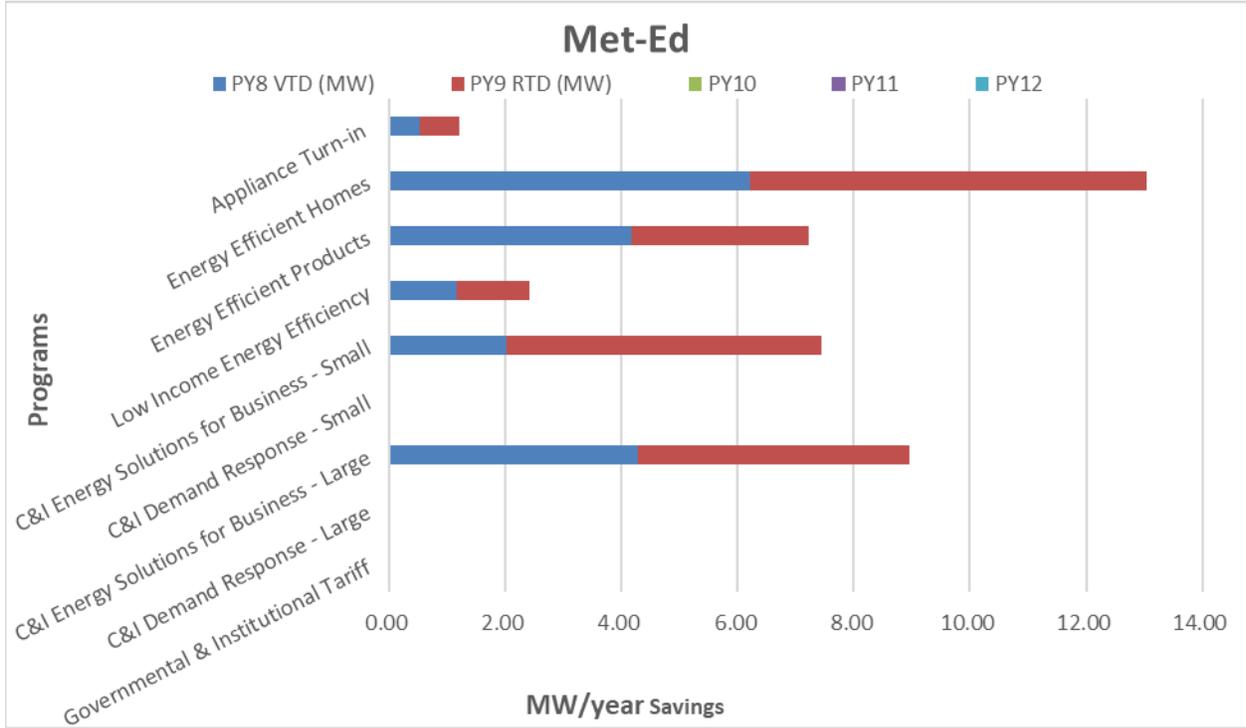


**Figures 10A-10D:** PSA Demand Savings by Energy Efficiency Program for Phase III present a summary of the PSA gross demand savings by energy efficiency program for Phase III of Act 129.<sup>10</sup>

<sup>10</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

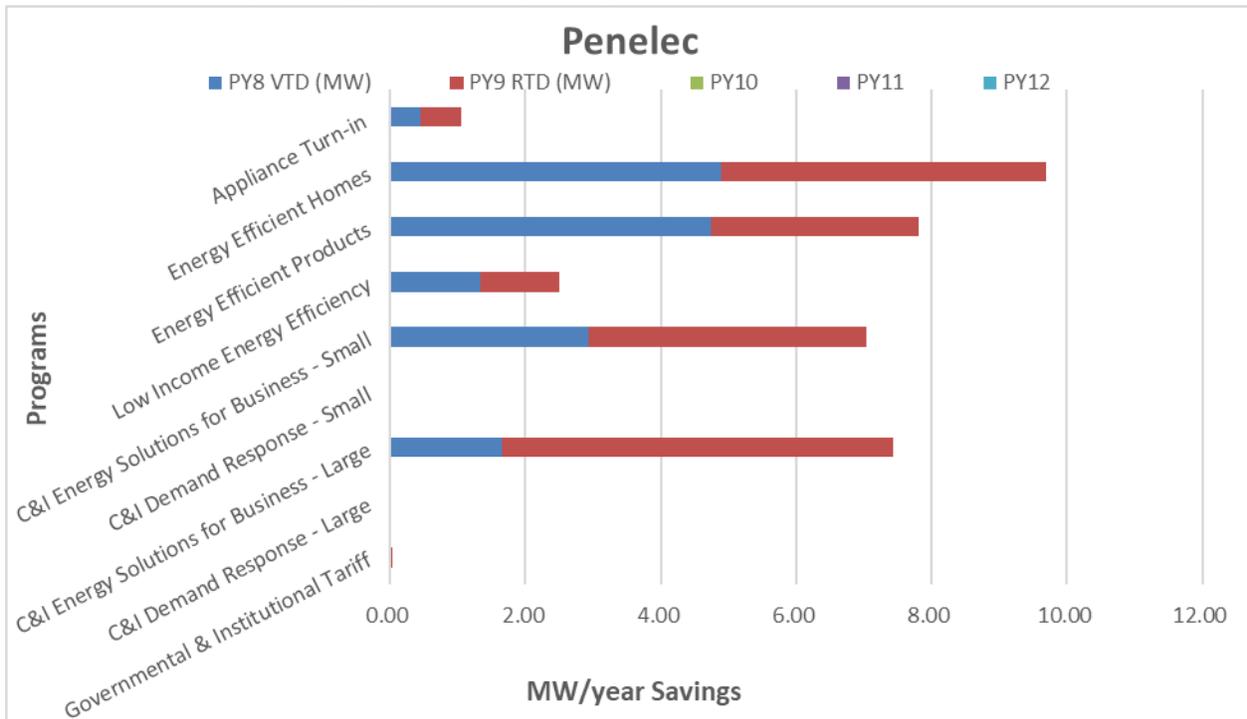
Figures 10A-10D: PSA Demand Savings by Energy Efficiency Program for Phase III<sup>11</sup>

Figure 10A: PSA Demand Savings by Energy Efficiency Program for Phase III – Met-Ed

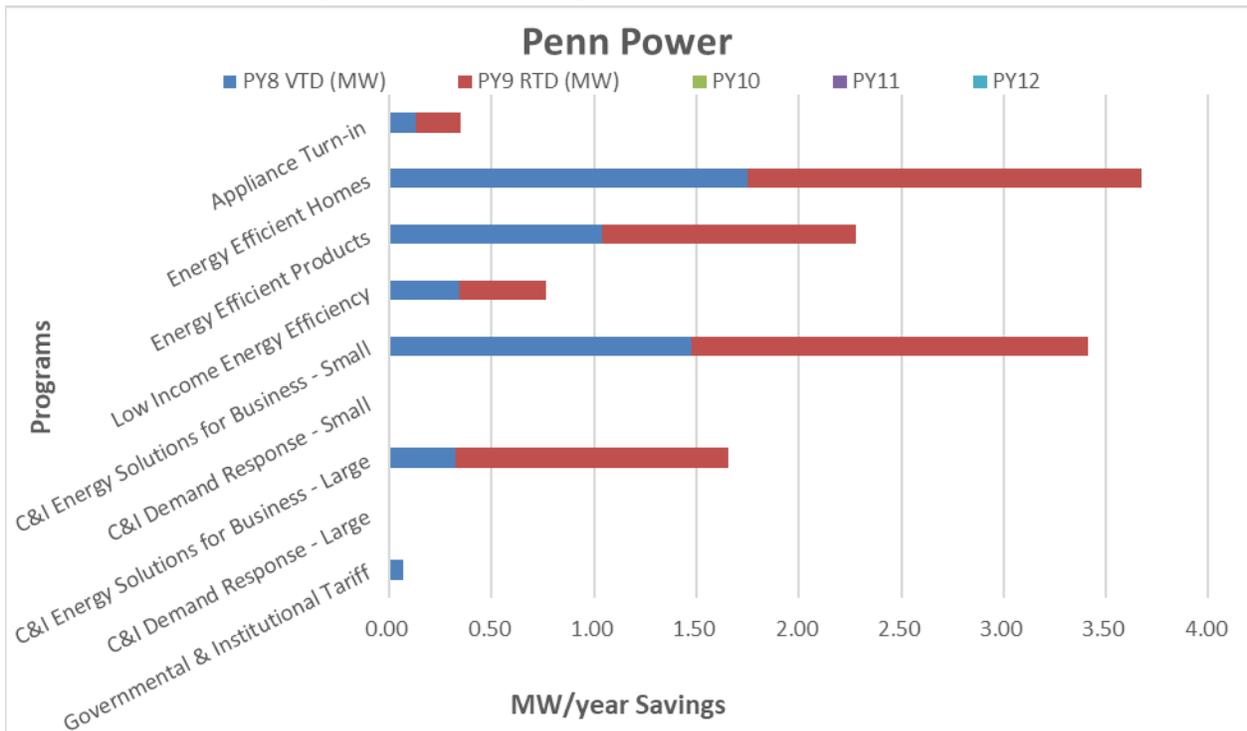


<sup>11</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

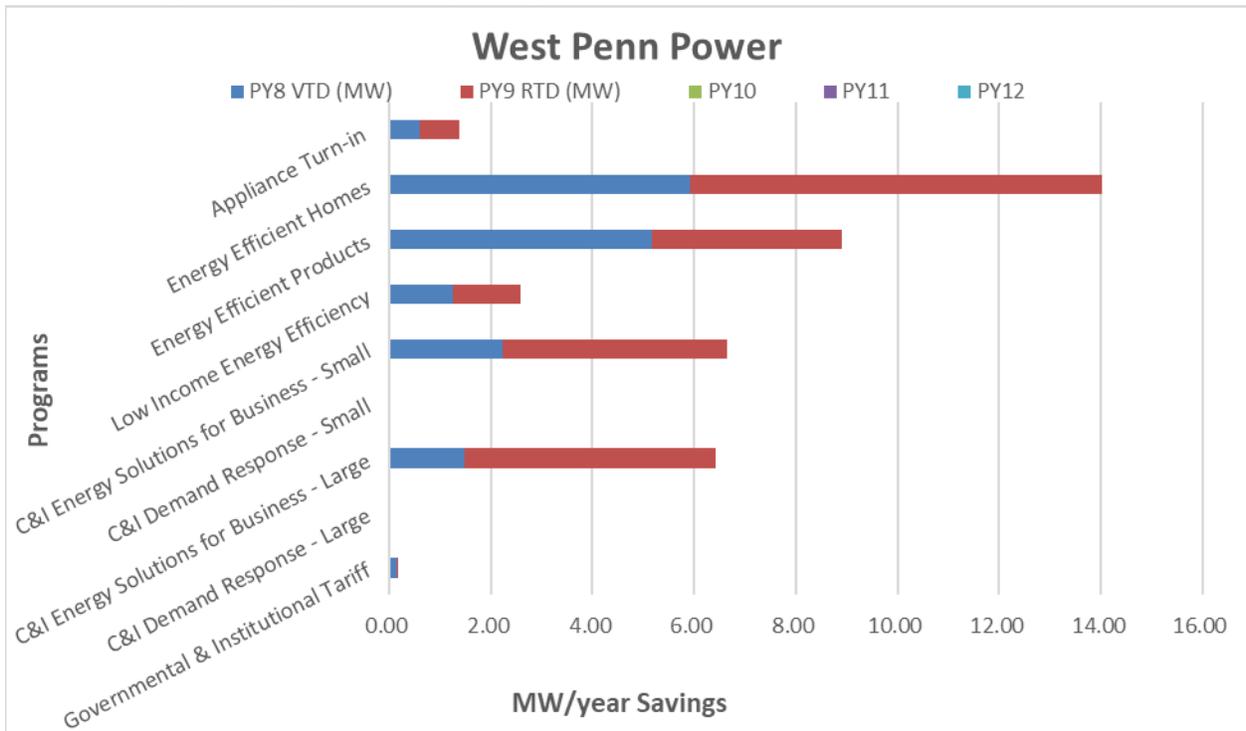
**Figure 10B: PSA Demand Savings  
by Energy Efficiency Program for Phase III – Penelec**



**Figure 10C: PSA Demand Savings  
by Energy Efficiency Program for Phase III – Penn Power**



**Figure 10D: PSA Demand Savings  
by Energy Efficiency Program for Phase III – West Penn Power**



## 6.2 DEMAND RESPONSE

Act 129 defines peak demand savings from demand response as the average reduction in electric demand during the hours when a demand response event is initiated. Phase III DR Events are initiated according to the following guidelines:

- 1) Curtailment events shall be limited to the months of June through September.
- 2) Curtailment events shall be called for the first six days of each program year (starting in PY9) in which the peak hour of PJM’s day-ahead forecast for the PJM RTO is greater than 96% of the PJM RTO summer peak demand forecast for the months of June through September.
- 3) Each curtailment event shall last four contiguous hours.
- 4) Each curtailment event shall be called such that it will occur during the day’s forecasted peak hour(s) above 96% of PJM’s RTO summer peak demand forecast.
- 5) Once six curtailment events have been called in a program year, the peak demand reduction program shall be suspended for that program year.

The peak demand impacts from demand response in this report are presented at the system level and reflect adjustments to account for transmission and distribution losses. FirstEnergy uses the following line loss percentages/multipliers by sector.

Sector	Met-Ed	Penelec	Penn Power	West Penn Power
Residential	1.0945	1.0945	1.0949	1.0943
Small C&I	1.0720	1.0720	1.0545	1.0790
Large C&I	1.0720	1.0720	1.0545	1.0790

Table 6-2 summarizes the PYVTD and VTD demand reductions for each of the demand response programs in the EE&C plan and for the demand response portfolio as a whole. VTD demand reductions are the average performance across all Phase III demand response events independent of how many events occurred in a given program year. The relative precision columns in Table 6-2 indicate the margin of error (at the 90% confidence interval) around the PYVTD and VTD demand reductions.

**Table 6-2: Verified Gross Demand Response Impacts by Program**

	<b>Program</b>	<b>PYVTD Gross MW</b>	<b>Relative Precision (90%)</b>	<b>VTD Gross MW</b>	<b>Relative Precision (90%)</b>
<b>Met-Ed</b>	<b>Energy Efficient Homes</b>	n/a	n/a	n/a	n/a
	<b>C&amp;I Demand Response - Small</b>	2.7	7.4%	2.7	7.4%
	<b>C&amp;I Demand Response - Large</b>	43.3	8.3%	43.3	8.3%
	<b>Portfolio Total</b>	46.0	7.9%	46.0	7.9%
	<b>Portfolio Total (Confidence Interval)</b>	(42.3-49.6)		(42.3-49.6)	
<b>Penn Power</b>	<b>Energy Efficient Homes</b>	2.2	28.6%	2.2	28.6%
	<b>C&amp;I Demand Response - Small</b>	0.2	50.0%	0.2	50.0%
	<b>C&amp;I Demand Response - Large</b>	31.1	58.1%	31.1	58.1%
	<b>Portfolio Total</b>	33.5	54.0%	33.5	54.0%
	<b>Portfolio Total (Confidence Interval)</b>	(15.4-51.5)		(15.4-51.5)	
<b>West Penn Power</b>	<b>Energy Efficient Homes</b>	n/a	n/a	n/a	n/a
	<b>C&amp;I Demand Response - Small</b>	2.7	37.0%	2.7	37.0%
	<b>C&amp;I Demand Response - Large</b>	79.2	37.8%	79.2	37.8%
	<b>Portfolio Total</b>	81.9	36.6%	81.9	36.6%
	<b>Portfolio Total (Confidence Interval)</b>	(52.0-111.8)		(52.0-111.8)	

## Section 7 Summary of Finances

Section 7 provides an overview of the expenditures associated with the FirstEnergy EDCs' portfolios and the recovery of those costs from ratepayers.

### 7.1 PROGRAM FINANCIALS

Program-specific and portfolio total finances for PY9 are shown in **Table 7-1A to 7-1D**.<sup>12</sup> The columns in these tables are adapted from the 'Direct Program Cost' categories in the Commission's EE&V Plan template<sup>13</sup> for Phase III. EDC Materials, Labor, and Administration includes costs associated with an EDC's own employees. ICSP Materials, Labor, and Administration includes both the program implementation contractor and the costs of any other outside vendors and EDCs employs to support program delivery.

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<sup>12</sup> Any negative values reflected within this section are due to issues such as, but not limited to, reversals of prior period accruals, accounting journal entries, and/or revenues received from participation in historic capacity auctions during prior Phases of Act 129.

<sup>13</sup> <http://www.puc.pa.gov/pcdocs/1372426.doc> Section 10

Table 7-1A to 7-1D: Program Year to Date Financials<sup>14</sup>

## Table 7-1A: Program Year to Date Financials – Met-Ed

Program	Incentives to Participants and Trade Allies	EDC Materials, Labor, and Administration	ICSP Materials, Labor, and Administration	EM&V	Total EDC Cost
<i>Appliance Turn-in</i>	\$272,900	\$44,397	\$675,679	\$19,217	\$1,012,193
<i>Energy Efficient Homes</i>	\$3,292,523	\$144,090	\$1,865,418	\$145,348	\$5,447,379
<i>Energy Efficient Products</i>	\$1,711,041	\$5,686	\$736,324	\$110,462	\$2,563,513
<i>Low Income Energy Efficiency</i>	\$133,412	\$256,133	\$2,962,258	\$141,528	\$3,493,331
<i>C&amp;I Energy Solutions for Business - Small</i>	\$1,458,389	\$95,454	\$945,615	\$175,660	\$2,675,117
<i>C&amp;I Demand Response - Small</i>	\$1,172	\$15,197	\$65,493	\$7,596	\$89,459
<i>C&amp;I Energy Solutions for Business - Large</i>	\$1,497,119	\$57,004	\$776,543	\$194,719	\$2,525,385
<i>C&amp;I Demand Response - Large</i>	\$28,748	\$136,106	\$729,346	\$68,091	\$962,291
<i>Governmental &amp; Institutional Tariff</i>	\$31,650	\$7,195	\$40,187	\$16,824	\$95,856
<i>Common Portfolio Costs</i>					\$0
<i>Total Portfolio</i>	\$8,426,955	\$761,261	\$8,796,864	\$879,444	\$18,864,524
<i>SWE Costs</i>	\$0	\$0	\$0	\$0	\$256,000
<i>Total</i>	\$8,426,955	\$761,261	\$8,796,864	\$879,444	\$19,120,524

<sup>14</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

**Table 7-1B: Program Year to Date Financials – Penelec**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<b><i>Appliance Turn-in</i></b>	\$234,475	\$48,342	\$599,020	\$20,790	\$902,627
<b><i>Energy Efficient Homes</i></b>	\$2,601,076	\$136,311	\$1,611,188	\$137,286	\$4,485,862
<b><i>Energy Efficient Products</i></b>	\$1,485,866	\$5,837	\$732,150	\$108,665	\$2,332,518
<b><i>Low Income Energy Efficiency</i></b>	\$86,259	\$305,334	\$2,823,581	\$160,707	\$3,375,880
<b><i>C&amp;I Energy Solutions for Business - Small</i></b>	\$1,569,625	\$112,774	\$810,530	\$182,199	\$2,675,128
<b><i>C&amp;I Demand Response - Small</i></b>	\$0	\$0	\$0	\$0	\$0
<b><i>C&amp;I Energy Solutions for Business - Large</i></b>	\$2,197,928	\$84,526	\$1,013,235	\$170,579	\$3,466,269
<b><i>C&amp;I Demand Response - Large</i></b>	\$0	\$0	\$0	\$0	\$0
<b><i>Governmental &amp; Institutional Tariff</i></b>	\$57,070	\$12,008	\$77,011	\$23,883	\$169,972
<b><i>Common Portfolio Costs</i></b>					\$0
<b><i>Total Portfolio</i></b>	\$8,232,299	\$705,132	\$7,666,714	\$804,110	\$17,408,256
<b><i>SWE Costs</i></b>	\$0	\$0	\$0	\$0	\$232,000
<b><i>Total</i></b>	\$8,232,299	\$705,132	\$7,666,714	\$804,110	\$17,640,256

**Table 7-1C: Program Year to Date Financials – Penn Power**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<b><i>Appliance Turn-in</i></b>	\$86,125	\$11,129	\$240,445	\$4,769	\$342,469
<b><i>Energy Efficient Homes</i></b>	\$1,032,935	\$50,093	\$720,624	\$98,458	\$1,902,110
<b><i>Energy Efficient Products</i></b>	\$527,624	<b>(\$9,368)</b>	\$209,508	\$23,194	\$750,958
<b><i>Low Income Energy Efficiency</i></b>	\$50,629	\$110,334	\$992,968	\$51,765	\$1,205,697
<b><i>C&amp;I Energy Solutions for Business - Small</i></b>	\$725,988	\$35,466	\$325,546	\$43,396	\$1,130,396
<b><i>C&amp;I Demand Response - Small</i></b>	\$0	\$6,619	\$23	\$2,596	\$9,238
<b><i>C&amp;I Energy Solutions for Business - Large</i></b>	\$509,701	\$25,875	\$235,766	\$36,879	\$808,221
<b><i>C&amp;I Demand Response - Large</i></b>	\$231,282	\$59,217	\$229,807	\$23,274	\$543,581
<b><i>Governmental &amp; Institutional Tariff</i></b>	\$37,160	\$943	\$25,614	\$5,724	\$69,441
<b><i>Common Portfolio Costs</i></b>					\$0
<b><i>Total Portfolio</i></b>	\$3,201,444	\$290,309	\$2,980,302	\$290,056	\$6,762,111
<b><i>SWE Costs</i></b>	\$0	\$0	\$0	\$0	\$72,000
<b><i>Total</i></b>	\$3,201,444	\$290,309	\$2,980,302	\$290,056	\$6,834,111

**Table 7-1D: Program Year to Date Financials - West Penn Power**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<i>Appliance Turn-in</i>	\$307,650	\$44,959	\$754,330	\$19,350	\$1,126,289
<i>Energy Efficient Homes</i>	\$3,259,995	\$182,814	\$1,891,042	\$145,881	\$5,479,732
<i>Energy Efficient Products</i>	\$1,828,797	\$27,337	\$914,491	\$121,683	\$2,892,308
<i>Low Income Energy Efficiency</i>	\$98,798	\$269,881	\$2,571,634	\$154,203	\$3,094,515
<i>C&amp;I Energy Solutions for Business - Small</i>	\$1,668,138	\$103,644	\$1,001,214	\$190,816	\$2,963,812
<i>C&amp;I Demand Response - Small</i>	\$2,265	\$18,513	\$19,115	\$9,582	\$49,475
<i>C&amp;I Energy Solutions for Business - Large</i>	\$1,787,485	\$49,600	\$1,022,947	\$157,144	\$3,017,176
<i>C&amp;I Demand Response - Large</i>	\$573,904	\$165,934	\$785,200	\$86,203	\$1,611,241
<i>Governmental &amp; Institutional Tariff</i>	\$481,523	\$6,678	\$268,935	\$21,235	\$778,370
<b>Common Portfolio Costs</b>					\$0
<b>Total Portfolio</b>	\$10,008,555	\$869,359	\$9,228,908	\$906,097	\$21,012,919
<b>SWE Costs</b>	\$0	\$0	\$0	\$0	\$240,000
<b>Total</b>	\$10,008,555	\$869,359	\$9,228,908	\$906,097	\$21,252,919

Program-specific and portfolio total finances since the inception of Phase III are shown in Table 7-2A to 7-2D.

**Table 7-2A to 7-2D: Phase III to Date Financials<sup>15</sup>**

**Table 7-2A: Phase III to Date Financials- Met-Ed**

Program	Incentives to Participants and Trade Allies	EDC Materials, Labor, and Administration	ICSP Materials, Labor, and Administration	EM&V	Total EDC Cost
<i>Appliance Turn-in</i>	\$501,300	\$96,924	\$1,208,589	\$49,576	\$1,856,389
<i>Energy Efficient Homes</i>	\$5,926,635	\$369,303	\$4,898,136	\$209,344	\$11,403,418
<i>Energy Efficient Products</i>	\$3,225,321	\$33,718	\$1,570,977	\$178,543	\$5,008,559
<i>Low Income Energy Efficiency</i>	\$191,679	\$534,939	\$5,862,353	\$197,866	\$6,786,837
<i>C&amp;I Energy Solutions for Business - Small</i>	\$2,094,070	\$234,663	\$1,588,785	\$241,232	\$4,158,750
<i>C&amp;I Demand Response - Small</i>	\$1,172	\$31,044	\$80,885	\$11,545	\$124,646
<i>C&amp;I Energy Solutions for Business - Large</i>	\$3,038,898	\$133,398	\$1,776,420	\$275,540	\$5,224,255
<i>C&amp;I Demand Response - Large</i>	\$28,748	\$278,118	\$867,869	\$103,687	\$1,278,423
<i>Governmental &amp; Institutional Tariff</i>	\$45,457	\$282	\$75,880	\$29,513	\$151,132
<b>Common Portfolio Costs</b>					\$0
<b>Total Portfolio</b>	\$15,053,279	\$1,712,388	\$17,929,894	\$1,296,847	\$35,992,408
<b>SWE Costs</b>	\$0	\$0	\$0	\$0	\$703,987
<b>Total</b>	\$15,053,279	\$1,712,388	\$17,929,894	\$1,296,847	\$36,696,395

<sup>15</sup> Results for the Small & Large Energy Solutions for Business programs include GNI customers who participated in these programs.

**Table 7-2B: Phase III to Date Financials- Penelec**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<i>Appliance Turn-in</i>	\$431,925	\$107,341	\$1,116,011	\$53,776	\$1,709,053
<i>Energy Efficient Homes</i>	\$5,116,437	\$362,368	\$4,583,959	\$192,203	\$10,254,967
<i>Energy Efficient Products</i>	\$3,091,334	\$43,486	\$1,663,225	\$171,962	\$4,970,007
<i>Low Income Energy Efficiency</i>	\$165,359	\$646,338	\$5,733,964	\$223,109	\$6,768,770
<i>C&amp;I Energy Solutions for Business - Small</i>	\$2,621,555	\$295,280	\$1,557,801	\$253,947	\$4,728,583
<i>C&amp;I Demand Response - Small</i>	\$0	\$0	\$0	\$0	\$0
<i>C&amp;I Energy Solutions for Business - Large</i>	\$2,942,033	\$167,119	\$1,637,703	\$245,677	\$4,992,532
<i>C&amp;I Demand Response - Large</i>	\$0	\$0	\$0	\$0	\$0
<i>Governmental &amp; Institutional Tariff</i>	\$99,998	\$17,894	\$147,021	\$45,590	\$310,503
<b>Common Portfolio Costs</b>					\$0
<b>Total Portfolio</b>	\$14,468,640	\$1,639,826	\$16,439,684	\$1,186,264	\$33,734,415
<b>SWE Costs</b>	\$0	\$0	\$0	\$0	\$638,000
<b>Total</b>	\$14,468,640	\$1,639,826	\$16,439,684	\$1,186,264	\$34,372,415

**Table 7-2C: Phase III to Date Financials- Penn Power**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<b><i>Appliance Turn-in</i></b>	\$150,875	\$24,943	\$436,151	\$12,135	\$624,103
<b><i>Energy Efficient Homes</i></b>	\$1,859,197	\$152,702	\$1,422,530	\$121,686	\$3,556,116
<b><i>Energy Efficient Products</i></b>	\$899,216	<b>(\$19,015)</b>	\$355,424	\$36,812	\$1,272,436
<b><i>Low Income Energy Efficiency</i></b>	\$73,464	\$223,274	\$1,780,577	\$70,993	\$2,148,308
<b><i>C&amp;I Energy Solutions for Business - Small</i></b>	\$1,216,532	\$68,578	\$586,328	\$61,138	\$1,932,577
<b><i>C&amp;I Demand Response - Small</i></b>	\$0	\$12,526	\$3,408	\$3,950	\$19,884
<b><i>C&amp;I Energy Solutions for Business - Large</i></b>	\$677,400	\$45,909	\$366,522	\$53,279	\$1,143,110
<b><i>C&amp;I Demand Response - Large</i></b>	\$231,282	\$112,142	\$260,275	\$35,414	\$639,114
<b><i>Governmental &amp; Institutional Tariff</i></b>	\$109,638	\$1,842	\$72,883	\$10,335	\$194,698
<b><i>Common Portfolio Costs</i></b>					\$0
<b><i>Total Portfolio</i></b>	\$5,217,605	\$622,899	\$5,284,099	\$405,742	\$11,530,345
<b><i>SWE Costs</i></b>	\$0	\$0	\$0	\$0	\$198,000
<b><i>Total</i></b>	\$5,217,605	\$622,899	\$5,284,099	\$405,742	\$11,728,345

**Table 7-2D: Phase III to Date Financials- West Penn Power**

<b>Program</b>	<b>Incentives to Participants and Trade Allies</b>	<b>EDC Materials, Labor, and Administration</b>	<b>ICSP Materials, Labor, and Administration</b>	<b>EM&amp;V</b>	<b>Total EDC Cost</b>
<i>Appliance Turn-in</i>	\$568,225	\$102,824	\$1,408,011	\$49,192	\$2,128,251
<i>Energy Efficient Homes</i>	\$5,128,347	\$444,270	\$5,028,735	\$204,146	\$10,805,497
<i>Energy Efficient Products</i>	\$3,562,522	\$119,769	\$1,932,745	\$185,936	\$5,800,972
<i>Low Income Energy Efficiency</i>	\$159,131	\$546,343	\$5,656,727	\$213,620	\$6,575,821
<i>C&amp;I Energy Solutions for Business - Small</i>	\$2,445,697	\$265,939	\$1,772,978	\$257,139	\$4,741,752
<i>C&amp;I Demand Response - Small</i>	\$2,265	\$37,675	\$45,137	\$14,502	\$99,579
<i>C&amp;I Energy Solutions for Business - Large</i>	\$2,309,204	\$118,480	\$1,540,713	\$223,487	\$4,191,884
<i>C&amp;I Demand Response - Large</i>	\$573,904	\$338,529	\$1,019,403	\$130,491	\$2,062,327
<i>Governmental &amp; Institutional Tariff</i>	\$755,872	\$11,214	\$439,278	\$38,400	\$1,244,765
<b>Common Portfolio Costs</b>					\$0
<b>Total Portfolio</b>	\$15,505,167	\$1,985,044	\$18,843,727	\$1,316,912	\$37,650,849
<b>SWE Costs</b>	\$0	\$0	\$0	\$0	\$660,000
<b>Total</b>	\$15,505,167	\$1,985,044	\$18,843,727	\$1,316,912	\$38,310,849

Cost-effectiveness testing for Act 129 EE&C programs is performed using the TRC Test. Benefit cost modeling is conducted annually using verified gross and verified net savings once the results of the independent impact evaluation are completed. TRC test results for PY8 were presented in the final annual report to the PA PUC on November 15, 2017 along with a more granular breakdown of portfolio costs.

## 7.2 COST RECOVERY

Act 129 allows Pennsylvania EDCs to recover EE&C plan costs through a cost-recovery mechanism. FirstEnergy's cost-recovery charges are organized separately by five customer sectors to ensure that the electric rate classes that finance the programs are the rate

classes that receive the direct energy and conservation benefits. Cost-recovery is necessarily tied to the way customers are metered and charges for electric service. Readers should be mindful of the differences between Table 2-7 Section 2.4 and Tables 7-3A-7-3D EE&C Plan Expenditures by Cost-Recovery Category. For example, the low-income customer segment is a subset of the FirstEnergy EDCs' residential tariff(s) and therefore not listed in Tables 7-3A to 7-3D Plan Expenditures by Cost-Recovery Category.

### Table 7-3A to 7-3D: EE&C Plan Expenditures by Cost-Recovery Category<sup>16</sup>

#### Table 7-3A: EE&C Plan Expenditures by Cost-Recovery Category – Met-Ed

Operating Company	Cost Recovery Sector	Rate Classes Included	PYTD \$ Spending (\$1,000)	P3TD \$ Spending (\$1,000)
Met-Ed	Residential (incl. Low Income)	Rate RS	\$12,682	\$25,512
	Small C&I	Rate GS-Small, Rate GS-Medium, and Outdoor Lighting Service	\$2,802	\$4,389
	Large C&I	Rate GS-Large, Rate GP and Rate TP	\$3,538	\$6,639
	Street Lighting	Street Lighting Service, LED Street Lighting Service and Ornamental Street Lighting Service	\$48	\$72
	Government & Non-Profit Tariff	Rate GS - Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate and Rate MS	\$50	\$85
<b>Portfolio Total</b>			<b>\$19,121</b>	<b>\$36,696</b>

<sup>16</sup> Includes allocation of SWE costs in each Cost Recovery Sector.

**Table 7-3B: EE&C Plan Expenditures by Cost-Recovery Category – Penelec**

Operating Company	Cost Recovery Sector	Rate Classes Included	PYTD \$ Spending (\$1,000)	P3TD \$ Spending (\$1,000)
Penelec	Residential (incl. Low Income)	Rate RS	\$11,265	\$24,164
	Small C&I	Rate GS-Small, Rate GS-Medium, and Outdoor Lighting Service	\$2,712	\$4,833
	Large C&I	Rate GS-Large, Rate GP, and Rate LP	\$3,490	\$5,057
	Street Lighting	Street Lighting Service, LED Street Lighting Service, and Ornamental Street Lighting Service	\$80	\$141
	Government & Non-Profit Tariff	Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate and Rate H	\$93	\$177
<b>Portfolio Total</b>			\$17,640	\$34,372

**Table 7-3C: EE&C Plan Expenditures by Cost-Recovery Category – Penn Power**

Operating Company	Cost Recovery Sector	Rate Classes Included	PYTD \$ Spending (\$1,000)	P3TD \$ Spending (\$1,000)
Penn Power	Residential (incl. Low Income)	Rate RS	\$4,249	\$7,730
	Small C&I	Rate GS, GS Special Rider GSDS, Rate GM, Rate GS-Large and POL	\$1,150	\$1,982
	Large C&I	Rate GP, and Rate GT	\$1,366	\$1,820
	Street Lighting	Rate Schedules SV, SVD, SM and LED	\$53	\$162
	Government & Non-Profit Tariff	Rate GS – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate and Rate PNP	\$18	\$35
<b>Portfolio Total</b>			\$6,834	\$11,728

**Table 7-3D: EE&C Plan Expenditures by Cost-Recovery Category –  
West Penn Power**

<b>Operating Company</b>	<b>Cost Recovery Sector</b>	<b>Rate Classes Included</b>	<b>PYTD \$ Spending (\$1,000)</b>	<b>P3TD \$ Spending (\$1,000)</b>
<b>West Penn Power</b>	<b>Residential (incl. Low Income)</b>	Rate 10	\$12,746	\$25,731
	<b>Small C&amp;I</b>	Rates GS 20, GS 30	\$3,051	\$4,947
	<b>Large C&amp;I</b>	Rates GS 35, 40, 44, 46, and Tariff No. 38	\$4,675	\$6,381
	<b>Street Lighting</b>	Rate Schedules 51 through 58, 71, 72	\$710	\$1,110
	<b>Government &amp; Non-Profit Tariff</b>	Rate GS 20 – Volunteer Fire Company, and Non-Profit Ambulance Service, Rescue Squad and Senior Center Service Rate	\$71	\$142
<b>Portfolio Total</b>			\$21,253	\$38,311

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