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July 16, 2018

**Via Federal Express**

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

**RECEIVED**

JUL 16 2018

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Re: PUC Docket No. M-2015-2515691  
Phase III Energy Efficiency and Conservation Program Semiannual Report for June  
1, 2017 through May 31, 2018**

Dear Secretary Chiavetta:

In accordance with Section IV.E.2 of the Commission's Opinion and Order Letter dated March 17, 2016 (Docket No. M-2015-2515691), enclosed is PECO's Phase III Semiannual Energy Efficiency & Conservation Report for the period June 1, 2017 through May 31, 2018.

PECO is providing a copy of the report to the Act 129 Statewide Evaluator (NMR Group) and is also posting the report on the PECO website.

Please acknowledge receipt of the foregoing on the enclosed copy of this letter.

If you have any further questions regarding this matter, please call me at 215-841-5777.

Sincerely,



cc: C. Walker-Davis, Director, Office of Special Assistants  
P. T. Diskin, Director, Bureau of Technical Utility Services  
K. Monaghan, Director, Bureau of Audits  
R. Kanaskie, Director, Bureau of Investigation & Enforcement  
Office of Consumer Advocate  
Office of Small Business Advocate  
McNees, Wallace & Nurick

Enclosures

# NAVIGANT

## Semiannual 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 for:**



An Exelon Company

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PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**Submitted by:**  
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July 16, 2018

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## ACRONYMS

AC	Air Conditioner
BDR	Behavioral Demand Response
C&I	Commercial and Industrial
CFL	Compact Fluorescent Lamp
CHP	Combined Heat and Power
CSP	Conservation Service Provider or Curtailment Service Provider
DLC	Direct Load Control
DR	Demand Response
DRA	Demand Response Aggregator
EDC	Electric Distribution Company
EDT	Eastern Daylight Time
EE	Energy Efficiency
EE&C	Energy Efficiency and Conservation
EM&V	Evaluation, Measurement, and Verification
EPA	Environmental Protection Agency
EUL	Effective Useful Life
G/E/NP	Government/Education/Non-Profit
HVAC	Heating, Ventilation, and Air Conditioning
ICSP	Implementation Conservation Service Provider
kW	Kilowatt
kWh	Kilowatt-Hour
LED	Light-Emitting Diode
LI	Low-Income
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 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
PYTD	Program Year to Date
PYVTD	Program Year Verified to Date
RTD	Phase III to Date Reported Gross Savings
RTO	Regional Transmission Organization
SKU	Stock Keeping Unit

SWE	Statewide Evaluator
T&D	Transmission and Distribution
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 Energy Efficiency and Conservation (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 estimate 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 electric distribution company (EDC) or its program implementation conservation service provider (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 measurement and verification (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 megawatt-hours (MWh) or megawatts (MW). The Pennsylvania Technical Reference Manual (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 (EUL). The Total Resource Cost (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 semiannual 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 Program Year 9 (PY9), the PSA savings will equal the PYTD savings and the verified savings from PY8.
- **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.

Per guidance from the Pennsylvania Statewide Evaluator (SWE), all demand savings that were achieved from energy efficiency measures are shown in this report without line losses (i.e., at the meter). All demand savings that were achieved from demand response (DR) measures are shown in this report with line losses (i.e., at the generator).

***Note that all values in the report are summed prior to rounding. Therefore, table totals may not equal the sum of all rows.***

## 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 Pennsylvania Public Utility Commission (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 of the Phase III EE&C accomplishments for PECO in Program Year 9 (PY9), as well as the cumulative accomplishments of the Phase III programs since inception. This report also documents the energy savings carried over from Phase II. The Phase II carryover savings count toward EDC savings compliance targets for Phase III.

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

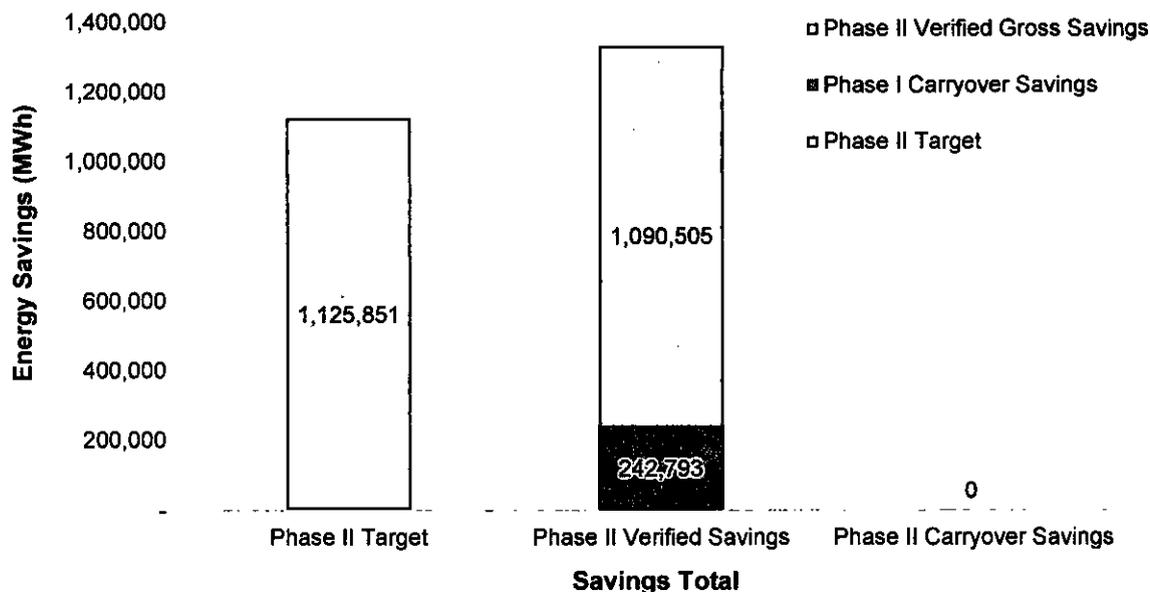
Phase III of Act 129 includes a demand response (DR) goal for PECO. DR events are limited to the months of June through September, which are the first 4 months of the Act 129 program year. Because the DR season is completed early in the program year, it is possible to complete the independent evaluation of verified gross savings for DR sooner than is possible for EE programs. Section 6.2 of this report includes the verified gross DR impacts for PY9 and the cumulative DR performance of the EE&C program to date for Phase III of Act 129.

## 2. SUMMARY OF ACHIEVEMENTS

### 2.1 Carryover Savings from Phase II of Act 129

PECO has reported zero portfolio-level carryover savings from Phase II to Phase III. The Commission's Phase III Implementation Order<sup>1</sup> allowed EDCs to carryover savings achieved within Phase II that were in excess of the Phase II portfolio savings target. Phase I carryover savings cannot be counted in the calculation of Phase II carryover savings. Figure 2-1 compares PECO's Phase II verified gross savings total to the Phase II compliance target to illustrate the carryover calculation. Because PECO's Phase II verified gross savings did not exceed PECO's Phase II target, they were not eligible to carry over savings from Phase II toward their Phase III overall compliance target.<sup>2</sup>

Figure 2-1. Carryover Savings from Phase II of Act 129



Sources: PECO's eTrack database, Conservation Service Provider (CSP) tracking data

The Commission's Phase III Implementation Order<sup>3</sup> also allowed EDCs to carry over savings in excess of the Phase II government, educational, and non-profit (G/E/NP) savings goal and excess savings from the low-income customer segment.<sup>4</sup> PECO carried over 0 MWh of G/E/NP and 0 MWh of low-income

<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.

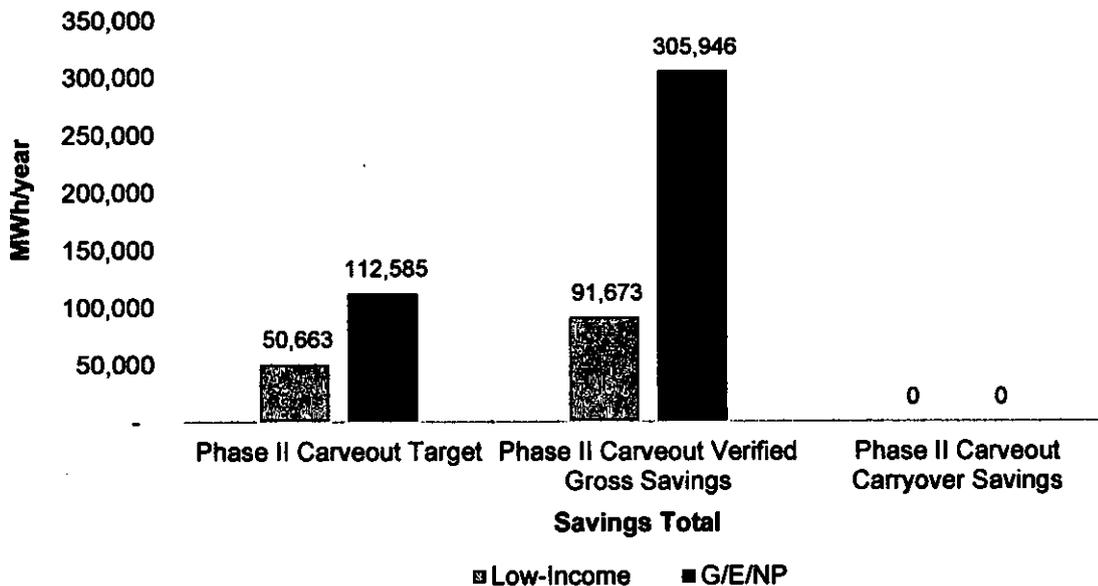
<sup>2</sup> Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Compliance Order*, at Docket No. M-2012-2289411, (*Phase II Compliance Determination Order*), entered August 3, 2017.

<sup>3</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>4</sup> Proportionate to those savings achieved by dedicated low-income programs in Phase III.

customer segment savings.<sup>5</sup> Figure 2-2 shows the calculation of carryover savings for the low-income and G/E/NP targets.<sup>6</sup>

**Figure 2-2. Customer Segment-Specific Carryover from Phase II**



Sources: PECO's eTrack database, CSP tracking data

## 2.2 Phase III Energy Efficiency Achievements to Date

Since the beginning of PY9 on June 1, 2017, PECO has claimed:

- 398,757 MWh of reported gross electric energy savings (PYRTD)
- 42.11 MW of reported gross peak demand savings (PYRTD) from EE programs

Since the beginning of Phase III of Act 129 on June 1, 2016, PECO has achieved:

- 610,289 MWh of reported gross electric energy savings (RTD)
- 62.91 MW of reported gross peak demand savings (RTD) from EE programs
- 609,445 MWh of gross electric energy savings (PSA)
  - This total includes verified gross savings from all Phase III program years and the PYTD reported gross savings from PY9
- 70.75 MW of gross peak demand savings (PSA) from EE programs

Including carryover savings from Phase II, PECO has achieved:

- 609,445 MWh of PSA+CO energy savings recorded to date in Phase III

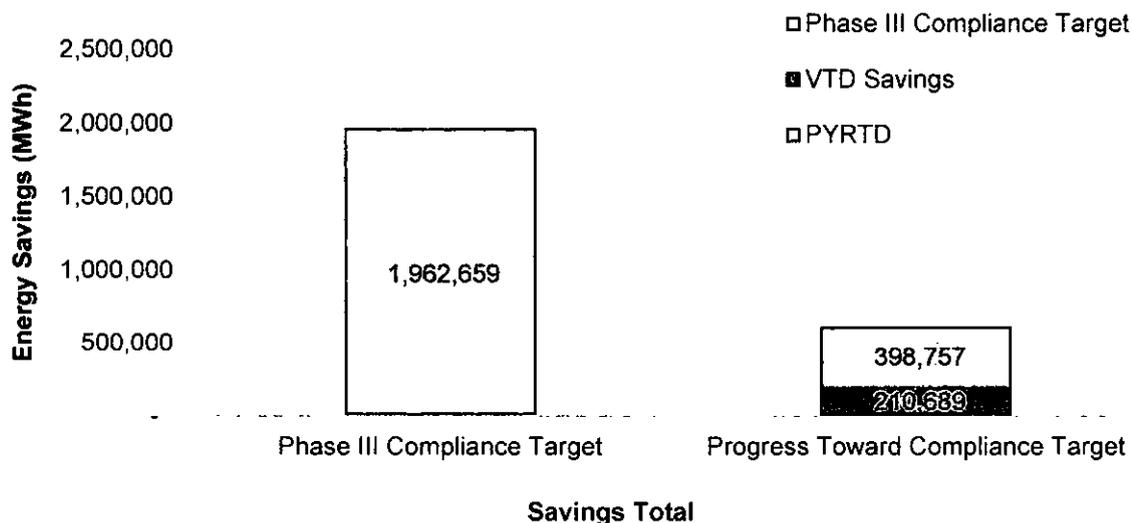
<sup>5</sup> Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Compliance Order*, at Docket No. M-2012-2289411, (*Phase II Compliance Determination Order*), entered August 3, 2017.

<sup>6</sup> Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Compliance Order*, 2017.

- This represents 31.0% of the May 31, 2021 energy savings compliance target of 1,962,659 MWh

Figure 2-3 summarizes PECO's progress toward the Phase III portfolio compliance target.

**Figure 2-3. EE&C Plan Performance Toward Phase III Portfolio Compliance Target**

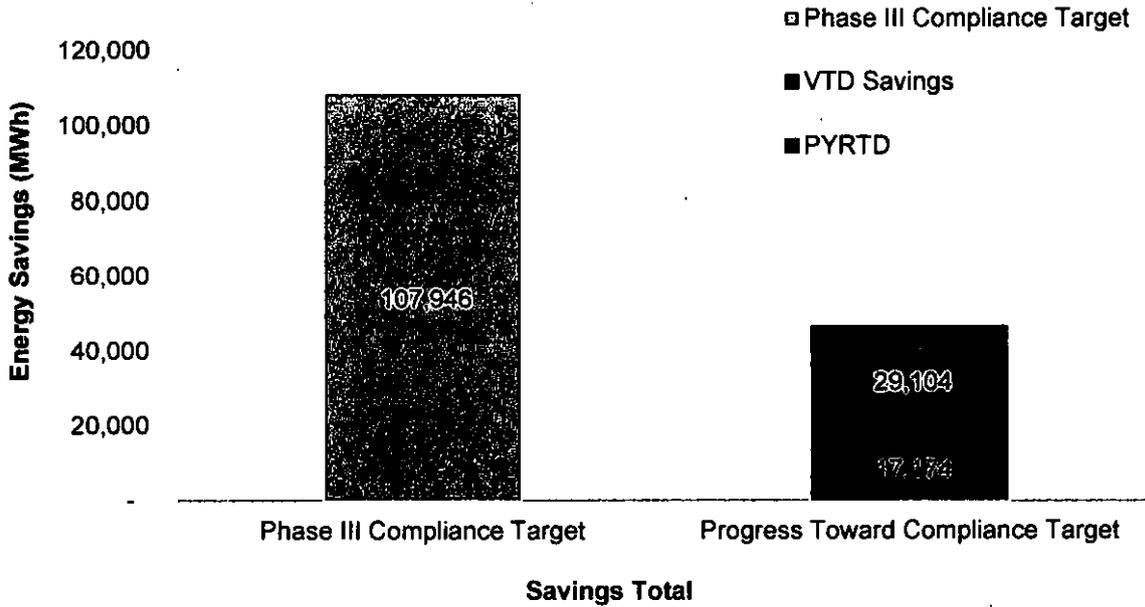


Sources: PECO's eTrack, CSP tracking data

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 targeted for PECO is 8.8%. PECO offers a total of 269 EE&C measures to its residential and non-residential customer classes. There are 117 measures available to the low-income customer segment at no cost to the customer. This represents 43.5% of the total measures offered in the EE&C Plan and exceeds the proportionate number of measures target.

The PA PUC also established a low-income energy savings target of 5.5% of the portfolio savings goal. The Phase III low-income savings target for PECO is 107,946 MWh. Figure 2-4 compares the PSA+CO performance to date for the low-income customer segment to the Phase III savings target. Based on the latest available information, PECO has achieved 42.9% of the Phase III low-income energy savings target.

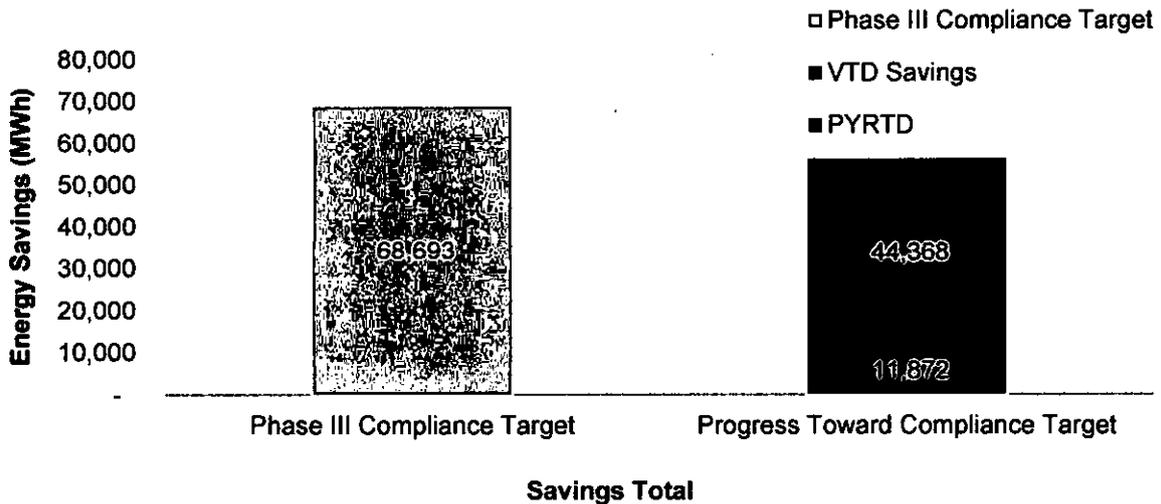
**Figure 2-4. EE&C Plan Performance Toward Phase III Low-Income Compliance Target**



Sources: PECO's eTrack database, CSP tracking data

The Phase III Implementation Order established a G/E/NP energy savings target of 3.5% of the portfolio savings goal. The G/E/NP savings target for PECO is 68,693 MWh. Figure 2-5 compares the PSA+CO performance to date for the G/E/NP customer segment to the Phase III savings target. Based on the latest available information, PECO has achieved 81.9% of the Phase III G/E/NP energy savings target.

**Figure 2-5. EE&C Plan Performance Against Phase III G/E/NP Compliance Target**



Sources: PECO's eTrack database, CSP tracking data

### 2.3 Phase III DR Achievements to Date

The Phase III DR performance target for PECO is 161.0 MW. Compliance targets for DR programs are based on average performance across events and are established at the system level, which means the load reductions measured at the customer meter must be escalated to reflect transmission and distribution (T&D) losses.

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, a DR event is initiated for the following day.

In PY9, PECO called three DR events, one on June 13, July 20, and July 21. The average performance for these three events is presented in Table 2-1. Note that the impact results reported in this table differ from those reported in the PY9 semiannual report delivered in January 2018. Navigant recently completed a re-analysis of the impact evaluation for all DR programs. The full methodology and results are available in the standalone DR report, submitted to the Statewide Evaluator (SWE) on June 13, 2018.

**Table 2-1. Summary of Verified Demand Savings for DR by Customer Segment**

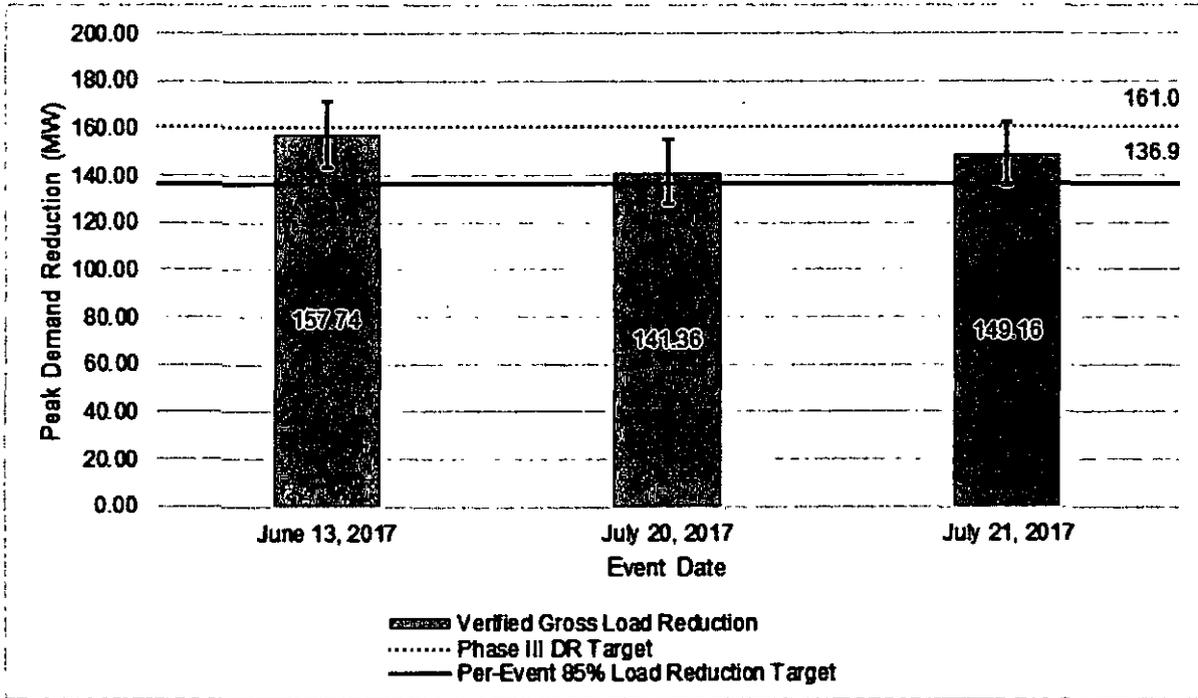
Event	Hour Ending (HE)	Residential DR Program (Verified MW)	Small C&I DR Program (Verified MW)	Large C&I DR Program (Verified MW)	Average Portfolio (Verified MW)
Event 1 June 13, 2017	HE15	37.16	0.00	116.60	153.76
	HE16	39.03	0.00	136.59	175.63
	HE17	38.29	0.00	125.58	163.87
	HE18	43.63	0.00	94.07	137.70
	<b>Average Event Impact by Program</b>	<b>39.53</b>	<b>0.00</b>	<b>118.21</b>	<b>157.74</b>
	<b>Error Margin at 90% CI</b>	<b>±1.77</b>	<b>±0.00</b>	<b>±13.81</b>	<b>±13.90</b>
Event 2 July 20, 2017	HE15	34.74	0.00	116.32	151.06
	HE16	34.07	0.00	118.73	152.79
	HE17	28.48	0.00	116.77	145.25
	HE18	36.65	0.00	79.71	116.36
	<b>Average Event Impact by Program</b>	<b>33.48</b>	<b>0.00</b>	<b>107.88</b>	<b>141.36</b>
	<b>Error Margin at 90% CI</b>	<b>±2.47</b>	<b>±0.00</b>	<b>±13.53</b>	<b>±13.75</b>
Event 3 July 21, 2017	HE14	22.76	0.00	104.00	126.76
	HE15	22.72	0.00	143.05	165.77
	HE16	24.19	0.00	132.03	156.22
	HE17	23.68	0.00	124.51	148.19
	<b>Average Event Impact by Program</b>	<b>23.34</b>	<b>0.00</b>	<b>125.83</b>	<b>149.16</b>
	<b>Error Margin at 90% CI</b>	<b>±1.83</b>	<b>±0.00</b>	<b>±13.31</b>	<b>±13.43</b>
<b>Average Program Year Impact (PYVTD)</b>		<b>32.12</b>	<b>0.00</b>	<b>117.31</b>	<b>149.42</b>
<b>Average Phase III Impact (VTD)*</b>					<b>149.42</b>

\*Average Phase III Impacts (VTD) are based on an average of all events and not an average of program years.

Source: Navigant analysis

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. For PECO, this translates to a 136.9 MW minimum for each DR event. Figure 2-6 compares the performance of each of the DR events in PY9 to the event-specific minimum and average targets.

**Figure 2-6. Event Performance Compared to 85% Per-Event Target**



Source: Navigant analysis

**2.4 Phase III Performance by Customer Segment**

Table 2-2 presents the participation, savings, and spending by customer sector for PY9. The residential, small commercial and industrial (C&I), and large C&I sectors are defined by EDC tariff, and the residential low-income and G/E/NP customer segment carve-outs are defined by statute (66 Pa. C.S. § 2806.1). The residential low-income segment is a subset, and not additive, of the residential customer class; however, some low-income savings may occur on a small C&I or large C&I meter due to participation of low-income occupants living in multifamily, master-metered buildings. Similar to the low-income segment, the G/E/NP customer segment will include customers who are part of the small C&I or large C&I rate classes and is not additive to the portfolio. Table 2-2 represents the cumulative savings, spending, and participation by customer sector, inclusive of all low-income and G/E/NP participation. Table 2-3 represents the savings, spending, and participation values for the low-income and G/E/NP customer segment carve-outs only.

Table 2-2. PY9 Summary Statistics by Customer Segment

Customer Segment	Parameter				
	No. of Participants	PYRTD MWh	PYRTD MW (EE)	PYVTD MW (DR)	Incentives (\$1,000)
Residential	1,541,813	263,553	23.73	32.12	11,206
Small C&I	3,382	49,697	6.24	0.00	2,387
Large C&I	748	85,507	12.15	117.30	3,871
<b>Total</b>	<b>1,545,943</b>	<b>398,757</b>	<b>42.11</b>	<b>149.42</b>	<b>17,464</b>

Sources: PECO's eTrack database, CSP tracking data

Table 2-3. PY9 Summary Statistics by Carve-Out

Carve-Out	Parameter				
	No. of Participants	PYRTD MWh	PYRTD MW (EE)	PYVTD MW (DR)	Incentives (\$1,000)
Low-Income	121,802	29,104	3.48	0.00	554
G/E/NP	352	44,368	4.76	0.00	2,536

Sources: PECO's eTrack database, CSP tracking data

Table 2-4 and Table 2-5 summarize plan performance by sector and customer segment carve-outs since the beginning of Phase III.

Table 2-4. Phase III Summary Statistics by Customer Segment

Customer Segment	Parameter				
	No. of Participants	PSA MWh	PSA MW (EE)	PSA MW (DR)	Incentives (\$1,000)
Residential	2,727,442	427,348	44.87	32.12	19,229
Small C&I	4,284	70,622	9.79	0.00	3,166
Large C&I	918	111,475	16.09	117.30	4,885
<b>Total</b>	<b>2,732,644</b>	<b>609,445</b>	<b>70.75</b>	<b>149.42</b>	<b>27,280</b>

Sources: PECO's eTrack database, CSP tracking data

Table 2-5. Phase III Summary Statistics by Carve-Out

Carve-Out	Parameter				
	No. of Participants	PSA MWh	PSA MW (EE)	PSA MW (DR)	Incentives (\$1,000)
Low-Income	186,187	46,278	5.39	0.00	905
G/E/NP	438	56,240	6.62	0.00	3,091

Sources: PECO's eTrack database, CSP tracking data

### 3. UPDATES AND FINDINGS

#### 3.1 Implementation Updates and Findings

This section summarizes PECO's EE&C Plan and program implementation updates, as well as findings available at the time of this report's writing.

- **Residential EE Program:** The PECO Residential EE Program is designed to offer residential customers opportunities to save energy across all their electric end uses and to market those opportunities in ways that minimize lost savings opportunities. The program encompasses a comprehensive series of solutions designed to influence customer behavior and purchasing decisions.
  - **Behavioral Solution:** Oracle implements the Behavioral Solution and has been active throughout PY8 and into PY9. Similar to PY8, the Behavioral Solution continues to represent a significant portion of the Residential EE Program reported savings.
  - **Lighting, Appliance & HVAC Solution:** The Lighting, Appliance & HVAC Solution, implemented by CLEAResult, continues to represent a significant portion of the Residential EE Program's reported savings, with the majority of the solution's savings originating from LED measures. CFL offerings were discontinued during PY8. Non-lighting measures, including appliances and HVAC, represent a minor portion of solution savings.
  - **Appliance Recycling Solution:** The Appliance Recycling Solution offered rebates for refrigerators, freezers, and room air conditioners (ACs). The utility offered \$50 rebates per refrigerator or freezer picked up for recycling through February 1, 2018 and a \$75 rebate thereafter. The utility offered \$10 rebates per room AC recycled for the entire program year with the pickup of a refrigerator or freezer. In addition, PECO held one-day room AC drop off events with a \$25 rebate per unit.
  - **Whole Home Solution:** The Whole Home Solution offered participants a low-cost home energy assessment that included direct installation of a range of deemed measures including lighting, water conservation, smart strips, etc. In addition, the Whole Home Solution provided incentives for ceiling, attic, and wall insulation, air and duct sealing, and mechanical equipment (e.g., fuel switching from electric heat to natural gas heat pump water heaters).
  - **Multifamily Targeted Market Segment:** The Multifamily Targeted Market Segment includes projects and savings related to residential EE occurring within the dwellings of multifamily buildings. The projects and savings for master-metered multifamily facilities are allocated to the Small C&I EE and Large C&I EE Programs.
  - **New Construction Solution:** The Residential New Construction Solution's activities continue to represent a smaller share of the Residential EE Program's savings activities. This solution is intended to accelerate the adoption of EE in the design, construction, and operation of new single-family homes, duplexes, and townhomes by leveraging the US Environmental Protection Agency's (EPA's) ENERGY STAR Homes certification. The program also includes an additional above-code track (Code-Plus) designed to transition builders toward ENERGY STAR standards.

- **Low-Income EE Program:** ARCA, Inc. and CMC Energy Services are implementing the Low-Income Whole Home Solution in Phase III, while Ecova implemented the Low-Income Lighting Solution.
  - **Whole Home Solution:** The Whole Home Solution includes PECO's Free Home Energy Check Up with free direct installation services for measures, low-income multifamily building audit and direct installation, free energy efficient light bulbs, and other measures such as power strips and LED night lights. For customers with electric heat and domestic hot water, measures offered include improving the mechanical systems and the thermal performance of building envelopes and water heaters. The Solution also includes product giveaways at events targeting low-income households and supports the Low-Income Usage Reduction Program (LIURP) with free energy efficient light bulbs for direct installation.
  - **Lighting Solution:** The Lighting Solution offers LED lighting products at reduced prices through retail stores located in neighborhoods with a high proportion of low-income households. The Lighting Solution was closed on December 31, 2017.
- **Small C&I EE Program:** ICF, Franklin, and SmartWatt have implemented projects in three of the program's solutions and one targeted market segment: the Equipment and Systems Solution, New Construction Solution, Whole Building Solution, and the Multifamily Targeted Market Segment. Each of these programs typically includes a mixture of lighting improvements, lighting controls, HVAC, compressed air, refrigeration, and custom projects. The Equipment and Systems Solution targets existing buildings, while the New Construction Solution is for new buildings and major retrofits. The Whole Building Solution encourages direct-install projects that target entire facilities, while the Multifamily Targeted Market Segment focuses on the commercially metered common areas in multifamily residential buildings.
- **Large C&I EE Program:** ICF and Franklin have implemented projects in three of the program's solutions and one targeted market segment: the Equipment and Systems Solution, New Construction Solution, Data Center Solution, and the Multifamily Targeted Market Segment. Each of these programs typically includes a mixture of lighting improvements, lighting controls, HVAC, compressed air, refrigeration, and custom projects. The Equipment and Systems Solution targets existing buildings, while the New Construction Solution is for new buildings and major retrofits. The Multifamily Targeted Market Segment focuses on the commercially metered common areas in multifamily residential buildings, while the Data Center Solution primarily targets efficient HVAC projects in data centers and other IT facilities.
- **CHP Program:** PECO is currently accepting and processing applications for combined heat and power (CHP) projects as part of the Call for Projects strategy. Due to the long lead time associated with CHP installations, these projects were not complete during PY9. However, PECO is claiming savings for two projects that missed the Phase II deadline and are currently in operation.
- **Residential DR Program:** The Residential DR Program ran three DR events during the summer of 2017: June 13, July 20, and July 21. As in years past, the program is implemented by Itron (formerly Comverge). This year, and for the remainder of Phase III, the incentive is \$40 per direct load control (DLC) unit per year.
- **Small C&I DR Program:** The Small C&I DR Program ran three DR events during the summer of 2017: June 13, July 20, and July 21. As in years past, the program is implemented by Itron (formerly Comverge). This year, and for the remainder of Phase III, the incentive is \$40 per thermostat per year.

- **Large C&I DR Program:** The Large C&I DR Program ran three DR events during the summer of 2017: June 13, July 20, and July 21. The program is implemented by two CSPs: CPower and EnerNOC.

### 3.2 Evaluation Updates and Findings

Navigant has written, received SWE comments, and revised the Phase III evaluation plan and sampling plan for each program and solution. Navigant submitted sampling memos to the SWE for approval that refine sampling approaches among the solutions for PY9 activities. The team also interviewed PECO staff and CSPs and reviewed program materials, program tracking databases, and engineering files for each solution. These activities inform the design of participant surveys exploring customer satisfaction and experience and confirm measure installations for specific solutions per the evaluation plan. Navigant is in the middle of impact evaluations for all the EE programs. Navigant also recently completed a re-analysis of the impact evaluation for all DR programs. These results are available in the standalone DR report, submitted to the SWE on June 13, 2018. Highlights of Navigant's progress within each program and solution are summarized below.

- **Residential EE Program:** Navigant completed surveying 700 Behavioral Solution participants as part of the solution's process evaluation activities. Per Navigant's agreement with the SWE, those results were prepared separately from the PY8 Annual Compliance Report and will be submitted as a memo soon after this report is submitted. The team has prepared samples for the Whole Home Solution in anticipation of upcoming customer experience and NTG phone surveys and field verification activities. The Whole Home Solution has a 2-year evaluation schedule for PY8 and PY9. Navigant is moving forward with evaluation activities with implementation data that represents the first half of PY9. Navigant also plans to conduct an online survey with builders participating in the New Construction Solution.
- **Low-Income EE Program:** Navigant collaborated with PECO to analyze household incomes in the geographic regions surrounding PECO's participating Lighting Solution retailers in PY8. In PY9, the team will apply the estimated participant incomes to reported savings from each retailer achieved prior to the solution closing on December 31, 2017. Navigant is also working on the PY9 Whole Home impact evaluation, including planning for onsite verifications.
- **Small C&I EE Program:** Navigant made slight modifications to its data collection tools and processes from PY8 to ensure faster and more robust data collection and more collaboration with the SWE. Impact evaluations for all solutions are ongoing. Over the next several months, Navigant will continue to review the solution measure data, call and visit sampled project sites, and continue the evaluation process for PY9. Navigant will also conduct customer experience and NTG surveys with participants in the Whole Building Solution, Equipment and Systems Solution, and New Construction Solution. Fielding will be completed in July and August 2018.
- **Large C&I EE Program:** Navigant made slight modifications to its data collection tools and processes from PY8 to ensure faster and more robust data collection and more collaboration with the SWE. The team has also been working with ICF to review large and complex projects before incentives will be reserved. Impact evaluations for all solutions are ongoing. Over the next several months, Navigant will review the solution measure data, call and visit sampled project sites, and continue the evaluation process for PY9. Navigant will also conduct customer experience and NTG surveys with participants in the Equipment and Systems Solution and New Construction Solution. Fielding is planned to be completed across June and July 2018.

- **CHP Program:** The CHP Program is currently tracking several CHP projects with estimated completion dates in PY10. The program is also increasing its marketing efforts to increase participation.
- **Residential DR Program:** Navigant evaluated peak load reductions for DR events on three summer days in 2017. The team also fielded post-event surveys to participants. Peak load reduction achievements and process evaluation findings are reported in the separate DR Annual Report.
- **Small C&I DR Program:** Navigant evaluated peak load reductions for DR events on three summer days in 2017. The team also fielded post-event surveys to participants. Peak load reduction achievements and process evaluation findings are reported in the separate DR Annual Report.
- **Large C&I DR Program:** Navigant evaluated peak load reductions for DR events on three summer days in 2017. The team also fielded post-season surveys to participants. Peak load reduction achievements and process evaluation findings are reported in the separate DR Annual Report.

## 4. SUMMARY OF PARTICIPATION BY PROGRAM

Table 4-1 provides the current participation totals for PY9 and Phase III. Certain programs and solutions define participation differently depending on the delivery channel and data tracking practices.

**Table 4-1. EE&C Plan Participation by Program**

Program and Solution	PYTD Participation	P3TD Participation
Lighting, Appliances & HVAC	907,348	1,616,125
Appliance Recycling	16,120	24,612
Whole Home	5,365	7,724
New Construction	560	871
Behavioral	423,651	820,360
Multifamily Targeted	6,390	10,627
<b>Residential EE Total</b>	<b>1,359,434</b>	<b>2,480,319</b>
Lighting	110,731	167,058
Whole Home	11,071	19,129
<b>Low-Income EE Total</b>	<b>121,802</b>	<b>186,187</b>
Equipment and Systems	1,055	1,489
New Construction	41	64
Whole Building	299	435
Data Centers	0	0
Multifamily Targeted	173	236
<b>Small C&amp;I EE Total</b>	<b>1,568</b>	<b>2,224</b>
Equipment and Systems	368	490
New Construction	39	60
Data Centers	3	3
Multifamily Targeted	56	72
<b>Large C&amp;I EE Total</b>	<b>466</b>	<b>625</b>
CHP	2	2
Residential DR	60,846	61,440 <sup>a</sup>
Small C&I DR	1,564	1,586 <sup>a</sup>
Large C&I DR	261	261 <sup>a</sup>
<b>Portfolio Total</b>	<b>1,545,943</b>	<b>2,732,644</b>

<sup>a</sup>DR participation is not additive like other programs because the same participants tend to remain in the program with only small attrition. Therefore, total participation in the DR programs for Phase III is equal to the highest program year participation count for each of the three programs.

Sources: PECO's eTrack database, CSP tracking data

Five solutions and one targeted market segment make up the Residential EE Program: Lighting, Appliance & HVAC Solution, Appliance Recycling Solution, Whole Home Solution, New Construction Solution, Behavioral Solution, and the Multifamily Targeted Market Segment. PECO has defined participation counts in each solution as follows:

- For Lighting, Appliance & HVAC, upstream lighting participation is defined as the sum of the stock keeping unit (SKU) sales. A SKU describes a sold lighting product, which can be a single bulb or a multi-pack of bulbs. For the appliance and HVAC participants, participation is defined as the

total number of non-adjusted records in PECO's tracking data with an associated bill account number. A record may represent one or more rebated items (e.g., a single participant purchasing multiple thermostats during the same purchase event).

- For Appliance Recycling, a participant is a customer who schedules a pickup for one or more units. If the same customer initiates multiple pickup orders during the year, each order is counted as an individual participant. However, if a customer initiates more than one order in the same day it counts as a single participant.
- For Residential Whole Home, a participant is considered a unique project number for non-adjusted records with a project type that does not include Other Installations or CAC Other Installations.
- For Residential New Construction, a participant is a new home.
- For Behavioral, a participant is a utility account included in the program's treatment group.
- For the Multifamily Targeted Market Segment, a participant is a unique project number.

Two solutions make up the Low-Income EE Program: Lighting and Whole Home. Low-income participants are those participants with incomes at or below 150% of the federal poverty level. PECO has defined participation counts in each solution as follows:

- For Lighting, participation is defined as a package of one or more light bulbs identified by a unique SKU number. As in the Residential EE Program, a SKU describes a sold lighting product that can be a single bulb or a multi-pack of bulbs.
- For Low-Income Whole Home, a participant is considered:
  - A unique audit number (for both multifamily and single-family audits).
  - A low-income Appliance Recycling customer who schedules pickup for one or more units. If the same customer initiates multiple pickup orders during the year, each order is counted as an individual participant. However, if a customer initiates more than one order in the same day it counts as a single participant.
  - Product giveaways are also part of the Whole Home Solution but are not included in the participant count.

Four solutions and two targeted market segments make up the Small C&I EE Program: Equipment and Systems Solution, Whole Building Solution, Behavioral Solution, New Construction Solution, Data Centers Targeted Market Segment, and Multifamily Targeted Market Segment. The Behavioral Solution is not currently active. PECO has defined participation counts in each active solution as follows:

- For Small C&I Equipment and Systems, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For Small C&I Whole Building, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For Small C&I New Construction, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.

- For the Data Centers Targeted Market Segment, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For the Multifamily Targeted Market Segment, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the building level. A building consists of multiple projects in the dwellings and common areas of master-metered multifamily buildings.

Two solutions and two targeted market segments make up the Large C&I EE Program: *Equipment and Systems Solution*, *New Construction Solution*, *Data Centers Targeted Market Segment*, and *Multifamily Targeted Market Segment*. PECO has defined participation counts in each solution as follows:

- For Large C&I Equipment and Systems, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For Large C&I New Construction, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For the Data Centers Targeted Market Segment, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the project level.
- For the Multifamily Targeted Market Segment, participation is defined as an activity with a unique project number. More than one measure per participant is permitted, with the impact sample defined on the building level. A building consists of multiple projects in the dwellings and common areas of master-metered multifamily buildings.

The CHP Program consists of the CHP Solution only. PECO has defined participation counts in the solution as follows:

- For CHP, participation is defined as an activity with a unique project number.

Three solutions make up the Residential DR Program; however, only the DLC Solution is currently active. PECO has defined participation counts in the solution as follows:

- For Residential DLC, a participant is defined as a unique account number where device status is install or swap and the measure code is CACS (central air conditioner switch). One participant may have more than one DLC device installed at the home. The categories not included in the participant count include disconnect, opt-out, and removal.

The Small C&I DR Program consists of the Small C&I DLC Solution. PECO has defined participation counts in the solution as follows:

- For Small C&I DLC, a participant is defined as a unique account number where device status is install or swap and the measure code is PCT (program-controlled thermostat). One participant may have more than one DLC device installed on the premise. The categories not included in the participant count include disconnect, opt-out, and removal.

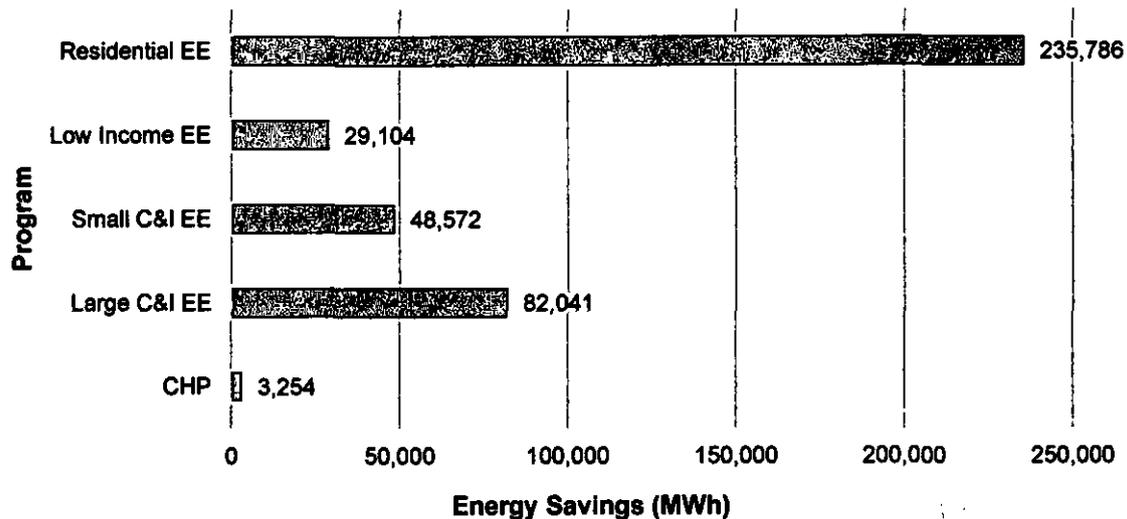
The Large C&I DR Program consists of the Demand Response Aggregator (DRA) Solution. PECO has defined participation counts in the solution as follows:

- For DRA, a participant is defined as a large C&I customer (defined by PECO account number) enrolled with a DR program CSP for at least 1 hour of at least one event occurring in any given program year.

## 5. SUMMARY OF ENERGY IMPACTS BY PROGRAM

Figure 5-1 presents a summary of the PYTD reported gross energy savings by program for PY9. The energy impacts in this report are presented at the meter level and do not reflect adjustments for T&D losses.

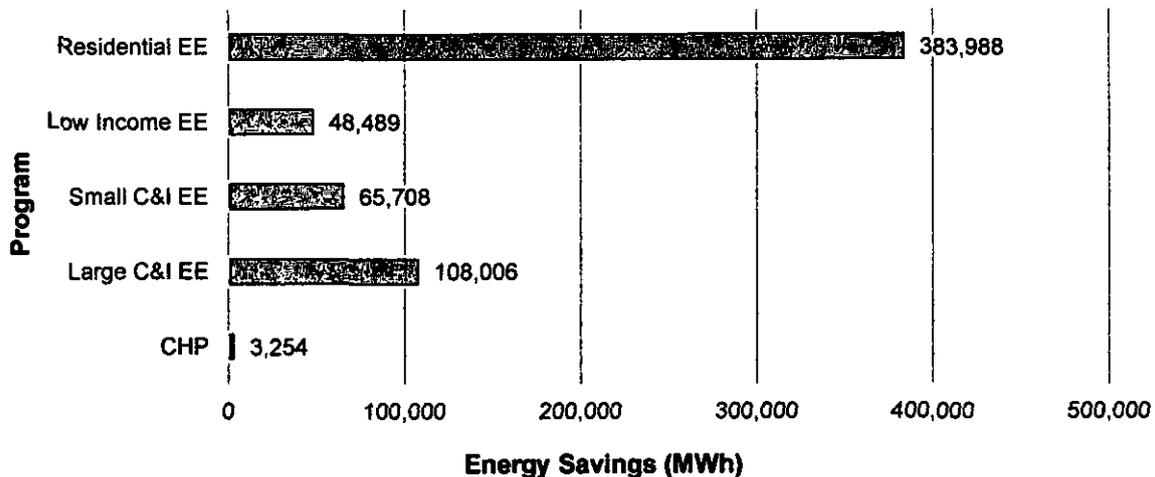
Figure 5-1. PYTD Reported Gross Energy Savings by Program



Sources: PECO's eTrack database, CSP tracking data

Figure 5-2 presents 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.

Figure 5-2. PSA Energy Savings by Program for Phase III



Sources: PECO's eTrack database, CSP tracking data

Table 5-1 presents a summary of energy impacts by program and solution through the current reporting period.

**Table 5-1. Energy Savings by Program and Solution (MWh)**

Program and Solution	PYRTD	RTD	VTD	PSA
Lighting, Appliances & HVAC	125,928	197,467	74,163	200,091
Appliance Recycling	15,946	24,476	7,968	23,914
Whole Home	7,028	9,737	0	7,028
New Construction	1,452	2,190	731	2,182
Behavioral	81,934	144,358	63,385	145,319
Multifamily Targeted	3,499	5,477	1,955	5,454
<b>Residential EE Total</b>	<b>235,786</b>	<b>383,705</b>	<b>148,201</b>	<b>383,988</b>
Lighting	5,945	9,086	3,141	9,086
Whole Home	23,159	39,883	16,244	39,403
<b>Low-income EE Total</b>	<b>29,104</b>	<b>48,969</b>	<b>19,385</b>	<b>48,489</b>
Equipment and Systems	36,299	49,230	12,408	48,707
New Construction	2,615	4,437	1,874	4,489
Whole Building	6,523	8,875	2,281	8,804
Data Centers	0	0	0	0
Multifamily Targeted	3,134	3,813	575	3,708
<b>Small C&amp;I EE Total</b>	<b>48,572</b>	<b>66,355</b>	<b>17,137</b>	<b>65,708</b>
Equipment and Systems	73,405	93,872	20,602	94,007
New Construction	4,958	9,074	4,001	8,959
Data Centers	510	510	0	510
Multifamily Targeted	3,167	4,550	1,363	4,530
<b>Large C&amp;I EE Total</b>	<b>82,041</b>	<b>108,006</b>	<b>25,965</b>	<b>108,006</b>
<b>CHP</b>	<b>3,254</b>	<b>3,254</b>	<b>0</b>	<b>3,254</b>
<b>Portfolio Total</b>	<b>398,757</b>	<b>610,289</b>	<b>210,689</b>	<b>609,445</b>

Note: Values in table may not sum exactly due to rounding.

Sources: PECO's eTrack database, CSP tracking data

## 6. SUMMARY OF DEMAND IMPACTS BY PROGRAM

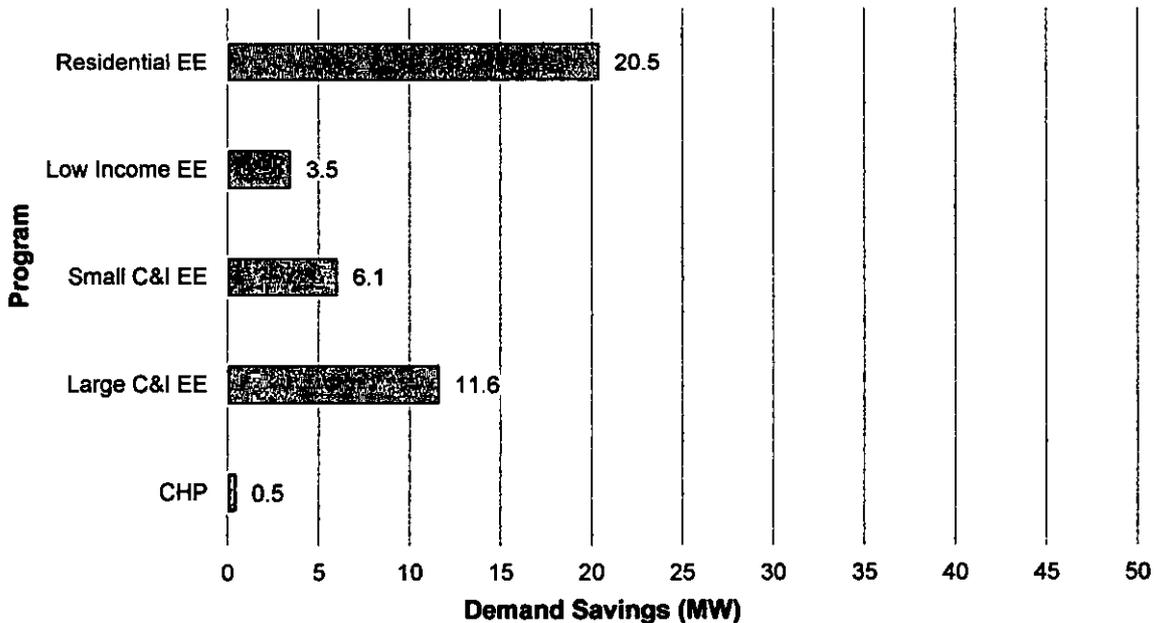
PECO's Phase III EE&C programs achieve peak demand reductions primarily in two ways. The first is through coincident reductions from EE measures and the second is through dedicated DR offerings that exclusively target temporary demand reductions on peak days. EE reductions coincident with system peak hours are reported and used in the calculation of benefits in the Total Resource Cost (TRC) test but do not contribute to Phase III peak demand reduction compliance goals. Phase III peak demand reduction targets are exclusive to DR programs.

The two types of peak demand reduction savings are also treated differently for reporting purposes. Peak demand reductions from EE are generally additive across program years, meaning that the P3TD savings reflect the sum of the first-year savings in each program year. Conversely, DR 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 EE and DR are reported separately in Sections 6.1 and 6.2.

### 6.1 Energy Efficiency

Act 129 defines peak demand savings from EE 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 EE in this report are presented at the meter level and do not reflect adjustments for T&D losses. Figure 6-1 presents a summary of the PYRTD reported gross peak demand savings by EE program for PY9.

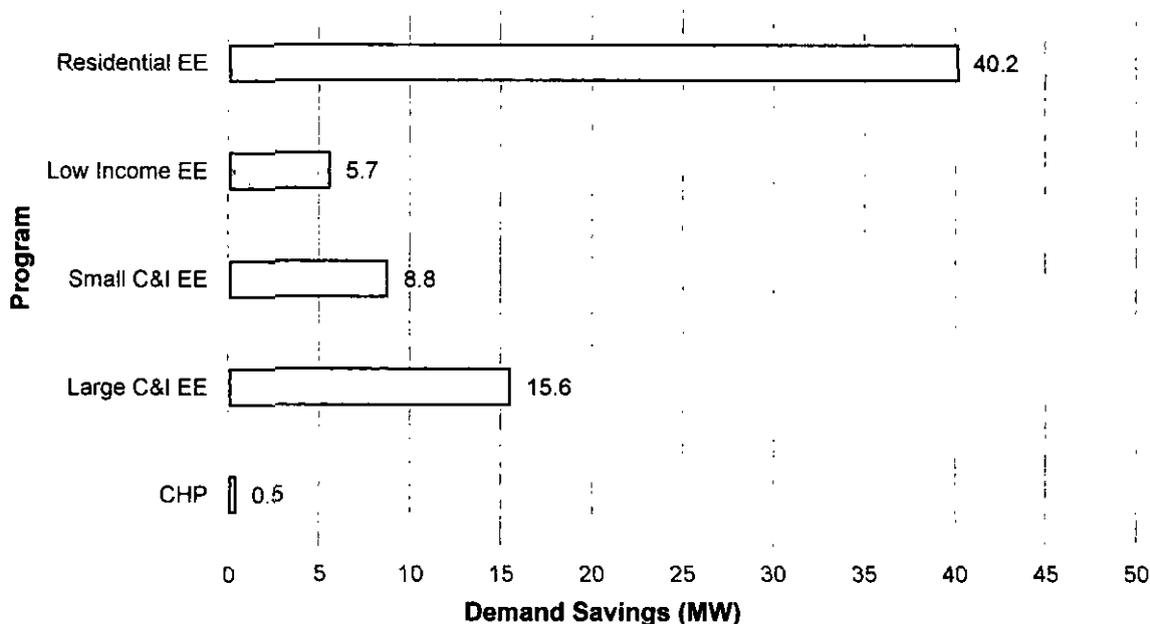
Figure 6-1. PYRTD Gross Demand Savings by EE Program



Sources: PECO's eTrack database, CSP tracking data

Figure 6-2 presents a summary of the PSA gross demand savings by EE program for Phase III of Act 129.

**Figure 6-2. PSA Demand Savings by EE Program for Phase III**



Sources: PECO's eTrack database, CSP tracking data

Table 6-1 presents a summary of the peak demand impacts by EE program and solution through the current reporting period.

**Table 6-1. Peak Demand Savings by EE Program and Solution (MW)**

Program and Solution	PYRTD	RTD	VTD	PSA
Lighting, Appliances & HVAC	16.32	26.08	11.00	27.33
Appliance Recycling	2.45	3.62	1.08	3.53
Whole Home	0.80	1.08	0.00	0.80
New Construction	0.43	0.68	0.19	0.62
Behavioral	0.00	0.00	7.24	7.24
Multifamily Targeted	0.45	0.69	0.24	0.69
<b>Residential EE Total</b>	<b>20.46</b>	<b>32.16</b>	<b>19.75</b>	<b>40.21</b>
Lighting	0.70	1.07	0.37	1.07
Whole Home	2.78	4.65	1.80	4.58
<b>Low-Income EE Total</b>	<b>3.48</b>	<b>5.72</b>	<b>2.17</b>	<b>5.65</b>
Equipment and Systems	3.99	6.04	1.90	5.89
New Construction	0.42	0.82	0.40	0.82
Whole Building	1.29	1.71	0.40	1.69
Data Centers	0.00	0.00	0.00	0.00
Multifamily Targeted	0.36	0.43	0.07	0.42

Program and Solution	PYRTD	RTD	VTD	PSA
<b>Small C&amp;I EE Total</b>	<b>6.06</b>	<b>8.99</b>	<b>2.77</b>	<b>8.82</b>
Equipment and Systems	10.53	13.82	3.31	13.84
New Construction	0.65	1.11	0.46	1.10
Data Centers	0.03	0.03	0.00	0.03
Multifamily Targeted	0.42	0.59	0.18	0.60
<b>Large C&amp;I EE Total</b>	<b>11.63</b>	<b>15.55</b>	<b>3.94</b>	<b>15.58</b>
<b>CHP</b>	<b>0.49</b>	<b>0.49</b>	<b>0.00</b>	<b>0.49</b>
<b>Portfolio Total</b>	<b>42.11</b>	<b>62.91</b>	<b>28.64</b>	<b>70.75</b>

Sources: PECO's eTrack database, CSP tracking data

## 6.2 Demand Response

Act 129 defines peak demand savings from DR as the average reduction in electric demand during the hours when a DR event is initiated. Act 129 peak demand reduction targets were set for PY9 through PY12; there is no PY8 peak demand reduction target. 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 6 days of each program year (starting in PY9) in which the peak hour of PJM's day-ahead forecast for the PJM regional transmission organization (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 4 hours.
4. Each curtailment event shall be called such that it will occur during the day's forecast 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 DR in this report are presented at the system level and reflect adjustments to account for T&D losses. The PA 2016 Technical Reference Manual (TRM) specified the T&D line loss adjustment factors that each EDC must use for Act 129 Phase III.<sup>7</sup> PECO uses the following line loss percentages/multipliers by sector.

- Residential = 7.4% or 1.0799
- Small C&I = 7.4% or 1.0799
- Large C&I = 7.4% or 1.0799

Table 6-2 summarizes the demand reductions for each of the DR programs in PECO's EE&C Plan and for the DR portfolio as a whole. Verified gross demand savings are the average performance across all Phase III DR events independent of how many events occurred in a given program year. The Phase III to

<sup>7</sup> 2016 PA TRM. Pennsylvania Public Utility Commission Technical Reference Manual; State of Pennsylvania Act 129 Energy Efficiency and Conservation Program and Act 213 Alternative Energy Portfolio Standards. Section 1.14 Transmission and Distribution System Losses. June 2016, Errata Update February 2017.

date column is calculated as an average of all events to date, so years with more or fewer events will not be weighted disproportionately.

**Table 6-2. Summary of Demand Savings for DR Programs by Customer Segment and Event**

Event Date	Event Start Time	Event End Time	Program Name			
			Residential DR (MW)	Small C&I DR (MW)	Large C&I DR (MW)	Portfolio (MW)
June 13, 2017	2:00 p.m.	6:00 p.m.	39.53	0.00	118.21	157.74
July 20, 2017	2:00 p.m.	6:00 p.m.	33.48	0.00	107.88	141.36
July 21, 2017	1:00 p.m.	5:00 p.m.	23.34	0.00	125.83	149.16
<b>PYVTD - Average PY9 DR Event Performance</b>			<b>32.12</b>	<b>0.00</b>	<b>117.31</b>	<b>149.42</b>
<b>VTD - Average Phase III DR Event Performance*</b>			<b>32.12</b>	<b>0.00</b>	<b>117.31</b>	<b>149.42</b>

\*P3TD Impacts are based on an average of all events and not an average of program years.

Source: Navigant analysis

## 7. SUMMARY OF FINANCES

Section 7 provides an overview of the expenditures associated with PECO's portfolio and the recovery of those costs from ratepayers.

### 7.1 Program Financials

Program-specific and portfolio total finances for PY9 are shown in Table 7-1. The columns in Table 7-1 and Table 7-2 are adapted from the Direct Program Cost categories in the Commission's EE&C Plan template<sup>8</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 EDCs employ to support program delivery.

Table 7-1. PYTD Financials

Program	Incentives to Participants and Trade Allies (\$1,000)	EDC Materials, Labor, and Administration (\$1,000)	ICSP Materials, Labor, and Administration (\$1,000)	EM&V (\$1,000)	Total Cost (\$1,000)
Residential EE	7,841	5,874	12,101	0	25,817
Low-Income EE	554	645	8,060	0	9,260
Small C&I EE	2,255	2,111	3,975	0	8,340
Large C&I EE	3,648	1,183	4,754	0	9,585
CHP	211	0	28	0	240
Residential DR	2,839	1	1,061	0	3,901
Small C&I DR	115	0	68	0	183
Large C&I DR	0	2	2,036	0	2,038
<b>Common Portfolio Costs<sup>a</sup></b>					<b>10,239</b>
<b>Portfolio Total</b>	<b>17,464</b>	<b>9,816</b>	<b>32,084</b>	<b>0</b>	<b>69,602</b>
<b>SWE Costs<sup>b</sup></b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>Total</b>	<b>17,464</b>	<b>9,816</b>	<b>32,084</b>	<b>0</b>	<b>69,602</b>

<sup>a</sup> Includes the administrative CSP (rebate processing), tracking system, general administration, and clerical costs; EDC program management; CSP program management; general management; oversight of major accounts; and technical assistance.

<sup>b</sup> Statewide evaluation costs are outside of the 2% spending cap.

Note: Values in tables may not sum exactly due to rounding.

Sources: PECO's eTrack database, CSP tracking data

<sup>8</sup> <http://www.puc.pa.gov/pcdocs/1372426.doc> Section 10

Table 7-2 shows program-specific and portfolio total finances since the inception of Phase III.

**Table 7-2. Phase III to Date Financials**

Program	Incentives to Participants and Trade Allies (\$1,000)	EDC Materials, Labor, and Administration (\$1,000)	ICSP Materials, Labor, and Administration (\$1,000)	EM&V (\$1,000)	Total Cost (\$1,000)
Residential EE	12,516	11,333	21,969	0	45,818
Low-Income EE	905	720	14,650	0	16,275
Small C&I EE	2,905	4,327	6,493	0	13,725
Large C&I EE	4,662	1,313	8,667	0	14,642
CHP	211	0	43	0	254
Residential DR	5,844	32	1,978	0	7,854
Small C&I DR	237	2	49	0	289
Large C&I DR	0	63	3,716	0	3,779
<b>Common Portfolio Costs<sup>a</sup></b>					<b>19,191</b>
<b>Portfolio Total</b>	<b>27,280</b>	<b>17,790</b>	<b>57,566</b>	<b>0</b>	<b>121,827</b>
<b>SWE Costs<sup>b</sup></b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>700</b>
<b>Total</b>	<b>27,280</b>	<b>17,790</b>	<b>57,566</b>	<b>0</b>	<b>122,527</b>

<sup>a</sup> Includes the administrative CSP (rebate processing), tracking system, general administration, and clerical costs; EDC program management; CSP program management; general management; oversight of major accounts; and technical assistance.

<sup>b</sup> Statewide evaluation costs are outside of the 2% spending cap.

Sources: PECO's eTrack database, CSP tracking data.

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 PY9 will be presented in the final annual report to the PA PUC on November 15, 2018 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. PECO's cost recovery charges are organized separately by four 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 charged for electric service. Readers should be mindful of the differences between Table 7-3 and Section 2. For example, the low-income customer segment is a subset of PECO's residential tariff(s) and may also include low-income customers in master-metered, multifamily facilities and is, therefore, not listed in Table 7-3.

**Table 7-3. EE&C Plan Expenditures by Cost Recovery Category<sup>9</sup>**

Cost Recovery Sector	Rate Classes Included	PYTD Spending (\$1,000)	P3TD Spending (\$1,000)
Residential	R, RH, and CAP	43,217	78,667
Small C&I	GS	11,105	18,140 <sup>a</sup>
Large C&I	PD, HT, and EP	15,250	24,963
Municipal	SLE, AL, and TLCL	31	59
<b>Portfolio Total</b>		<b>69,602</b>	<b>121,827</b>

<sup>a</sup> As part of the report preparation, Navigant determined that the rounded financial expenditure for the Small C&I EE program was \$882 above actual expenditures. The correction of this value, reflected here, results in a decrease in reported PY8 portfolio expenditures from 52,226 to 52,225 (in \$1,000 units) in Table 7-3. This correction only impacts tracked expenditures summaries from the PY8 Preliminary Annual Report (i.e., the value shown in Tables 7-1, 7-2, and 7-3 of that report), and has no impact on the financials or the cost-effectiveness analysis reported in the PY8 Final Annual Report. Table 2-20 of the PY8 Final Annual Report aligns with the expenditures shown here.

Source: PECO

<sup>9</sup> Includes SWE costs.

