

**PPL Electric Utilities
Semi-Annual Report to the
Pennsylvania Public Utility Commission
PHASE IV OF ACT 129 PY14 SEMI-ANNUAL REPORT
(JUNE 1, 2022 – NOVEMBER 30, 2022)
FOR PENNSYLVANIA ACT 129 OF 2008
ENERGY EFFICIENCY AND CONSERVATION PLAN**



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Acronyms

AHRI	Air Conditioning, Heating, and Refrigeration Institute	MWh	Megawatt-hour
AMI	Advanced metering infrastructure	NPV	Net present value
C&I	Commercial and industrial	NTG	Net-to-Gross
CDD	Cooling degree day	N/A	Not Applicable
CEI	Continuous energy improvement	O&M	Operations and maintenance
CF	Coincidence factor	P4TD	Phase IV to date
CHP	Combined heat and power	PA PUC	Pennsylvania Public Utility Commission
C.L.	Confidence limit	PAC	Program administrator cost
CSP	Conservation Service Provider or Curtailment Service Provider	PSA	Phase IV to date preliminary savings achieved; equal to VTD + PYRTD + PY13 unverified
Cv	Coefficient of variation	PSA+CO	PSA savings plus carryover from Phase III
DLC	DesignLights Consortium	PY	Program Year: for example, PY14, from June 1, 2022, to May 31, 2023
DR	Demand response	PYRTD	Program year reported to date
EDC	Electric distribution company	PYVTD	Program year verified to date
EE&C	Energy efficiency and conservation	PYTD	Program year to date
EFLH	Equivalent fuel load hours	QA/QC	Quality assurance/quality control
EM&V	Evaluation, measurement, and verification	RTD	Phase IV to date reported gross savings
EISA	Energy Independence and Security Act	SEER	Seasonal energy efficiency rating
EUL	Effective useful life	SKU	Stock keeping unit
GNE	Government, nonprofit, educational	SWE	Statewide evaluator
HDD	Heating degree day	T&D	Transmission and distribution
HER	Home energy report	tLED	Tubular LED
HIM	High-impact measure	TRC	Total resource cost
HOU	Hours of use	TRM	Technical reference manual
HSPF	Heating seasonal performance factor	VTD	Phase IV to date verified gross savings
HVAC	Heating, ventilating, and air conditioning	WRAP	Winter Relief Assistance Program
ICSP	Implementation Conservation Service Provider		
IMP	Interim measure protocol		
IPMVP	International Performance Measurement and Verification Protocol		
ISR	In-service rate		
kW	Kilowatt		
kWh	Kilowatt-hour		
KPI	Key performance indicator		
LED	Light-emitting diode		
LIURP	Low Income Usage Reduction Program		
M&V	Measurement and verification		
MW	Megawatt		

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 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 electric distribution company (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 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 MWh/year or MW/year. 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. 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 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 IV to Date (P4TD): The energy and peak demand savings achieved by an EE&C program or portfolio within Phase IV of Act 129. Reported in several permutations described below.

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

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

Phase IV to Date Preliminary Savings Achieved (PSA): The sum of the verified gross savings (VTD) from previous program years in Phase IV where the impact evaluation is complete plus the reported gross savings from the current program year (PYTD) plus the unverified savings from previous years.

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

1 Introduction

Pennsylvania Act 129 of 2008, signed on October 15, 2008, mandated energy savings and demand reduction goals for the largest EDCs in Pennsylvania for Phases I (2008 through 2013), II (2013 through 2016), and III (2016 through 2021). In late 2020, each EDC filed a new EE&C plan with the Pennsylvania Public Utility Commission (PA PUC) detailing the proposed design of its portfolio for Phase IV. These plans were updated based on stakeholder input and subsequently approved by the PA PUC in 2021.

Implementation of Phase IV of the Act 129 programs began on June 1, 2021. This report documents the progress and effectiveness of the Phase IV EE&C accomplishments for PPL Electric Utilities in Program Year 14 (PY14), as well as the cumulative accomplishments of the Phase IV programs since inception. This report additionally documents the energy savings carried over from Phase III. The Phase III carryover savings count towards EDC savings compliance targets for Phase IV.

This report details the participation, spending, and reported gross impacts of the energy efficiency programs during the first six months of PY14. Compliance with Act 129 savings goals are ultimately based on verified gross savings. PPL Electric Utilities has retained Cadmus as an independent evaluation contractor for Phase IV of Act 129. Cadmus is responsible for the measurement and verification of the savings and calculation of verified gross savings. The verified gross savings for PY14 energy efficiency programs will be reported in the final annual report, to be filed on September 30, 2023.

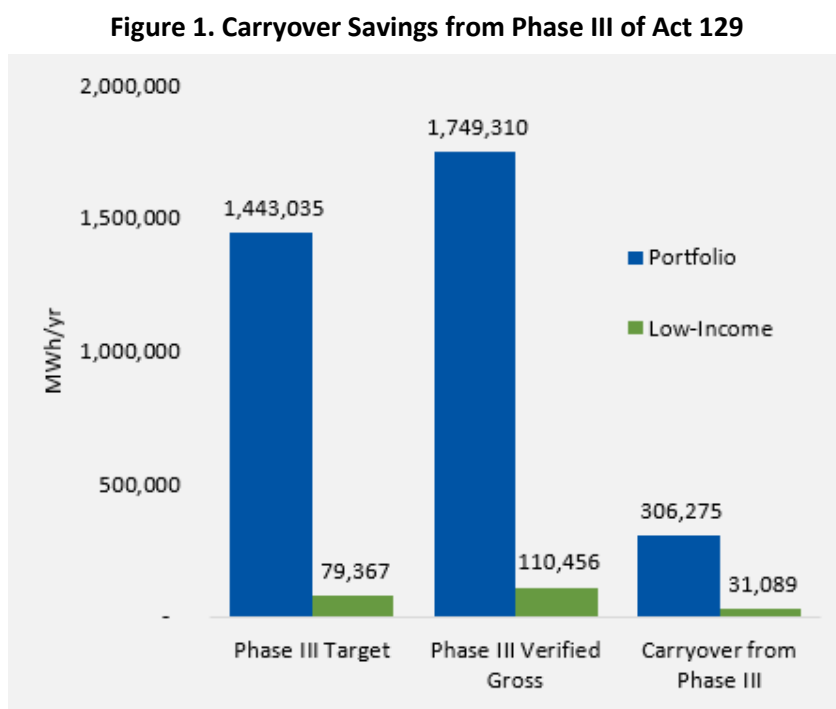
Phase IV of Act 129 includes a peak demand reduction goal for PPL Electric Utilities. Unlike previous phases of Act 129, Phase IV peak demand reduction targets must be met through coincident demand reductions from energy efficiency measures. The Act 129 peak demand reduction definition is non-holiday weekdays from 2:00 p.m. to 6:00 p.m. in June, July, and August. As in prior phases, compliance with Act 129 peak compliance goals is assessed at the system-level so all coincident peak demand impacts are adjusted for line losses.

2 Summary of Achievements

2.1 Carryover Savings from Phase III of Act 129

The Commission’s Phase IV Implementation Order allowed EDCs to carry over verified savings above the Phase III portfolio and low-income savings goal and apply those savings toward Phase IV compliance targets.¹ PPL Electric Utilities has a total of 306,275 MWh/year of portfolio carryover savings and 31,089 MWh/year of low-income carryover savings from Phase III toward its Phase IV energy reduction targets.

Figure 1 compares PPL Electric Utilities’ Phase III verified gross savings total to the Phase III compliance target to illustrate the carryover calculation.



Phase III did not include a peak demand reduction target from energy efficiency, so there are no carryover savings toward the Phase IV peak demand reduction target.

¹ Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Implementation Order*, at Docket No. M-2020-3015228, (*Phase IV Implementation Order*), entered June 18, 2020.

2.2 Phase IV Energy Efficiency Achievements to Date

Since the beginning of PY14 on June 1, 2022, PPL Electric Utilities has claimed the following savings:

- 94,134 MWh/year of reported gross electric energy savings (PYRTD)
- 16.76 MW/year of reported gross peak demand savings (system-level PYRTD)

Since the beginning of Phase IV of Act 129 on June 1, 2021, PPL Electric Utilities has achieved the following savings:

- 264,139 MWh/yr of reported gross electric savings (RTD)
- 45.52 MW/yr of reported gross peak demand savings (system-level RTD) from energy efficient programs
- 167,361 MWh/year of verified gross electric energy savings (VTD)²
- 25.68 MW/year of verified gross peak demand savings (VTD) from energy efficiency programs³
- 6,084 MWh/year of unverified PY13 gross electric savings
- 1.93 MW/year of unverified PY13 gross peak demand savings from energy efficiency programs
- 267,579 MWh/year of gross electric energy savings (PSA). This total includes verified gross savings from previous Phase IV program years, unverified gross savings from PY13, and the PYTD reported gross savings from PY14.
- 44.37 MW/year of gross peak demand savings (PSA) from energy efficiency programs

Note: All gross peak demand savings are reported at the system level, so they reflect adjustments for transmission and distribution losses.

Including carryover savings from Phase III, PPL Electric Utilities has achieved the following savings:

- 573,854 MWh/year of PSA+CO energy savings recorded to date in Phase IV. This represents 46% of the May 31, 2026, energy savings compliance target of 1,250,157 MWh/year.⁴

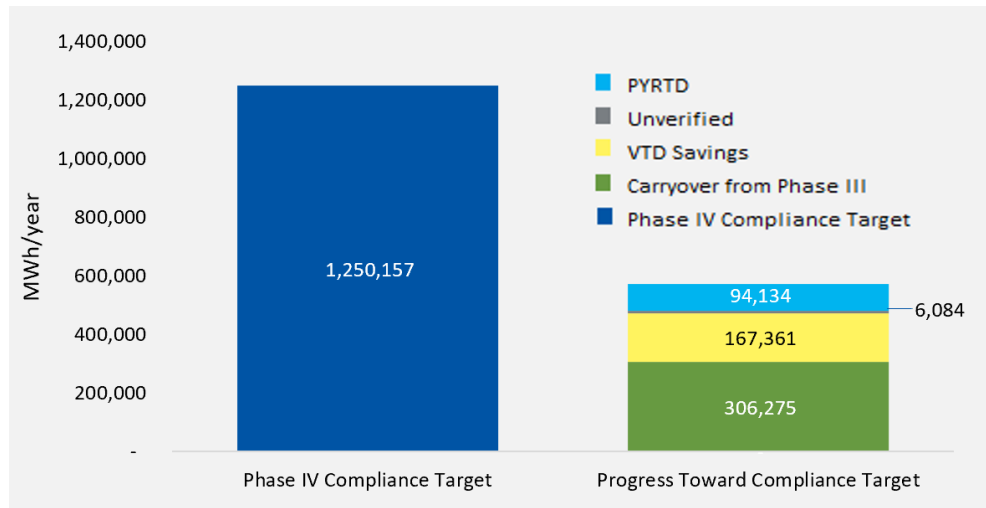
Figure 2 and Figure 3 show PPL Electric Utilities' EE&C plan progress toward Phase IV energy conservation and peak demand reduction compliance targets.

² VTD savings in the PY13 Annual Report were reduced by 1,425 MWh/year following a review by the SWE.

³ VTD savings in the PY13 Annual Report were reduced by 0.21 MW/year following a review by the SWE.

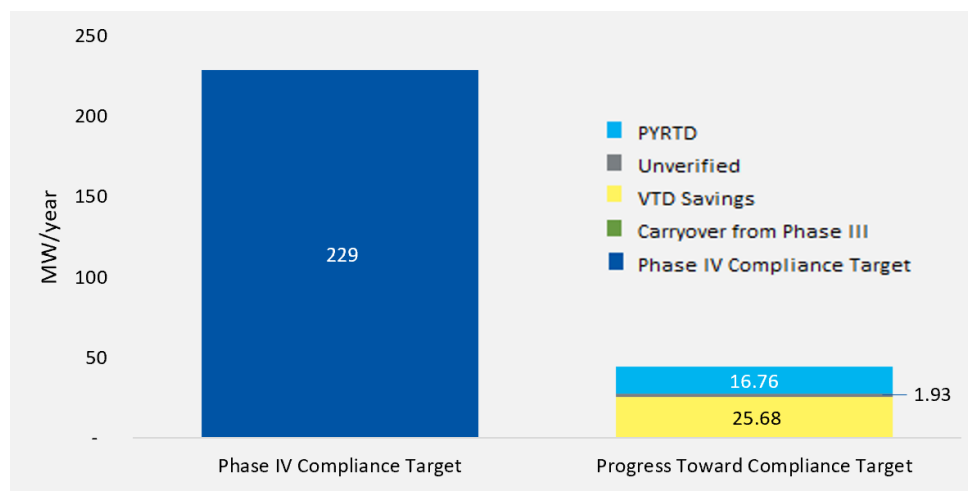
⁴ From PPL Electric Utilities Corporation. *Energy Efficiency and Conservation Plan Act 129 Phase IV*. Docket No. M-2020-3020824. Revised May 24, 2021.

Figure 2. Performance Toward Phase IV Portfolio Energy Target



Note: VTD savings in the PY13 Annual Report were reduced by 1,425 MWh/year following a review by the SWE.

Figure 3. Performance Toward Phase IV Portfolio Peak Demand Target



Note: All gross peak demand savings are reported at the system level, so they reflect adjustments for transmission and distribution losses. VTD savings in the PY13 Annual Report were reduced by 0.21 MW/year following a review by the SWE.

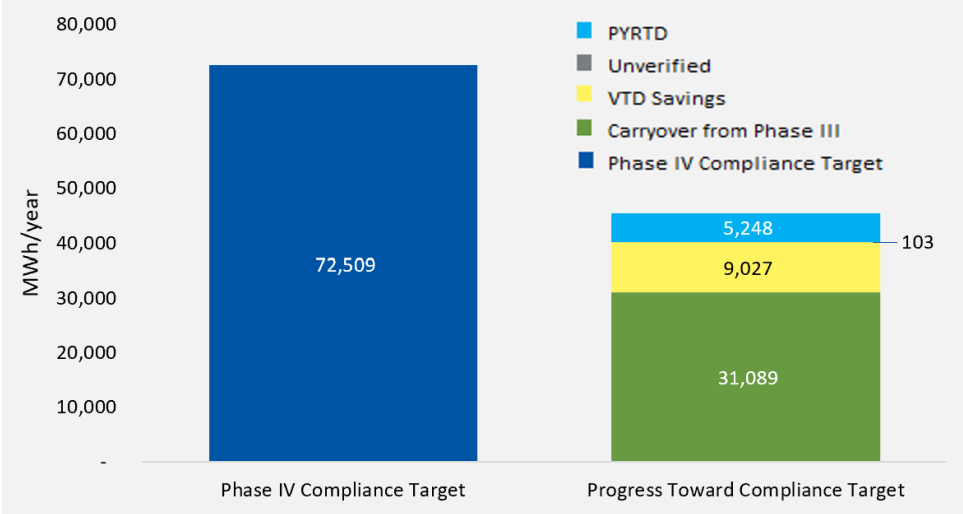
The Phase IV Implementation Order directed EDCs to offer conservation measures to the low-income customer segment based on the proportion of electric sales attributable to low-income households. The proportionate number of measures for PPL Electric Utilities to target is 9.95%.⁵ PPL Electric Utilities offers a total of 69 EE&C measures to its residential and nonresidential customer classes. In Q1 and Q2 of PY14, there are 15 measures available to the low-income customer segment at no cost to the

⁵ Pennsylvania Public Utility Commission, *Energy Efficiency and Conservation Program Implementation Order*, at Docket No. M-2020-3015228, (*Phase IV Implementation Order*), entered June 18, 2020.

customer. This represents 22% 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 5.8% of the portfolio savings goal. The low-income savings target for PPL Electric Utilities is 72,509 MWh/year,⁶ based on verified gross savings. Figure 4 compares the PSA+CO performance to date for the low-income customer segment to the Phase IV savings target. Based on the latest available information, PPL Electric Utilities has achieved 63% of the Phase IV low-income energy savings target.

Figure 4. EE&C Plan Performance Toward Phase IV Low-Income Compliance Target



Note: VTD savings in the PY13 Annual Report were reduced by 1,422 MWh/year following a review by the SWE.

⁶ From PPL Electric Utilities Corporation. *Energy Efficiency and Conservation Plan Act 129 Phase IV*. Docket No. M-2020-3020824. Revised May 24, 2021.

2.3 Phase IV Performance by Customer Segment

Table 1 shows the participation, savings, and spending by customer sector for PY14, and Table 2 shows these same statistics for Phase IV. The residential, small commercial and industrial (C&I), and large C&I sectors are defined by EDC tariff, and the residential low-income and government, nonprofit, educational (GNE) sector are defined by statute (66 Pa. C.S. § 2806.1). The residential low-income segment is a subset of the residential customer class, and the GNE segment may include customers who are part of the residential, small C&I, or large C&I rate classes. The savings, spending, and participation values for the low-income and GNE segments have been removed from the parent sectors in Table 1 and Table 2.

Table 1. PY14 Summary Statistics by Customer Segment

Parameter	Residential (Non-Low-Income)	Residential Low-Income	Small C&I (Non-GNE)	Large C&I (Non-GNE)	GNE	Total ⁽¹⁾
# Participants	305,036	13,509	24,820	447	970	344,782
PYRTD MWh/yr	18,395	5,248	54,126	11,622	4,743	94,134
PYRTD MW/yr (system level)	3.25	0.64	9.77	2.15	0.96	16.76
Incentives (\$1,000) ⁽²⁾	\$2,855	\$1,413	\$6,026	\$2,511	\$1,083	\$13,888

⁽¹⁾ Total may not sum due to rounding.

⁽²⁾ PPL Electric Utilities reports number of participants and PYRTD using their participant tracking database but uses the incentive amounts from a separate accounting system since they are reported along with the other expenditures.

Table 2 summarizes plan performance by sector since the beginning of Phase IV.

Table 2. Phase IV Summary Statistics by Customer Segment

Parameter	Residential (Non-Low-Income)	Residential Low-Income	Small C&I (Non-GNE)	Large C&I (Non-GNE)	GNE	Total ⁽¹⁾
# Participants	1,069,360	39,191	85,352	1,319	2,500	1,197,722
PSA MWh/yr	52,215 ⁽²⁾	14,378 ⁽²⁾	136,871	43,017	21,097	267,579
PSA MW/yr (system level)	8.44	1.67 ⁽³⁾	24.06	6.54	3.67	44.37
Incentives (\$1,000) ⁽⁴⁾	\$7,227	\$3,587	\$11,360	\$3,138	\$1,541	\$26,853

⁽¹⁾ Total may not sum due to rounding.

⁽²⁾ VTD savings in the PY13 Annual Report were reduced by 3 MWh/year in the Residential segment and 1,422 MWh/year in the Low-Income segment following a review by the SWE.

⁽³⁾ VTD peak demand in the PY13 Annual Report were reduced by 0.21 MW/year in the Low-Income segment following a review by the SWE.

⁽⁴⁾ PPL Electric Utilities reports number of participants and PYRTD using their participant tracking database but uses the incentive amounts from a separate accounting system since they are reported along with the other expenditures.

3 Updates and Findings

3.1 *Implementation Updates and Findings*

This section contains implementation updates.

3.1.1 Low-Income Program

The Low-Income Program offers a broad selection of no-cost energy-saving improvements and education to qualifying low-income customers residing in single-family homes, individually metered multifamily units, and manufactured homes. Direct installation of energy efficiency measures for lighting, water aeration, and weatherization are offered through in-home and remote assessment delivery channels. Additionally, PPL Electric Utilities offers comprehensive measures, such as ductless mini-split heat pumps, heat pump maintenance, heat pump water heaters, building shell measures, and smart thermostats through the in-home assessment delivery channel. PPL Electric Utilities also provides the same measures available under the Low-Income Program inside the tenant units of low-income residents in master-metered multifamily buildings at no direct cost to the building owners or those tenants.

This program for income-eligible customers launched June 1, 2021, with a seamless transition for customers from Phase III to Phase IV. In PY14, the program has completed almost 3,400 remote jobs and nearly 800 in-home assessments. Additionally, the program has dispersed almost 11,000 welcome kits to customers who are eligible for the assessment to encourage their enrollment. The program will continue to expand in-home and multifamily unit assessments in the remainder of Phase IV. Additionally, comprehensive measures and correlating health and safety measures began and continue at a steady pace. Finally, the program has begun coordinating assessments with a local natural gas utility.

3.1.2 Residential Program

This section outlines the program components offered in the Residential Program.

Appliance Recycling. This component continues to offer both contactless and in-home pickups, with about half of the participants still preferring the contactless option. The rebate was increased in PY13 and remains at \$50 per unit. Two small appliance pick-up events were held in PY14 (Wilkes-Barre and Lancaster). Customers pre-registered for the events to recycle their inefficient room air conditioners and dehumidifiers. Over 300 customers participated, with 346 air conditioners and 229 dehumidifiers collected. PPL Electric Utilities plans to hold more of these events throughout the territory beginning in the spring of 2023.

Efficient Lighting – Specialty Bulbs. The Efficient Lighting program component has strong participation, with over 300,000 bulbs sold in PY14 and over a million bulbs sold in Phase IV to date. Big box stores, such as Lowe’s and The Home Depot, are leading sales with specialty, reflector, retrofit kits, and globe bulbs.

Energy Efficient Homes. PPL Electric Utilities continues to experience strong performance in efficient new home construction, with 789 homes built to date in PY14.

PPL Electric Utilities continued to reach out to all new customers via email, encouraging them to start their energy savings journey with a free energy saving welcome kit to help them use less electricity and save money. Through November in PY14, the program reached over 31,600 new customers. To help customers continue their journey, PPL Electric Utilities has completed over 249 virtual assessments and 198 in-home audits in PY14. Virtual assessments will be reflected in Q3 reporting.

The midstream channel for HVAC has had a slow start. PPL Electric Utilities is engaging with distributors to help prepare them to begin offering discounts at purchase. Marketing collateral has been developed as well as follow-up customer attribution material. PPL Electric Utilities has also begun offering instant discounts at point of purchase for advanced power strips and dehumidifiers.

PPL Electric Utilities has been laying the groundwork for the Deep Energy Retrofits and Net Zero Energy Homes Pilots. More in-depth details will be forthcoming as these pilots take shape and participation begins.

Student Energy Efficient Education. The Student Energy Efficient Education program component is in full swing. The bulk of the presentations have taken place for PY14. All three student cohorts, Bright Kids, Take Action and Innovation, are fully subscribed. Both the poster contest and Innovation Challenge are underway. As in previous years, the focus is on low-income schools.

3.1.3 Non-Residential Program

This section outlines the program components offered in the Non-Residential Program.

Efficient Equipment. PPL Electric Utilities promotes the purchase and installation of a wide range of high-efficiency measures, including lighting, HVAC, refrigeration, motors/drives, commercial kitchen equipment, agricultural equipment, equipment controls, and new construction projects. This program component has four delivery channels:

- *Downstream channel:* customers, contractors, or trade allies submit applications for rebates
- *Direct discount channel:* provides higher incentives to contractors to engage small C&I customers and encourage projects that may not receive attention otherwise
- *Direct install delivery channel:* small C&I customers receive a no-cost assessment to identify improvements
- *Midstream channel:* delivers immediate rebates at the point of purchase for lighting and other commercial and industrial equipment (this expanded to food service and agricultural distributors in PY14)

Custom. Through the Custom program component, customers can receive incentives to support completion of complex and comprehensive projects that involve measures not covered by the Efficient Equipment program component.

PPL Electric Utilities decreased incentives for solar projects, effective on December 7, 2022. The updated solar incentives mirror the custom incentive of \$0.075/kWh and \$250/kW. PPL Electric Utilities provided stakeholders with a 30-day notice of the change. Pre-approval for all custom projects is still required.

3.2 Evaluation Updates and Findings

Table 3 summarizes evaluation activities that have occurred to date in PY14.

Table 3. PY14 Evaluation Activities

Portfolio
<ul style="list-style-type: none"> Prepared and submitted PY14 EM&V plans to PPL Electric Utilities and the SWE. Cadmus received Q1 and Q2 participation data for many of the program components and confirmed that the files contained the necessary data for evaluation activities.
Low-Income Assessment
<ul style="list-style-type: none"> Reviewed Q1 project documentation and began desk reviews. Drafted online participant survey.
Residential Program
Appliance Recycling
<ul style="list-style-type: none"> Drafted stakeholder interview guide.
Efficient Lighting – Specialty Bulbs
<ul style="list-style-type: none"> None; no evaluation activities are planned for PY14.
Energy Efficient Homes
<ul style="list-style-type: none"> Completed stakeholder interviews with PPL Electric Utilities and the ICSP for the midstream HVAC subcomponent. Drafted stakeholder interview guides for remaining subcomponents. Began drafting audit and weatherization participant survey instrument. Drafted and finalized midstream HVAC distributor guide. Began midstream HVAC distributor interviews.
Student Energy Efficient Education
<ul style="list-style-type: none"> Drafted stakeholder interview guides.
Non-Residential Program
Efficient Equipment Lighting
<ul style="list-style-type: none"> Began drafting stakeholder interviewer guides and participant survey instruments. Reviewed Q1 project documentation and began desk reviews.
Efficient Equipment Non-Lighting
<ul style="list-style-type: none"> Began drafting stakeholder interviewer guides and participant survey instruments. Reviewed Q1 project documentation and began desk reviews. Began scheduling Q1 site visits.
Custom
<ul style="list-style-type: none"> Began drafting stakeholder interviewer guides and participant survey instruments. Drafted M&V plans and completed site visits as needed.

4 Summary of Participation by Program

Participation is defined differently for each program component depending on the program delivery channel and data tracking practices. The nuances of the participant definition vary by program component and are summarized by program in Table 4. The table provides the current participation totals for PY14 and Phase IV.

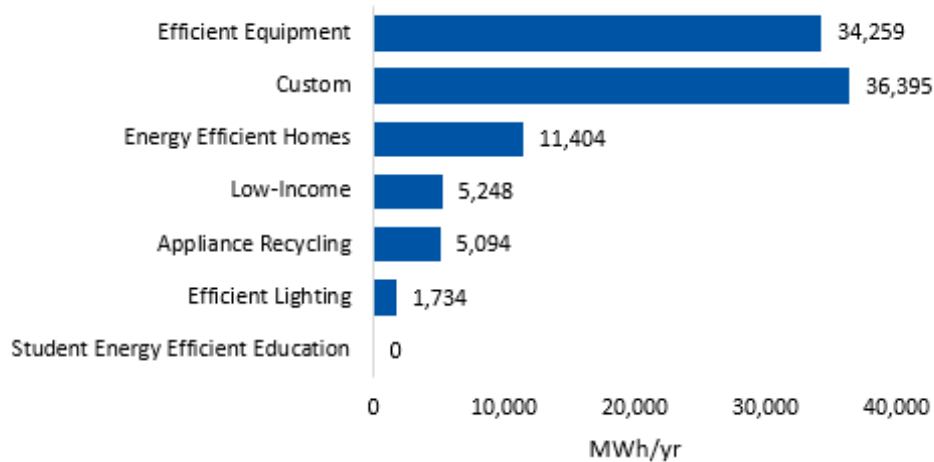
Table 4. EE&C Plan Participation by Program

Program	Participant Definition	PY14 TD Participation	P4TD Participation
Low-Income			
Low-Income Assessment	Unique bill account number; corresponds to an income-eligible household that receives an audit and program services or receives a welcome kit.	13,509	39,191
Residential Program			
Appliance Recycling	Unique job number; corresponds with each unique appliance decommissioned through the program during the program year.	7,407	18,716
Efficient Lighting	Number of discounted bulbs sold.	311,839	1,087,653
Energy Efficient Home New Homes	Unique job number; corresponds to a rebated project.	789	2,031
Energy Efficient Homes Audit and Weatherization	Unique job number; corresponds to a rebated project. Households could have more than one rebated project.	827	827
Energy Efficient Homes Online Marketplace	Unique job number; corresponds to a rebated project.	1,782	7,398
Energy Efficient Homes Equipment (downstream)	Unique job number; corresponds to a rebated project. Households could have more than one rebated project.	5,731	13,676
Energy Efficient Homes Equipment (midstream)	Unique job number; corresponds to each purchase of discounted products.	-	-
Energy Efficient Homes Instant Discount	Unique job number; corresponds to a rebated project.	-	-
Student Energy Efficient Education	Number of participants is counted as the number of energy conservation kits delivered.	-	20,015
Non-Residential Program			
Custom	Unique job number; commercially operable job that received an incentive payment during the reporting period.	57	93
Efficient Equipment (downstream)	Unique job number; corresponds to each unique job that received a rebate.	351	839
Efficient Equipment (midstream)	Unique job number; corresponds to each purchase of discounted products.	2,490	7,283
Portfolio Total		344,782	1,197,722

5 Summary of Energy Impacts by Program Component

Figure 5 summarizes the PYTD reported gross energy savings by program component for PY14. The energy impacts in this report are presented at the meter level and do not reflect adjustments for transmission and distribution losses.

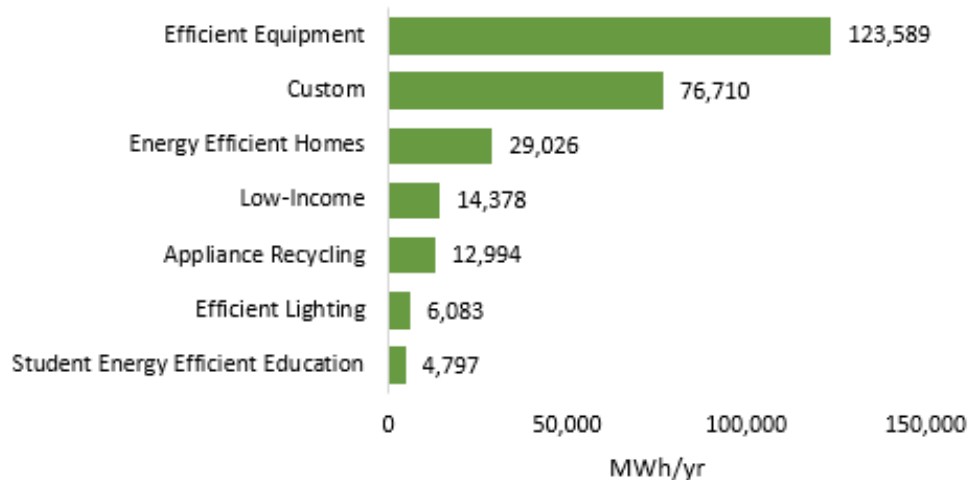
Figure 5. PY14 Reported Gross Energy Savings by Program Component



Note: Total of individual program component savings may not sum to total due to rounding.

Figure 6 summarizes the PSA gross energy savings by program for Phase IV of Act 129. PSA savings include verified gross savings from previous program years and the PYTD savings from the current program year.

Figure 6. Phase IV PSA Gross Energy Savings by Program Component



Note: VTD savings were reduced by 1,422 MWh/year for Low-Income and 3 MWh/year for Efficient Lighting. Total of individual program component savings may not sum to total due to rounding.

Table 5 summarizes the energy impacts by program component through the current reporting period.

Table 5. Energy Savings by Program Component (MWh/Year)

Program	PYRTD	RTD	VTD	PY13 Unverified	PSA ⁽¹⁾
Low-Income					
Low-Income	5,248	17,088	9,027 ⁽²⁾	103	14,378
Residential					
Appliance Recycling	5,094	13,025	7,900	-	12,994
Efficient Lighting	1,734	5,983	4,349 ⁽³⁾	-	6,083
Energy Efficient Homes	11,404	28,528	14,689	2,933	29,026
Student Energy Efficient Education	-	5,704	4,797	-	4,797
Residential Sub-Total ⁽¹⁾	18,231	53,239	31,736 ⁽³⁾	2,933	52,900
Non-Residential					
Custom	36,395	76,710	37,267	3,048	76,710
Efficient Equipment	34,259	117,101	89,330	-	123,589
Non-Residential Sub-Total ⁽¹⁾	70,654	193,811	126,597	3,048	200,299
Portfolio Total ⁽¹⁾	94,134	264,139	167,361 ^{(2) (3)}	6,084	267,579
Carry-Over Savings from Phase III	-	-	306,275	0	306,275
Adjusted Portfolio Total ⁽¹⁾	94,134	264,139	473,636 ^{(2) (3)}	6,084	573,854

(1) Totals may not sum due to rounding.

(2) VTD savings in the PY13 Annual Report were reduced by 1,422 MWh/year following a review by the SWE.

(3) VTD savings in the PY13 Annual Report were reduced by 3 MWh/year following a review by the SWE.

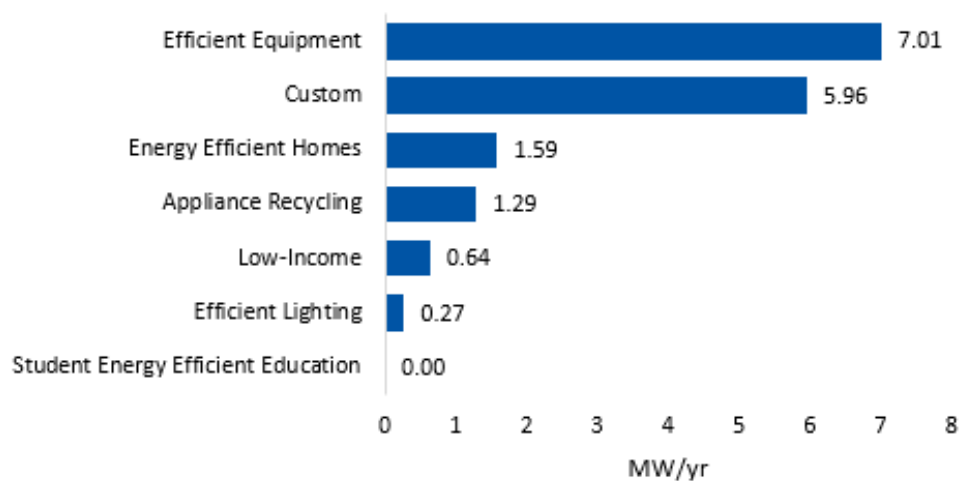
6 Summary of Peak Demand Impacts by Program Component

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. (Eastern Daylight Time) on non-holiday weekdays from June to August. The peak demand impacts from energy efficiency in this report are presented at the system level, meaning they reflect adjustments for transmission and distribution losses. PPL Electric Utilities uses the following line loss percentages/multipliers by sector:^{7, 8}

- Residential = 1.0875
- Small C&I = 1.0875
- Large C&I = 1.0420
- GNE = 1.0811 (PY14)

Figure 7 summarizes the PYRTD reported gross peak demand savings by energy efficiency program component for PY14.

Figure 7. PY14 RTD Gross Peak Demand Savings by Program Component



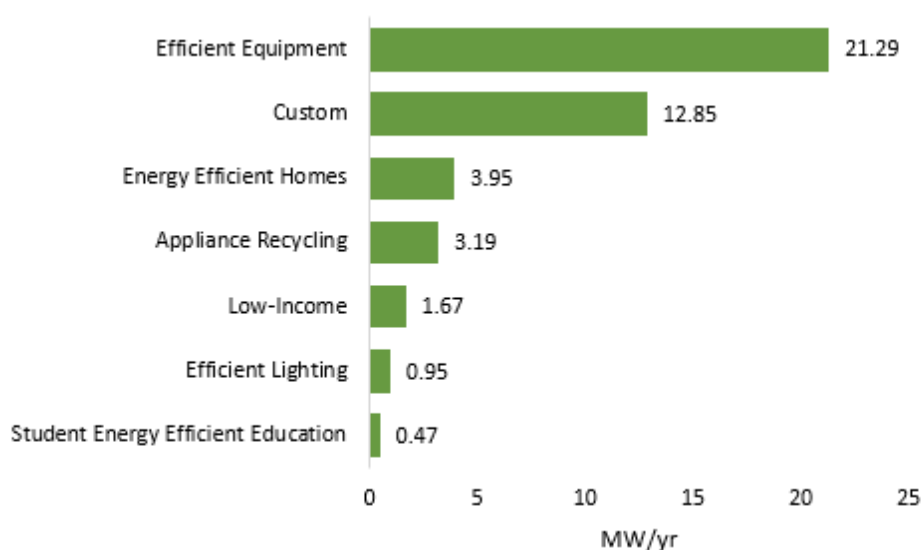
Note: Total of individual program component savings may not sum to total due to rounding.

Figure 8 summarizes the PSA gross peak demand savings by energy efficiency program for Phase IV of Act 129.

⁷ Pennsylvania Public Utility Commission. February 2021. *Technical Reference Manual*. Act 129 Energy Efficiency and Conservation Program & Act 213 Alternative Energy Portfolio Standards.

⁸ For GNE records in PY14, the line loss multiplier was calculated as a blended rate of 1.0811 using the proportion of reported demand reductions of the residential and small C&I sectors compared to the large C&I sector (86% and 14%, respectively). In PY13, Cadmus applied a blended rate of 1.0788 to GNE records.

Figure 8. Phase IV PSA Gross Peak Demand Savings by Program Component



Note: VTD savings were reduced by 0.21 MW/year for Low-Income.
 Total of individual program component savings may not sum to total due to rounding.

Table 6 summarizes the peak demand impacts by program through the current reporting period.

Table 6. Peak Demand Savings by Program Component (MW/Year)

Program Component	PYRTD	RTD	VTD	Unverified	PSA ⁽¹⁾
Low-Income					
Low-Income	0.64	2.04	1.02 ⁽²⁾	0.01	1.67
Residential					
Appliance Recycling	1.29	3.20	1.90	-	3.19
Efficient Lighting	0.27	0.94	0.68	-	0.95
Energy Efficient Homes	1.59	3.92	1.03	1.33	3.95
Student Energy Efficient Education	-	0.53	0.47	-	0.47
Residential Sub-Total⁽¹⁾	3.15	8.59	4.08	1.33	8.56
Non-Residential					
Custom	5.96	12.86	6.30	0.59	12.85
Efficient Equipment	7.01	22.03	14.28	-	21.29
Non-Residential Sub-Total ⁽¹⁾	12.97	34.89	20.58	0.59	34.15
Portfolio Total ⁽¹⁾	16.76	45.52	25.68 ⁽²⁾	1.93	44.37
Carry-Over Savings from Phase III	-	-	-	-	-
Adjusted Portfolio Total ⁽¹⁾	16.76	45.52	25.68 ⁽²⁾	1.93	44.37

(1) Totals may not sum due to rounding.

(2) VTD savings in the PY13 Annual Report were reduced by 0.21 MW/year for Low-Income following a review by the SWE.

7 Summary of Finances

This section provides an overview of the expenditures associated with PPL Electric Utilities’ portfolio and the recovery of those costs from ratepayers.

7.1 Program and Portfolio Financials

Table 7 summarizes program-specific and portfolio total finances through the end of Q2 for PY14. The columns in Table 7 are adapted from the list of Program Cost Elements in the PA PUC’s EE&C plan template for Phase IV.⁹

Thus far in PY14, 56% of all EE&C plan expenditures were incentives paid to participants and trade allies. The dollar amounts are based on EDC tracking of expenditures, with no adjustments to account for inflation.¹⁰ PPL Electric Utilities uses a separate accounting system for financial reporting, so totals in these tables may not match those reported in PPL Electric Utilities’ participant tracking database.

Additional notes for table values include the following:

- The incentives column includes rebates, point-of-sale buydowns, kits, and direct install materials and labor.
- The EDC materials, labor, and administration column includes costs associated with an EDC’s own employees.
- ICSP materials, labor, and administration column includes the costs of program implementation contractor and any other outside vendors an EDC employs to support program delivery and evaluation.

⁹ Pennsylvania Public Utility Commission. September 9, 2020. *Implementation of Act 129 of 2008—Phase IV Energy Efficiency and Conservation Plan Template, Docket No. M-2020-3015228.*
<https://www.puc.pa.gov/pcdocs/1676672.docx>

¹⁰ The cost-recovery of program expenses through riders generally happens promptly so that costs are being recovered from ratepayers in the same dollars that they are incurred.

Table 7. Program Year to Date Financials (\$1,000)

Program	Incentives	EDC Materials, Labor, and Administration	ICSP Materials, Labor, and Administration	Total Cost ⁽¹⁾
Non-Residential	\$9,708	\$102	\$3,221	\$13,031
Low-Income	\$1,414	\$126	\$1,556	\$3,096
Residential	\$2,766	\$104	\$2,554	\$5,424
Common Portfolio Costs ⁽²⁾	-	\$1,182	\$1,715	\$2,897
Portfolio Total ⁽¹⁾	\$13,888	\$1,514	\$9,047	\$24,449
SWE Costs ⁽³⁾	-	-	-	\$396
Total ⁽¹⁾	\$13,888	\$1,514	\$9,047	\$24,845

⁽¹⁾ Total may not sum due to rounding.

⁽²⁾ Common Portfolio Costs are costs applicable to more than one customer class or more than one program or that provide portfolio-wide benefits. These costs include PPL Electric Utilities labor and materials, legal review, PPL Electric Utilities' tracking system, EE&C plan development, etc.

⁽³⁾ SWE costs are outside of the 2% spending cap.

Table 8 summarizes program-specific and portfolio total finances since the inception of Phase IV. Thus far in Phase IV, 48% of all expenditures were incentives paid to participants and trade allies.

Table 8. Phase IV to Date Financials (\$1,000)

Program	Incentives	EDC Materials, Labor, and Administration	ICSP Materials, Labor, and Administration	Total Cost ⁽¹⁾
Non-Residential	\$16,053	\$258	\$7,751	\$24,062
Low-Income	\$3,587	\$260	\$4,464	\$8,311
Residential	\$7,212	\$275	\$5,848	\$13,335
Common Portfolio Costs ⁽²⁾	-	\$4,517	\$4,385	\$8,901
Portfolio Total ⁽¹⁾	\$26,853	\$5,310	\$22,447	\$54,610
SWE Costs ⁽³⁾	-	-	-	\$792
Total ⁽¹⁾	\$26,853	\$5,310	\$22,447	\$55,402

⁽¹⁾ Total may not sum due to rounding.

⁽²⁾ Common portfolio costs are costs applicable to more than one customer class or more than one program or that provide portfolio-wide benefits. These costs include PPL Electric Utilities' labor and materials, legal review, tracking system, EE&C plan development, etc.

⁽³⁾ SWE costs are outside of the 2% spending cap.

Cost-effectiveness testing for Act 129 EE&C programs is performed using the total resource cost (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 PY14 will be presented in the final annual report to the PA PUC on September 30, 2023, 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. PPL Electric Utilities' cost-recovery charges are organized separately by 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 9 and Section 2.3. For example, the low-income customer segment is a subset of PPL Electric Utilities’ residential tariff(s) and therefore not listed in Table 9.

Table 9. EE&C Plan Expenditures by Cost-Recovery Category¹¹

Cost-Recovery Sector	Rate Classes Included	PYTD Spending (\$1000)	P4TD Spending (\$1000)
Residential and Low-Income	Residential (primarily RS)	\$9,290	\$24,050
Small C&I	Small C&I (primarily GS1 & GS3)	\$7,915	\$16,465
Large C&I	Large C&I (primarily LP4 & LP5)	\$3,804	\$5,693
GNE	Residential, Small C&I, and Large C&I	\$2,052	\$3,871
Common costs ⁽¹⁾		\$1,784	\$5,322
Portfolio Total ⁽²⁾	-	\$24,845	\$55,402

⁽¹⁾ Includes costs not collected at the sector level. These costs are allocated to the sectors at the end of the phase.

⁽²⁾ Totals may not sum due to rounding.

¹¹ Includes SWE costs.