



PPL Stakeholder Meeting – Energy Efficiency & Conservation

October 31, 2023

Agenda

- **Commitment to Safety**
- **Important Updates**
- **Portfolio Overview**
- **Program and Components**
 - Residential Update
 - Low Income Update
 - Non-Residential Update
 - PJM Forward Capacity Market Update
- **Q&A, Discussion**
 - Please stay muted until this point
- **Wrap**



Commitment to Safety

Halloween Safety Message

- Accompany children 12 and under.
- Be visible! Carry glow-sticks, use reflective tape and wear bright colors.
- Drive slowly and turn on headlights early.
- Recognize tripping hazards and choose non-toxic paint over masks.



Important Updates

Approval of Revised EE&C Plan

- PUC approved the plan on August 24, 2023 – available on PPL and PUC websites

Inflation Reduction Act Planning

- PPL and other EDCs met with PA DEP

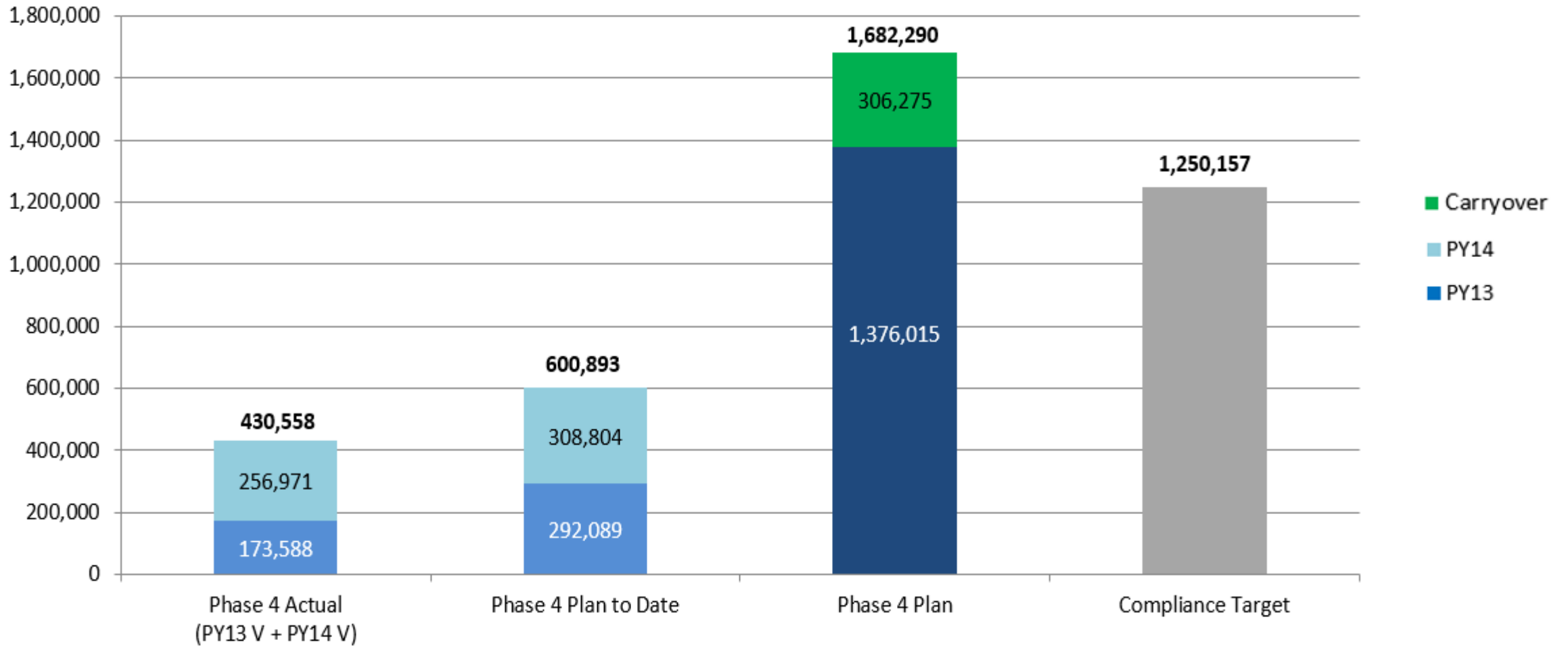
Submission of PY14 Evaluation Report

- Awaiting final SWE PY14 Report

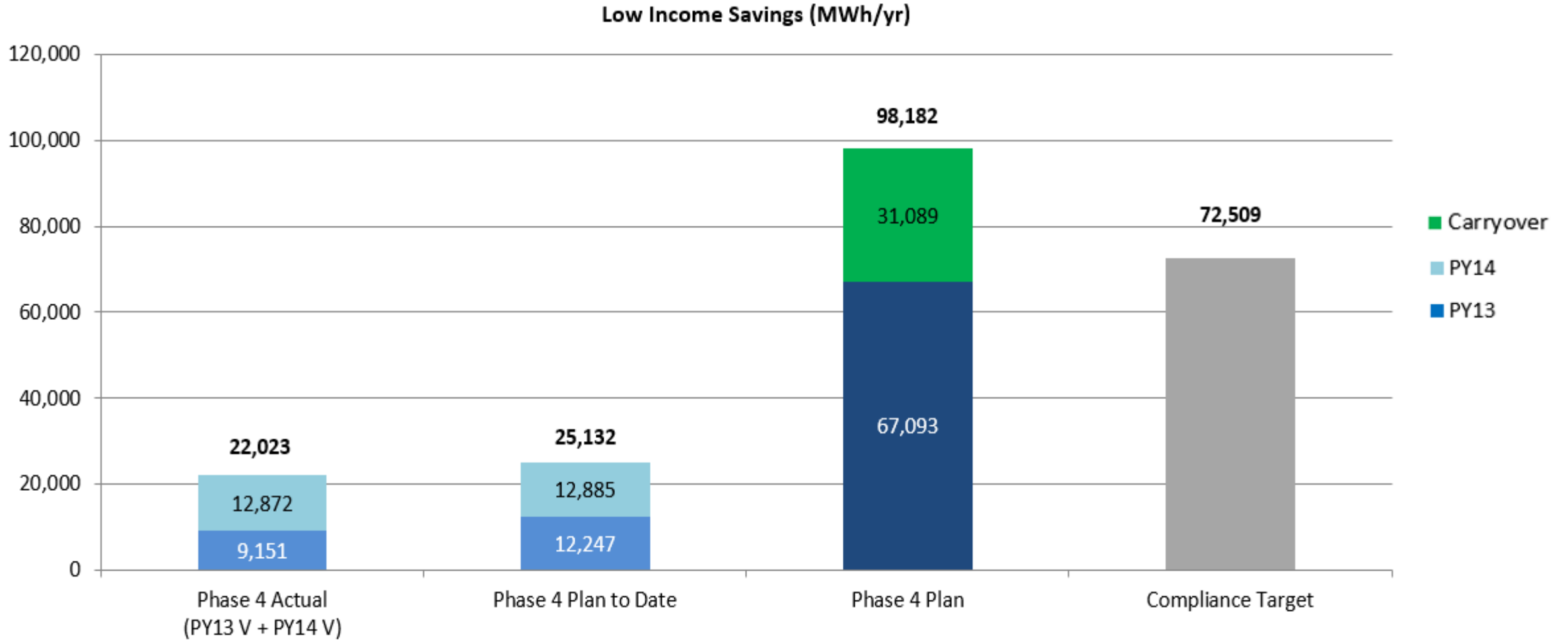
Portfolio Overview

Overview: Portfolio Savings (MWh)

Portfolio Savings (MWh/yr)

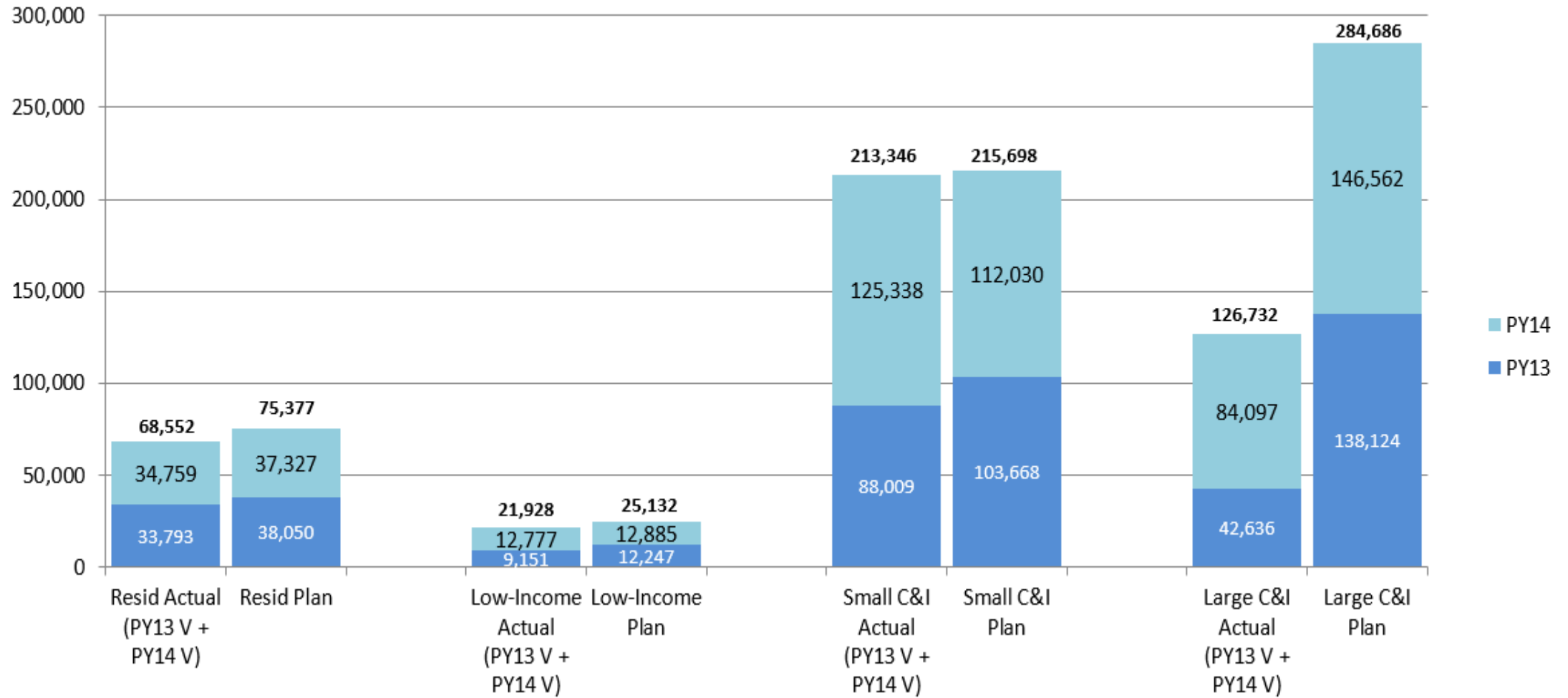


Overview: Low-Income Savings (MWh)

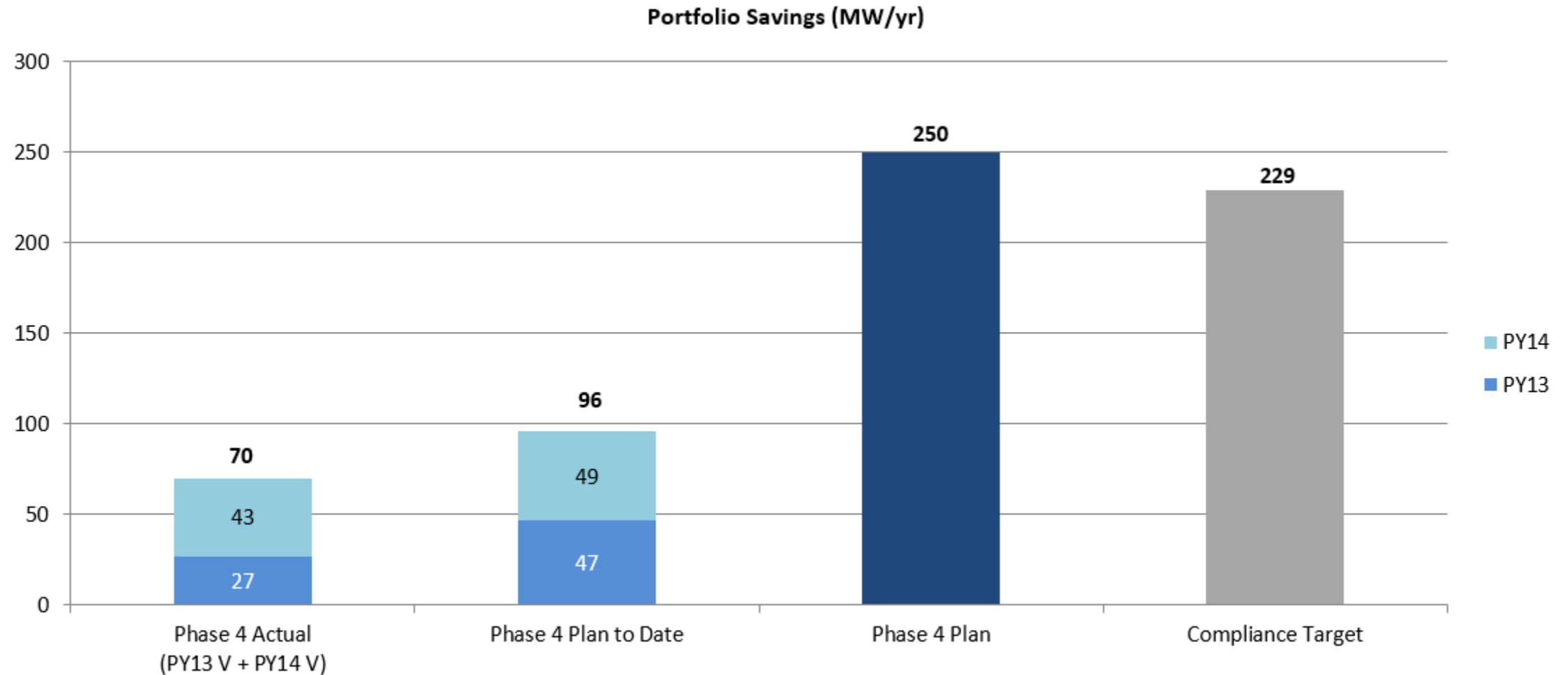


Overview: Sector Savings (MWh)

Phase-to-Date Customer Sector Savings (MWh/yr)

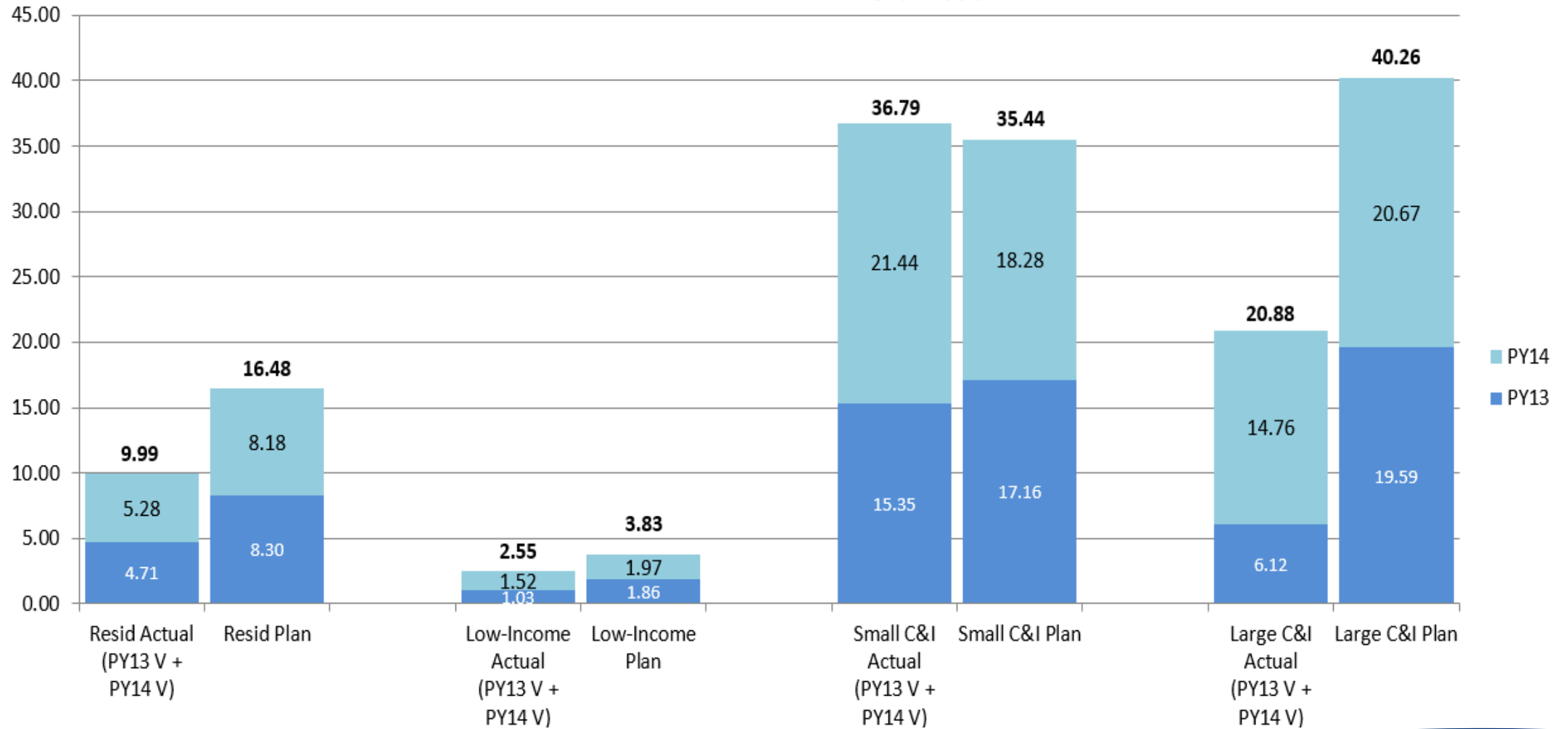


Overview: Portfolio Savings (MW)

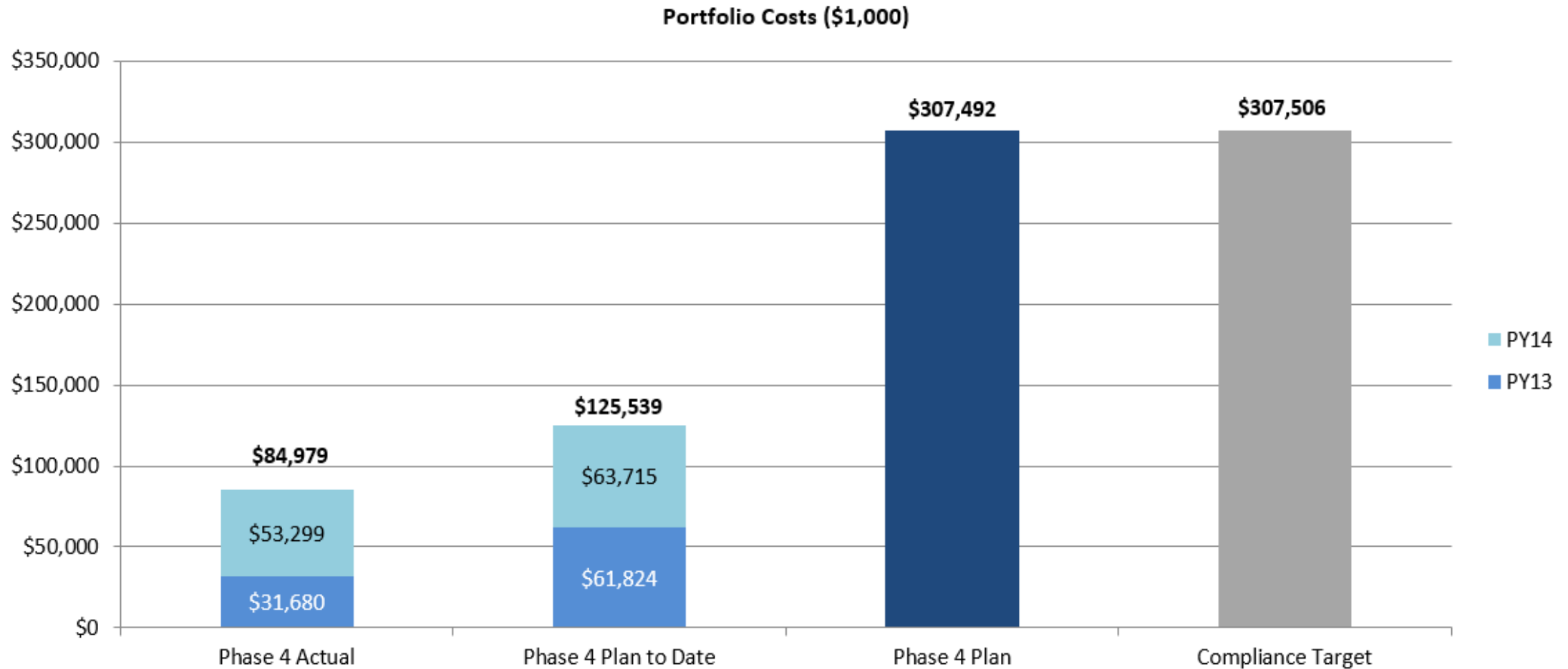


Overview: Sector Savings (MW)

Phase-to-Date Customer Sector Savings (MW/yr)

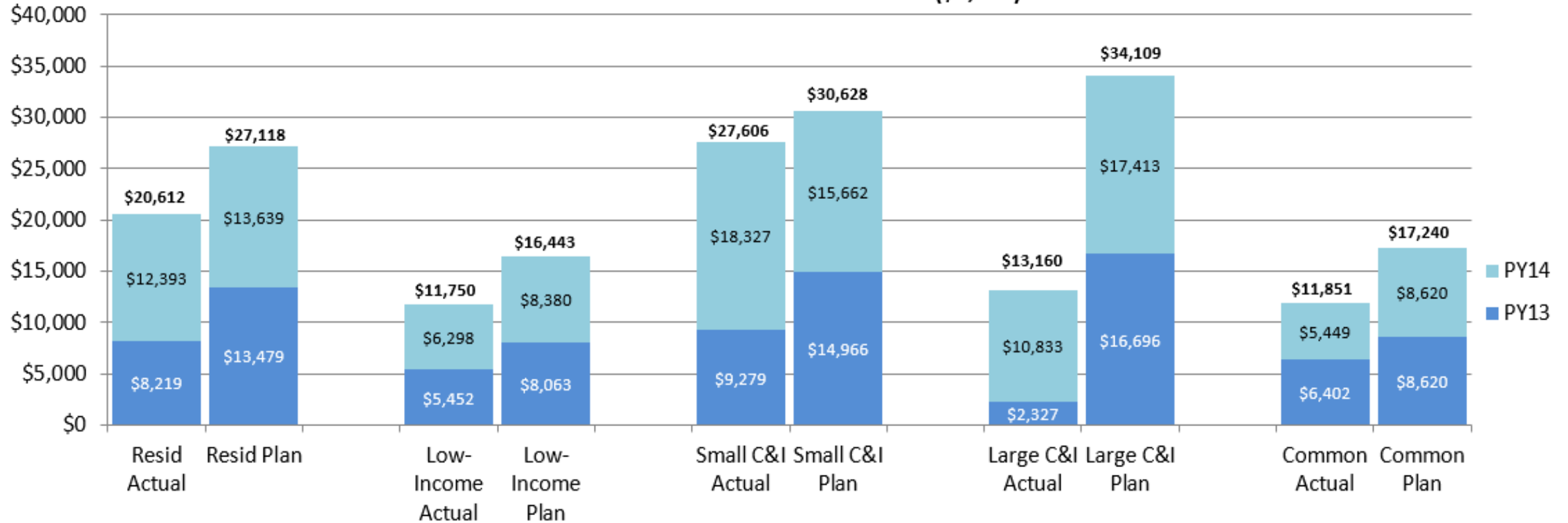


Overview: Portfolio Costs



Overview: Sector Costs

Phase-to-Date Customer Sector Costs (\$1,000)



Programs and Components: Residential Update

Residential Program Components

Efficient Homes



Energy Savings

PY13: 17,556
PY14: 21,593

PTD:

39,150 MWh

Peak Demand

PY13: 1.87
PY14: 2.35

PTD:

4.22 MW

Appliance Recycling



Energy Savings

PY13: 7,900
PY14: 8,569

PTD:

16,470 MWh

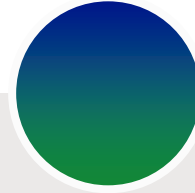
Peak Demand

PY13: 1.90
PY14: 2.09

PTD:

4.00 MW

EE Lighting



Energy Savings

PY13: 4,349
PY14: 4,226

PTD:

8,575 MWh

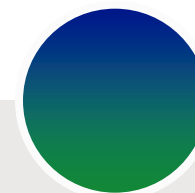
Peak Demand

PY13: 0.68
PY14: 0.66

PTD:

1.35 MW

Student Energy Ed



Energy Savings

PY13: 4,797
PY14: 5,434

PTD:

10,231 MWh

Peak Demand

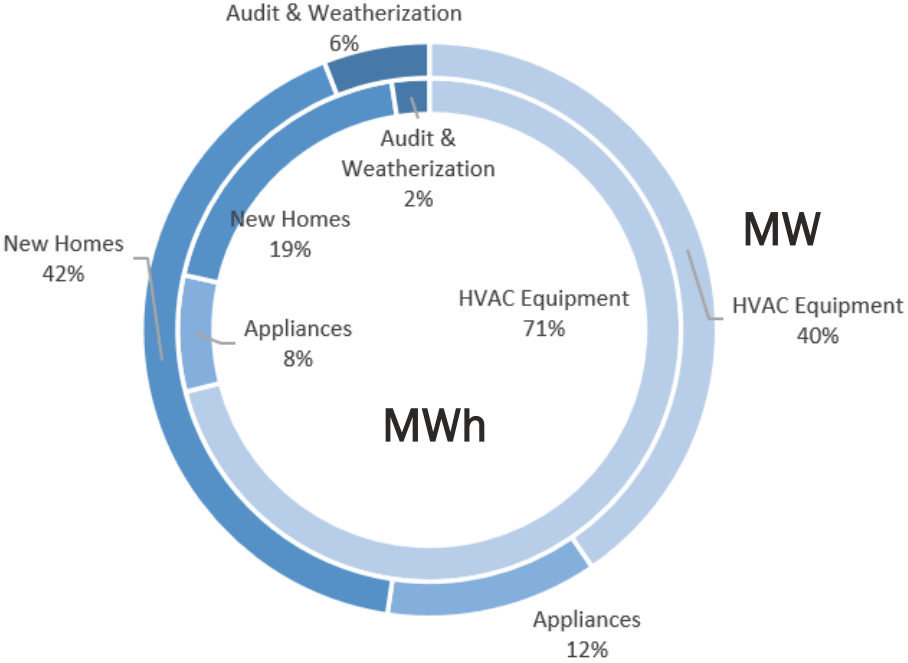
PY13: 0.47
PY14: 0.52

PTD:

0.99 MW

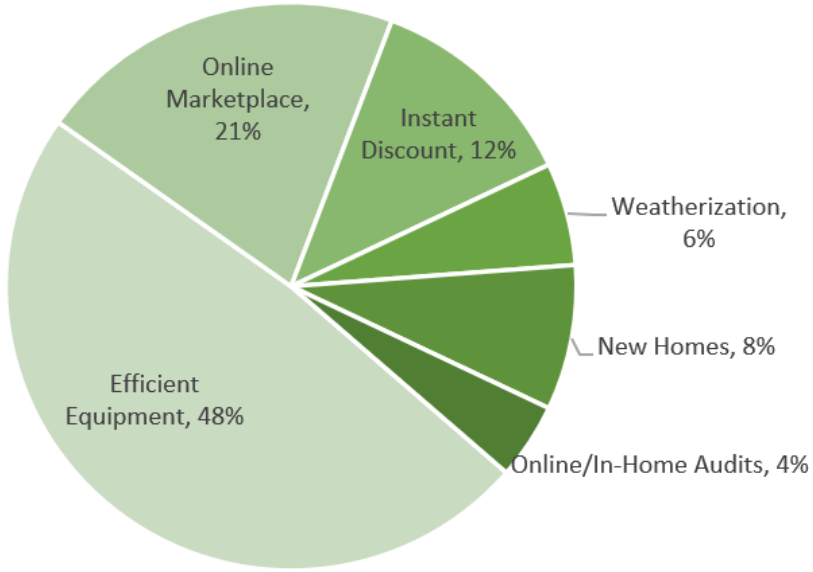
Residential Program: Energy Efficient Homes

PY14 Savings by Category



Category	MWh	MW
HVAC Equipment	15,340	0.95
Appliances	1,612	0.28
New Homes	4,122	0.98
Audit & Weatherization	520	0.14
Total	21,594	2.35

PY14 Participation By Measure



Category	n	%
Efficient Equipment	9,973	48%
Online Marketplace	4,312	21%
Instant Discount	2,514	12%
Weatherization	1,204	6%
New Homes	1,702	8%
Online/In-Home Audits	892	4%
Total	20,597	

Residential Program: Energy Efficient Homes



Program Recognition

Residential Program: Energy Efficient Homes

Pilots

Deep Energy Retrofits

- Identifying barriers to participation
- Offering comprehensive measure packages
- Whole home solutions
- Includes key elements of an ENERGY STAR® Home Upgrade
- Testing delivery approaches
- Single lead contractor as point of contact
- Offering monthly webinars

Net Zero Energy Ready Homes

- Demonstrating implementation of residential new construction standards
- Homes satisfy the DOE Zero Energy Ready Home certification, one of the most rigorous home certification standards available.
- Providing financial and technical support to 5 new construction homes
- Conducting virtual and in-person tours on each home
- Webinars on “behind the wall” upgrades and educational video

Residential Program: Energy Efficient Homes

Pilots



Residential Program: EE Homes – New Homes Subcomponent



Energy Savings

PY13: 2,867

PY14: 4,122

PTD:

6,989 MWh

Peak Demand

PY13: 0.84

PY14: 0.98

PTD:

1.82 MW

Home Built Phase to Date

PY13

- 1,242 homes built
- Over \$877K in incentives

PY14

- 1,702 homes built
- Over \$1 million in incentives

There currently 88 builders participating in the program.

Residential Program: EE Homes – New Homes Subcomponent

Feature Build




- Single-family home located in Lancaster
- Ground-source heat pump and air-source heat pumps
- Electric hot water heaters, LED Lighting
- Achieved savings of 15,648 kWh & 2.2 kW
- 47% over minimum code requirements
- \$4,500 in incentives

New Construction Recognition



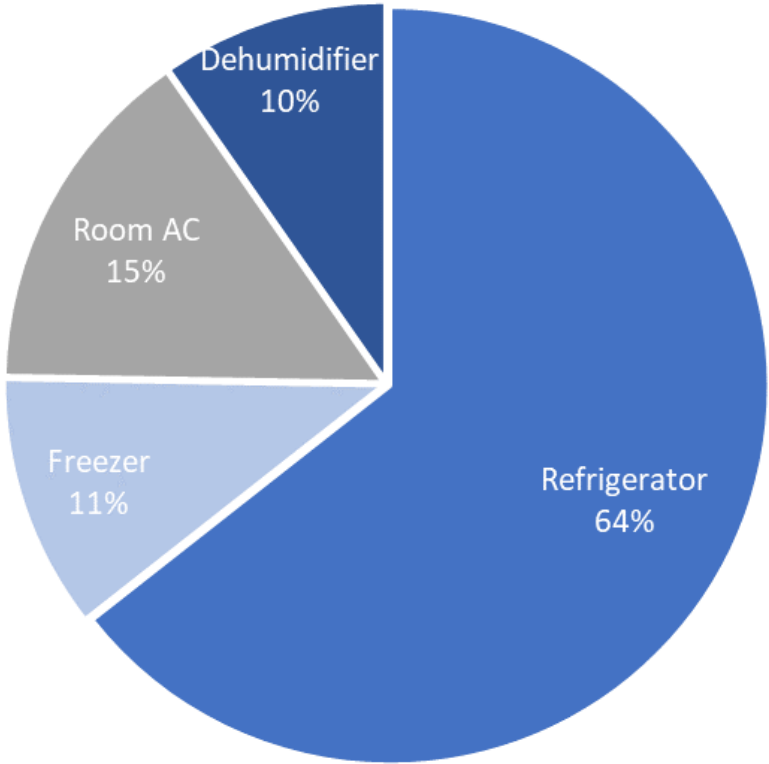
Residential Program: Appliance Recycling



Energy Savings
 PY13: 7,900
 PY14: 8,569
 PTD:
 16,470 MWh

Peak Demand
 PY13: 1.90
 PY14: 2.09
 PTD:
 4.00 MW

Units Collected PY14



Pick up and recycling of both large and small appliances

Unit Type	Units
Refrigerator	7,861
Freezer	1,326
Room AC	1,836
Dehumidifier	1,183
Total	12,206


Residential Program: Appliance Recycling

Type	Wilkes-Barre	Lancaster	Harrisburg	Allentown
Total Customers	145	163	164	182
Room AC	167	179	131	167
Dehumidifier	115	114	161	131
Total Appliances	282	293	292	298

PY14 Appliance Recycling Events



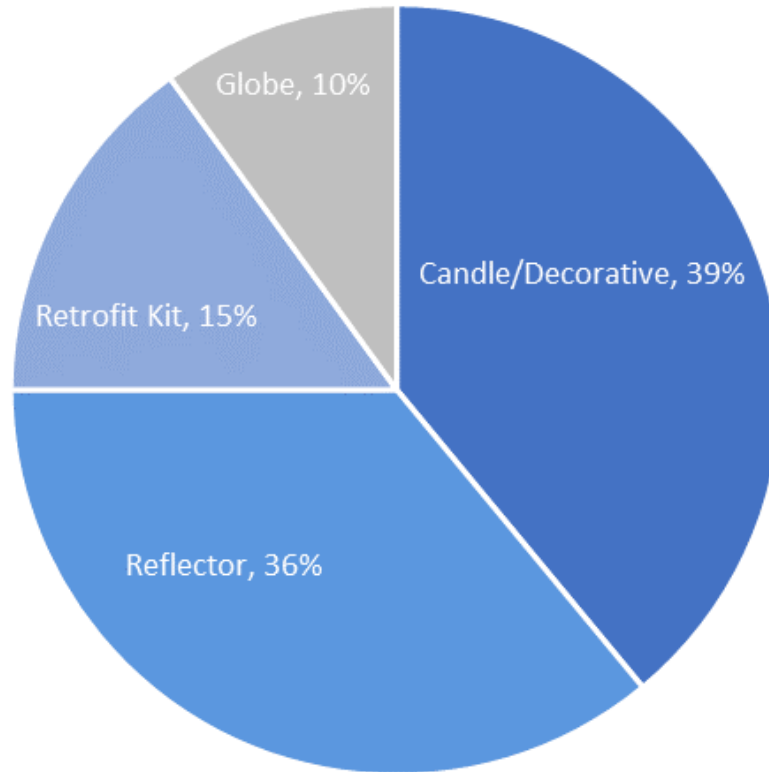
Residential Program: EE Lighting



Energy Savings
PY13: 4,349
PY14: 4,226
PTD:
8,575 MWh

Peak Demand
PY13: 0.68
PY14: 0.66
PTD:
1.35 MW

PY14 Bulb Types



- PPL was an early adopter and leader in LED technology
- 1,520,777 retail LEDs sold PTD
- Ensured LEDs were available to customers throughout PPL territory at a variety of retailers
- Program sunset at the end of PY14

Residential Program: Student Energy Education

PY13-14

- Fully subscribed
- Over 20,000 kits
- Focus on low-income schools
- Poster contest (K-8th)
- Innovation Challenge

PY14 Satisfaction

- 86% Student Satisfaction
- 99% Teacher Satisfaction
- Updated Format – more interactive

“ A great way to get kids thinking about conserving energy and become adults who care about protecting our environment! Thank you for providing this opportunity for our students to learn about being responsible energy users!”

- Take Action Teacher

Residential Program: Student Energy Education



Student Poster Contest

Programs and Components: Low-Income Update

Low-Income Program



Energy Savings

PY13: 9,151
PY14: 12,872

PTD:
22,023 MWh

Peak Demand

PY13: 1.03
PY14: 1.53

PTD:
2.56 MW

3 Channels – 15,820* Assessments and 41,377 Kits

Single Family – 10,713 Assessments

- Remote Energy Assessment (REA) – 9,114 Assessments
- In-Home Assessment – 1,599 Assessments
- Approx. 200% increase with In-Home work in PY14

Multifamily – 5,032 Assessments

- Virtual Energy Assessment – 1,249
- In-Home Assessment – 3,783

Welcome Kits – 41,377



Low-Income Program: Multifamily

Multifamily Re-engagement

- Continued re-engagement of multifamily property owners and building operators to provide needed services to low-income tenants
- Applying holistic approach in Phase IV, similar to Phase III approach
- Completed: 6 (IMMF:4/MMMF:2)

Master Metered Multifamily Focus

- Completed first holistic job in Lock Haven
- Queue: 6
- Working with stakeholders to identify additional low-income MF properties

Low-Income Program: Carveouts & Pilots

Comprehensive Measures

- Started on In-Home work in PY13 and continued at an increased pace
- Budget forecasted to expire in PY17
- Over \$700K spent on measures

The Results

\$0

Cost to customer

Nathaniel's home received...

Lighting

LED lightbulbs

Water Measures

Sink aerators, showerheads, thermostatic restriction valves

Heating & Cooling

Smart thermostat, air conditioner, attic insulation, mini-split system

Safety Devices

CO monitor, smoke detector

Small Appliances

Smart strips, air purifier, dehumidifier

9,996.25 kWh

Annual energy savings

\$17,315.68

Total value of equipment

Health and Safety Pilot

- Health and Safety Pilot dollars spent as bridge to comprehensive measures
- \$86K utilized to correct in-home issues phase to date

Coordination Efforts

- Natural Gas Distribution Companies (NGDC) – 32 appointments complete in PY14
- Continue to coordinate with PPL OnTrack, LIHEAP, other CAP program participants

Programs and Components: Non-Residential Update

Non-Residential Program Components

Efficient Equipment Downstream



Energy Savings

PY13: 41,772
PY14: 52,026

PTD:

93,798 MWh

Peak Demand

PY13: 6.68
PY14: 8.13

PTD:

14.81 MW

Efficient Equipment Midstream



Energy Savings

PY13: 24,025
PY14: 32,071

PTD:

56,096 MWh

Peak Demand

PY13: 4.7
PY14: 5.96

PTD:

10.66 MW

Efficient Equipment Direct Discount



Energy Savings

PY13: 23,514
PY14: 30,272

PTD:

53,786 MWh

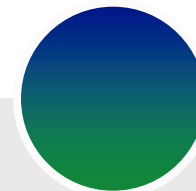
Peak Demand

PY13: 2.9
PY14: 4.41

PTD:

7.31 MW

Custom



Energy Savings

PY13: 40,503
PY14: 95,307

PTD:

135,810 MWh

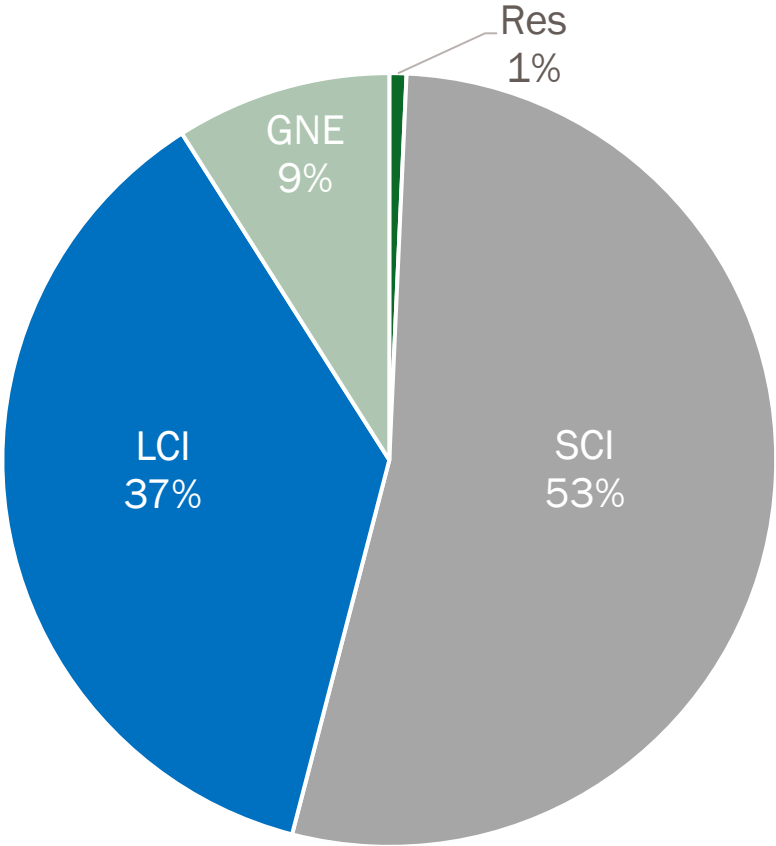
Peak Demand

PY13: 6.98
PY14: 17.87

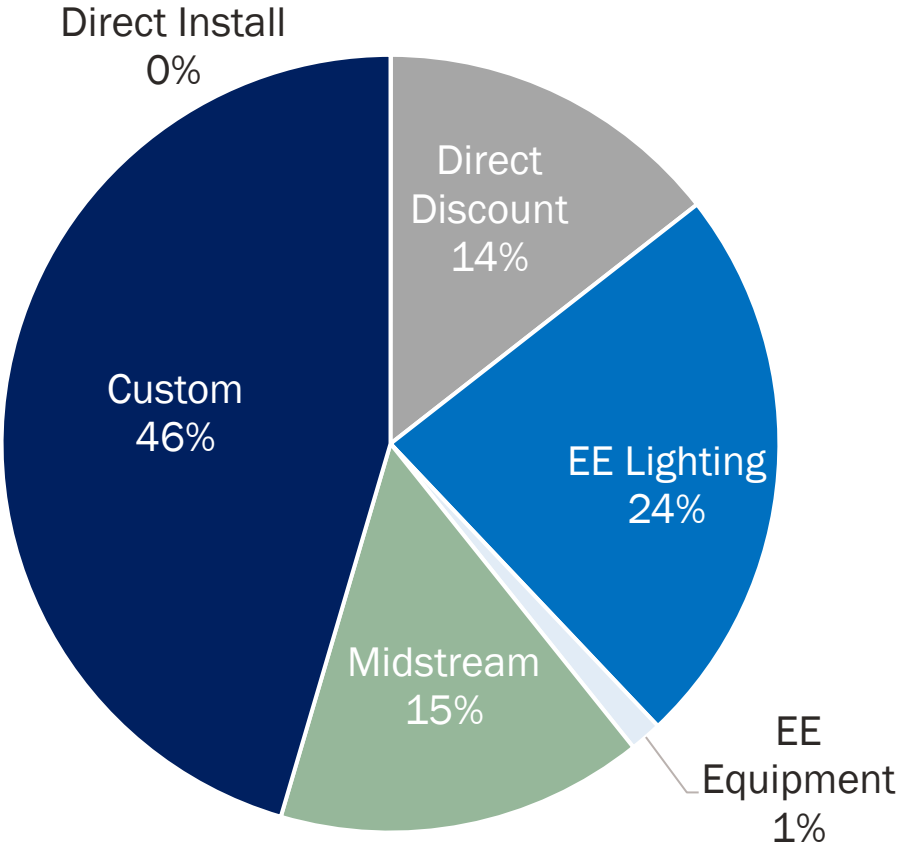
PTD:

24.85 MW

Non-Residential Program: Summary



Energy Savings by Sector PY14



Energy Savings by Application PY14

Non-Residential Program: Efficient Equipment Downstream



Energy Savings

PY13: 41,772
PY14: 52,026

PTD:

93,798 MWh

Peak Demand

PY13: 6.68
PY14: 8.13

PTD:

14.81 MW

PY13 verified energy savings by project type:

Lighting

- 272 projects
- 41,359 MWh
- 6.6 MW

Equipment

- 16 projects
- 413 MWh
- 0.08 MW

PY14 verified energy savings by project type:

Lighting

- 315 projects
- 49,246 MWh
- 7.71 MW

Equipment

- 96 projects
- 2,780 MWh
- 0.42 MW

\$5,866,712 – incentives provided to customers

Non-Residential Program: Efficient Equipment Midstream



Energy Savings

PY13: 24,025

PY14: 32,071

PTD:

56,096 MWh

Peak Demand

PY13: 4.7

PY14: 5.96

PTD:

10.66 MW

25 distributors and 95 locations in PY14

- 5,729 PY14 projects
- Lighting verified PY14 savings of 32,071 MWh and 5.96 MW
- Ag unverified PY14 savings of 709 MWh and 0.3 MW

\$1,867,632 – incentives provided to customers

Non-Residential Program: Efficient Equipment Direct Discount



Energy Savings

PY13: 23,514
PY14: 30,272

PTD:

53,786 MWh

Peak Demand

PY13: 2.9
PY14: 4.41

PTD:

7.31 MW

Direct Discount accounts for approximately 26% of Efficient Equipment savings in PY14

- Lighting verified savings 30,267 MWh
- Refrigeration verified savings 5 MWh

\$5,906,251 – incentives provided to customers

Non-Residential Program: Custom



Energy Savings

PY13: 40,503
PY14: 95,307

PTD:

135,810 MWh

Peak Demand

PY13: 6.98
PY14: 17.87

PTD:

24.85 MW

- Agricultural projects had 72,216 MWh verified savings
- Pace of custom increased in PY14

\$6,806,516 – incentives provided to customers

Programs and Components: PJM Forward Capacity Market Update

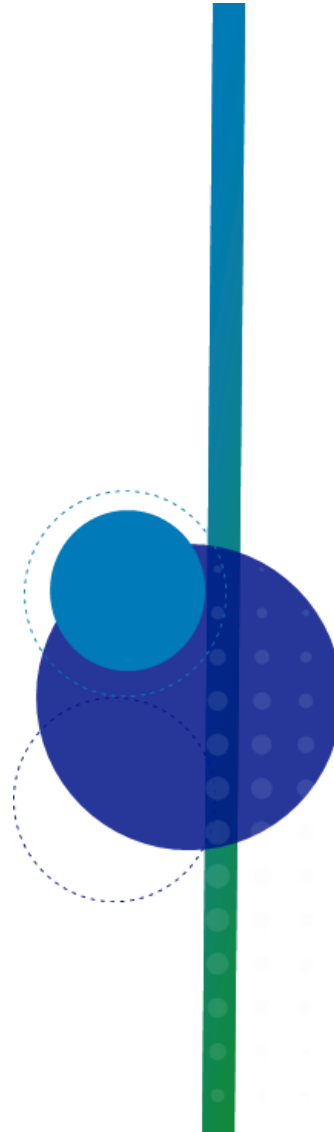
PJM Forward Capacity Market Service

Updates

- Submitted 2nd bid to CSP in mid-April 2023 for measurement & verification to qualify into PJM
- Submitted the resource for the PJM Delivery Year 23/24
 - PPL Electric and CSP bid 1.5 MWs
 - New total: 2.9 MWs
 - Collecting revenue to return to customers
 - Added Low-Income measures to the mix of resource
- Bid the same resource for the 24/25 PJM Delivery Year Auctions
- Will submit new resource MWs for PJM Delivery Years 24/25, 25/26, and 26/27
 - MWs have begun to stack

Questions & Answers

Thank You!



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