



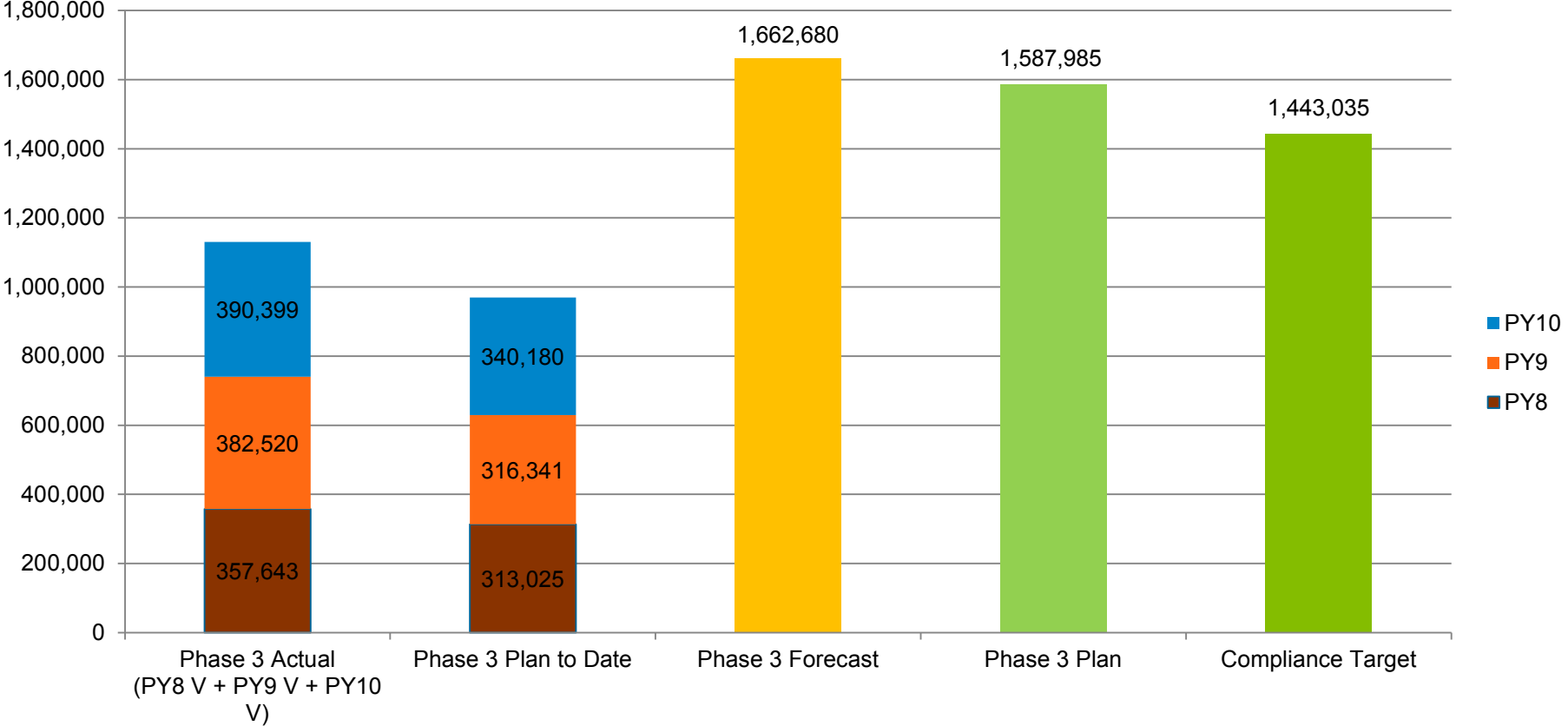
PPL Energy Efficiency Update
PPL Stakeholder Meeting
January 7, 2020

Agenda

- **Overview:** Dirk Chiles
- **Residential Update:** Mary Ann Kelly-Merenda
- **Low Income Update:** Sean Pressmann
- **Non-Residential Update:** Heather Bash
- **Demand Response Update:** Sean Pressmann
- **Question and Comment Period:** All
- **Closing:** Dirk Chiles

Overview: Portfolio Savings

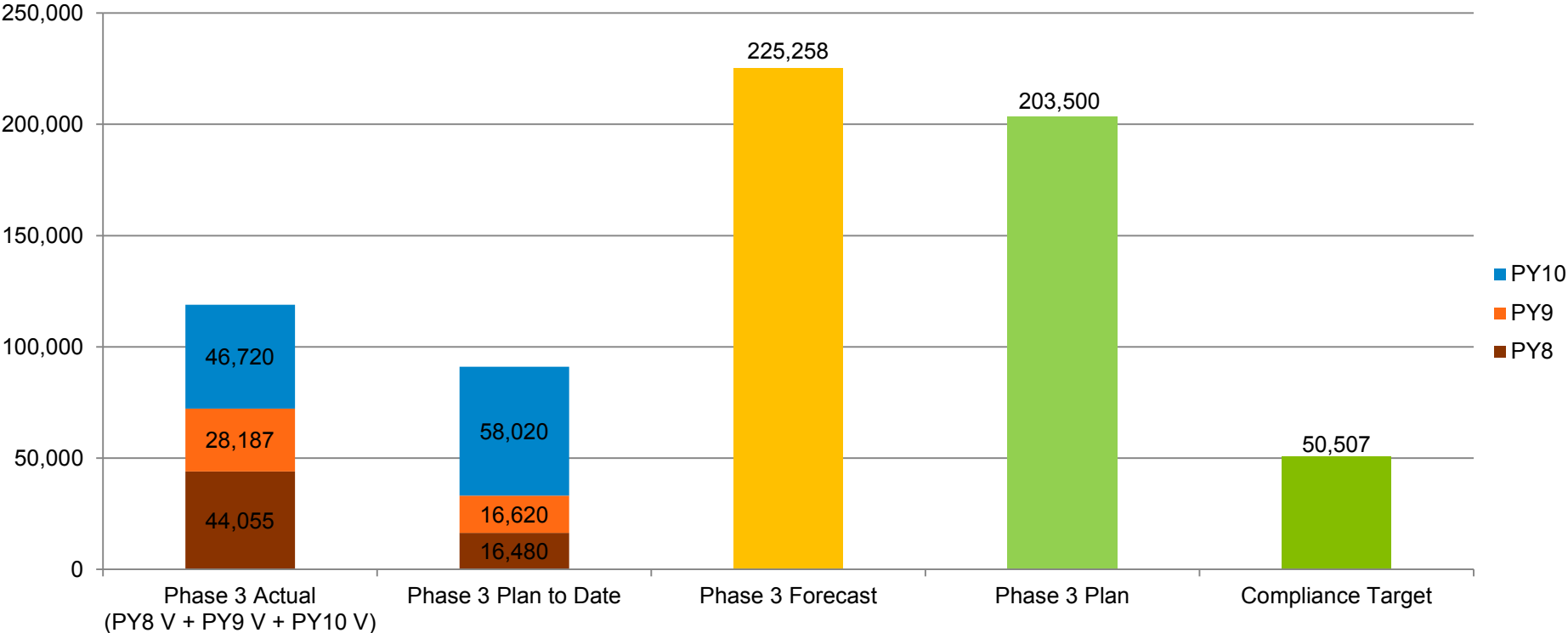
Portfolio Savings (MWh/yr)



Overview: GNE Savings

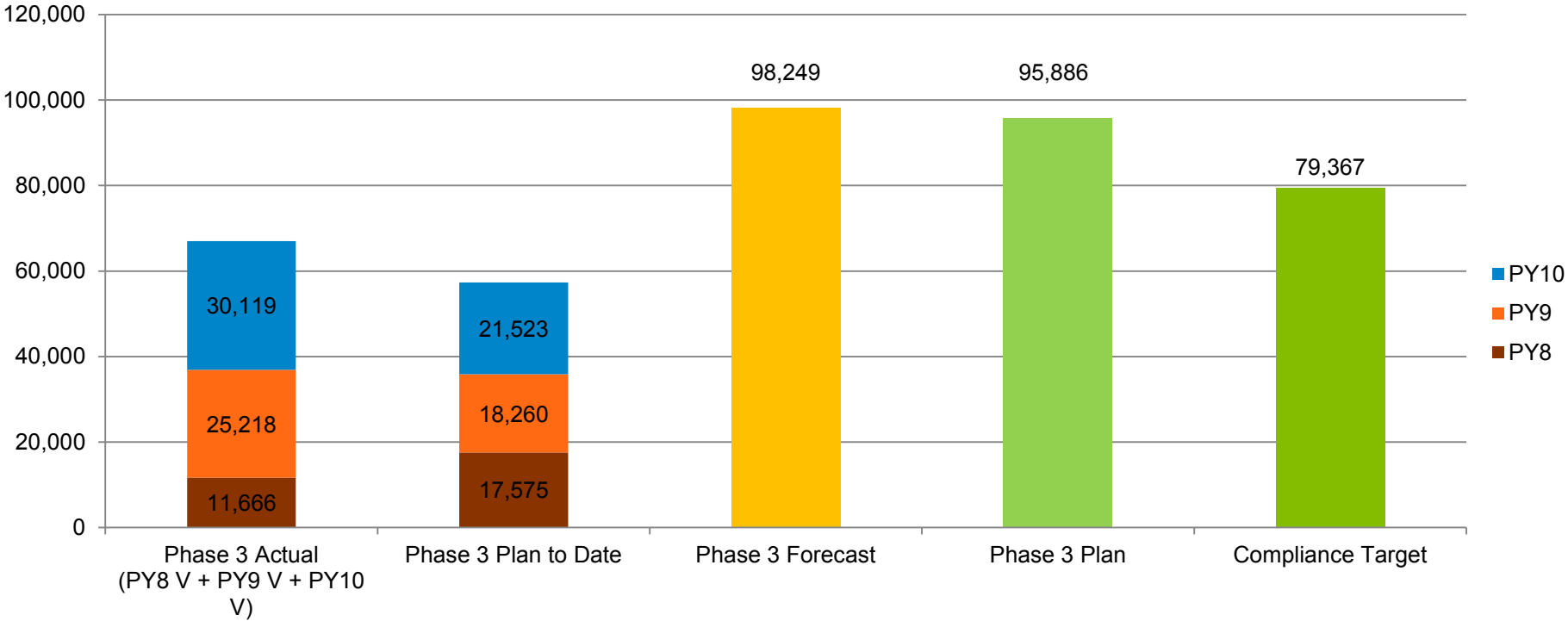


GNE Savings (MWh/yr)



Overview: Low Income Savings

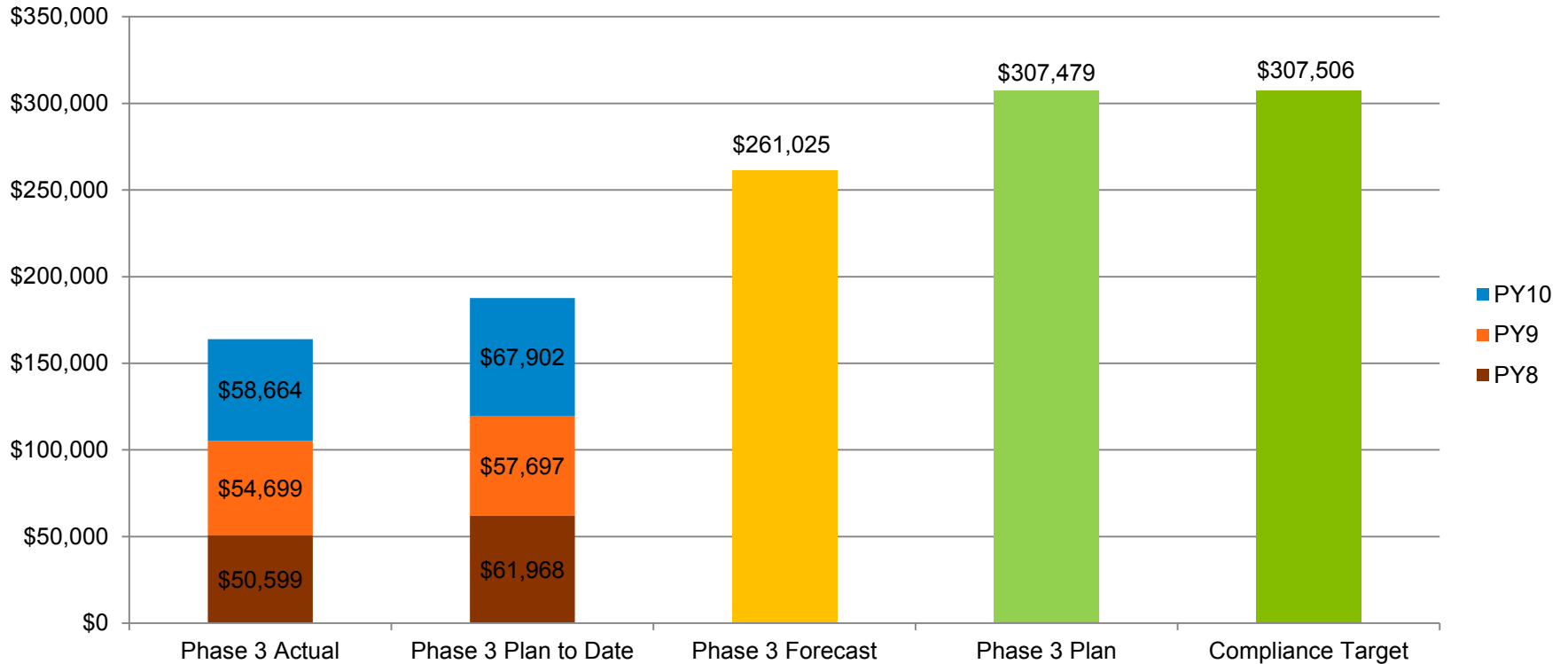
Low Income Savings (MWh/yr)



Overview: Portfolio Costs

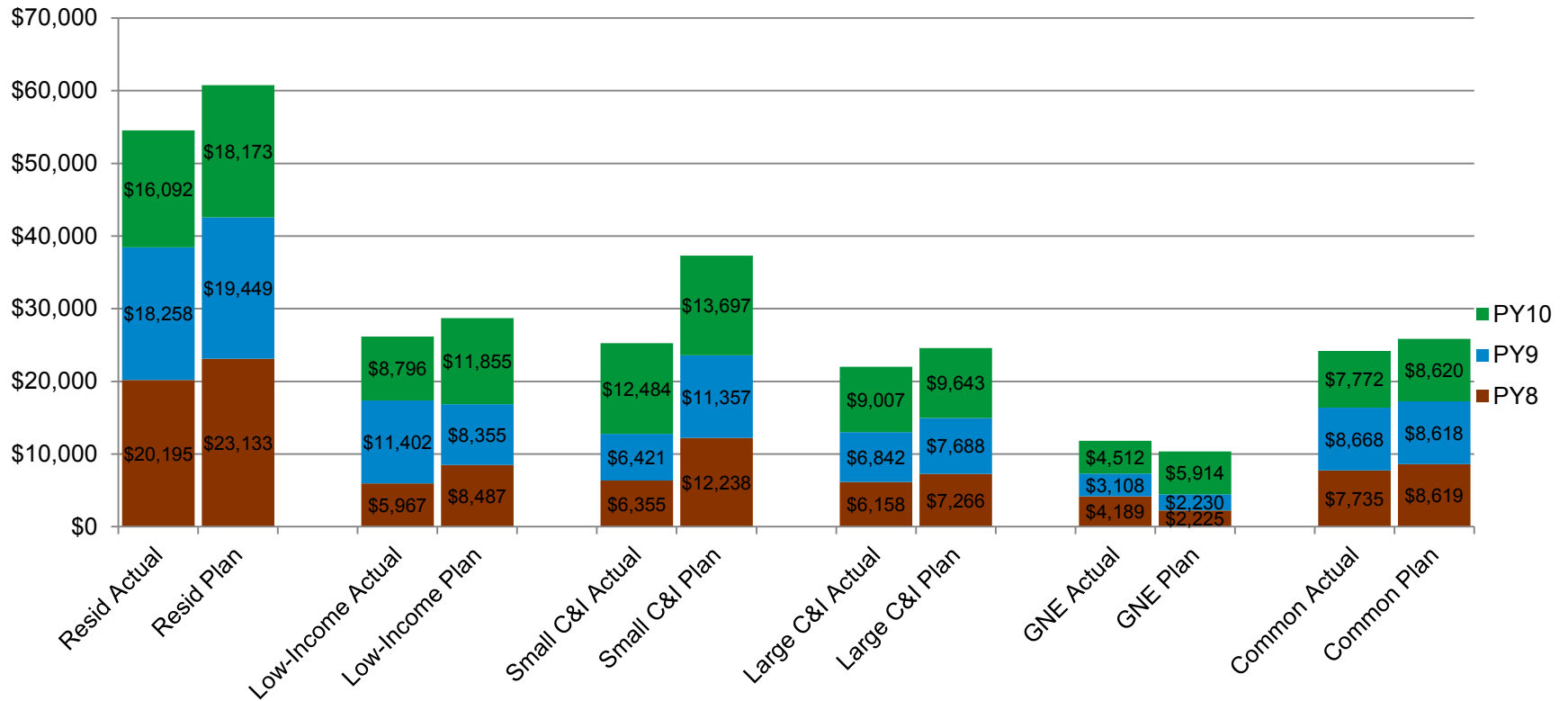


Portfolio Costs (\$1,000)



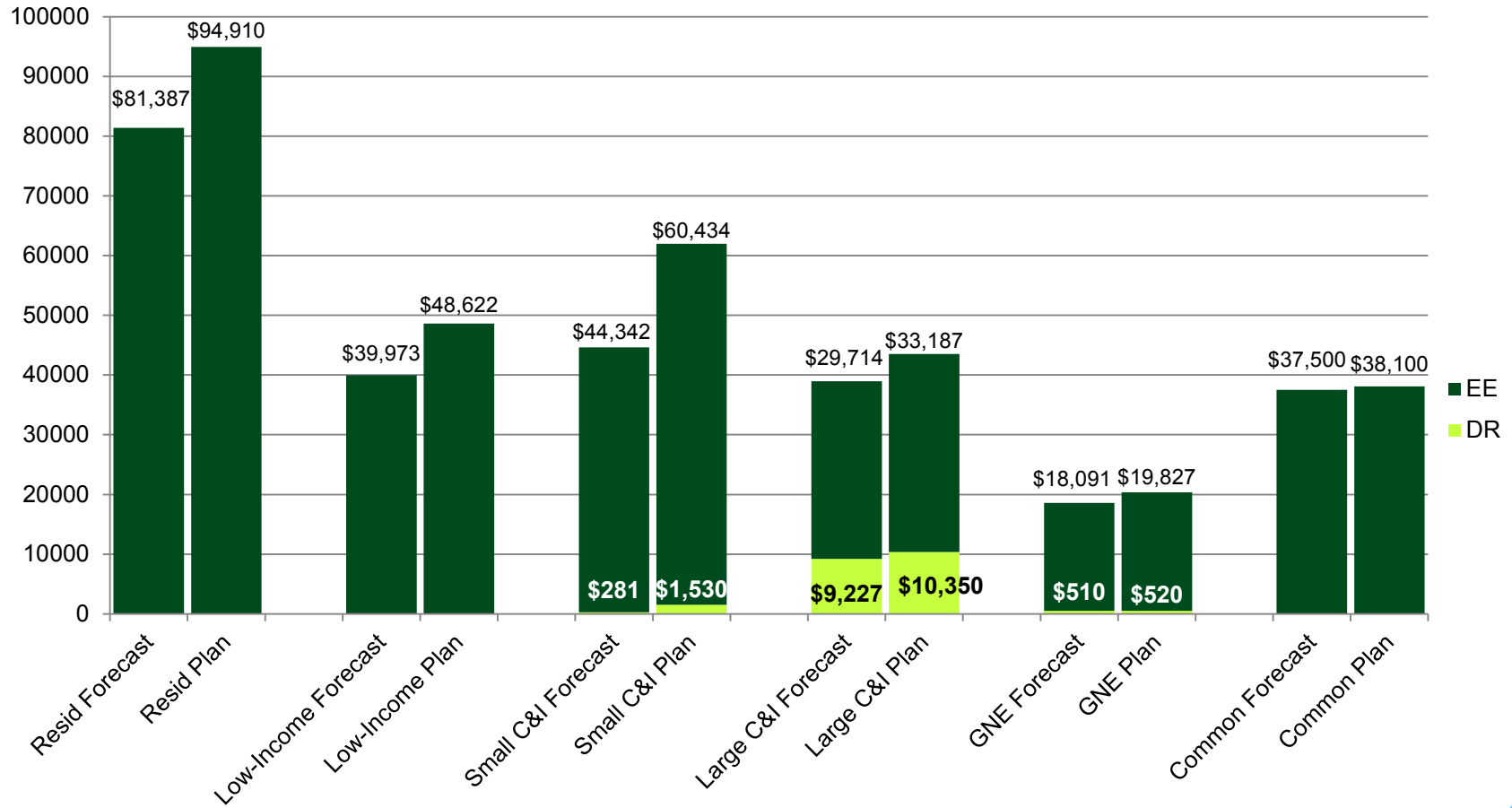
Overview: Phase To Date Costs

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



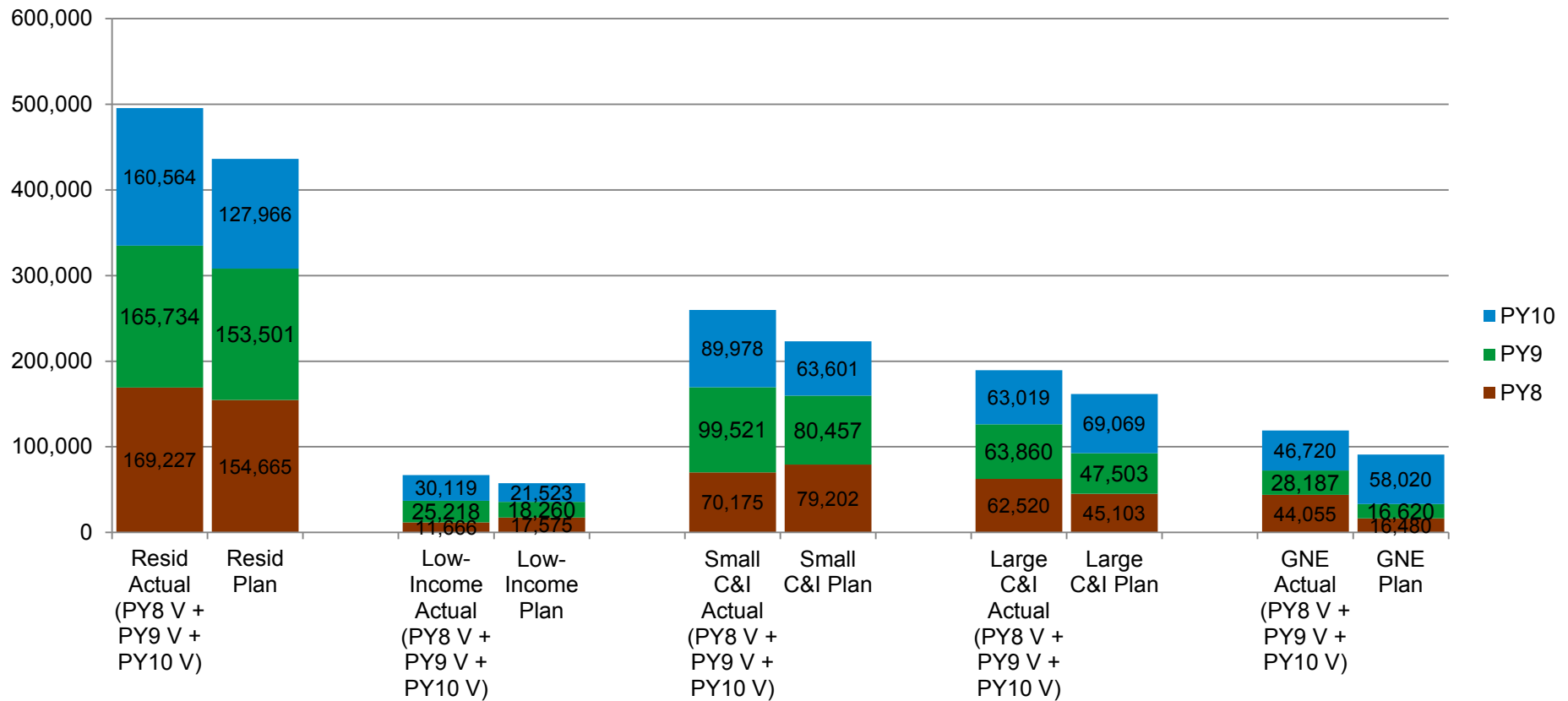
Overview: Phase 3 Sector Costs

Phase 3 Customer Sector Costs (\$1,000)



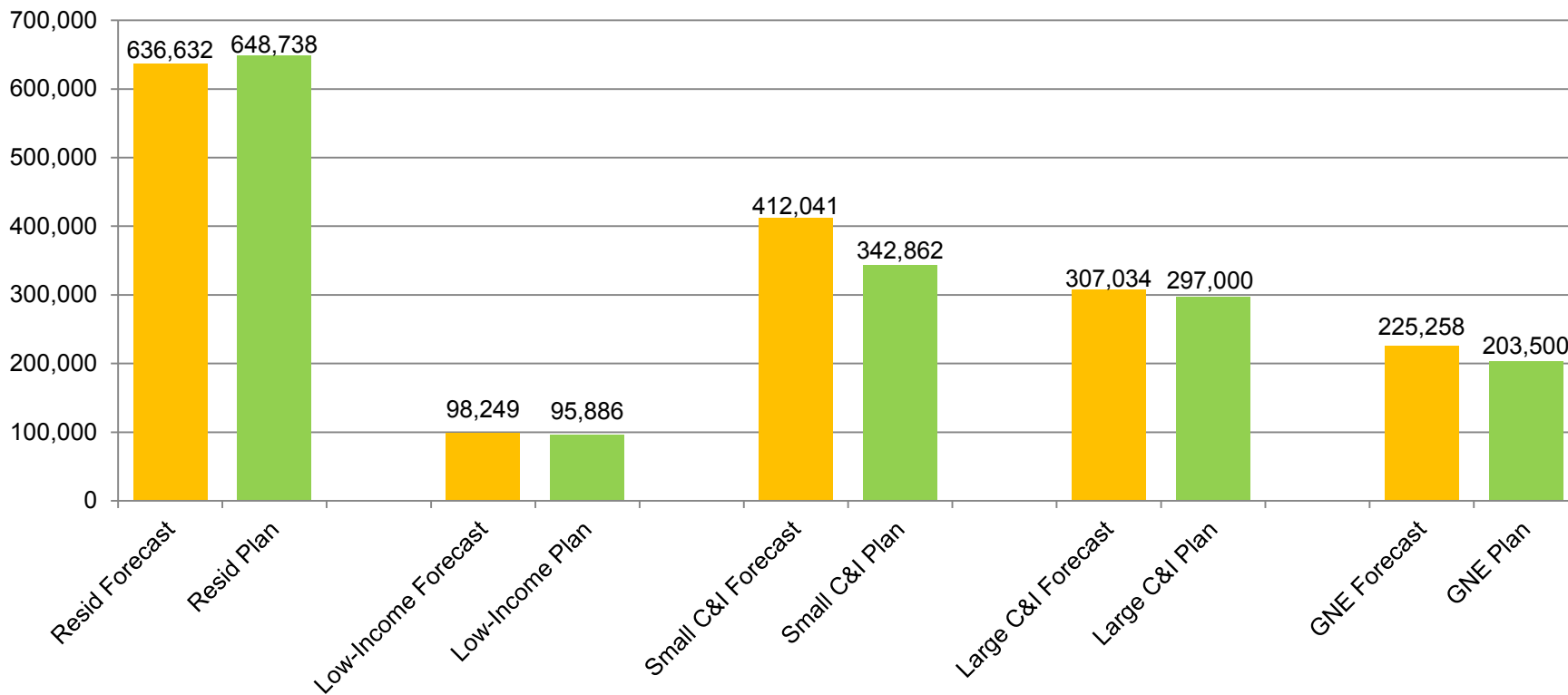
Overview: Phase to Date Sector Savings

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

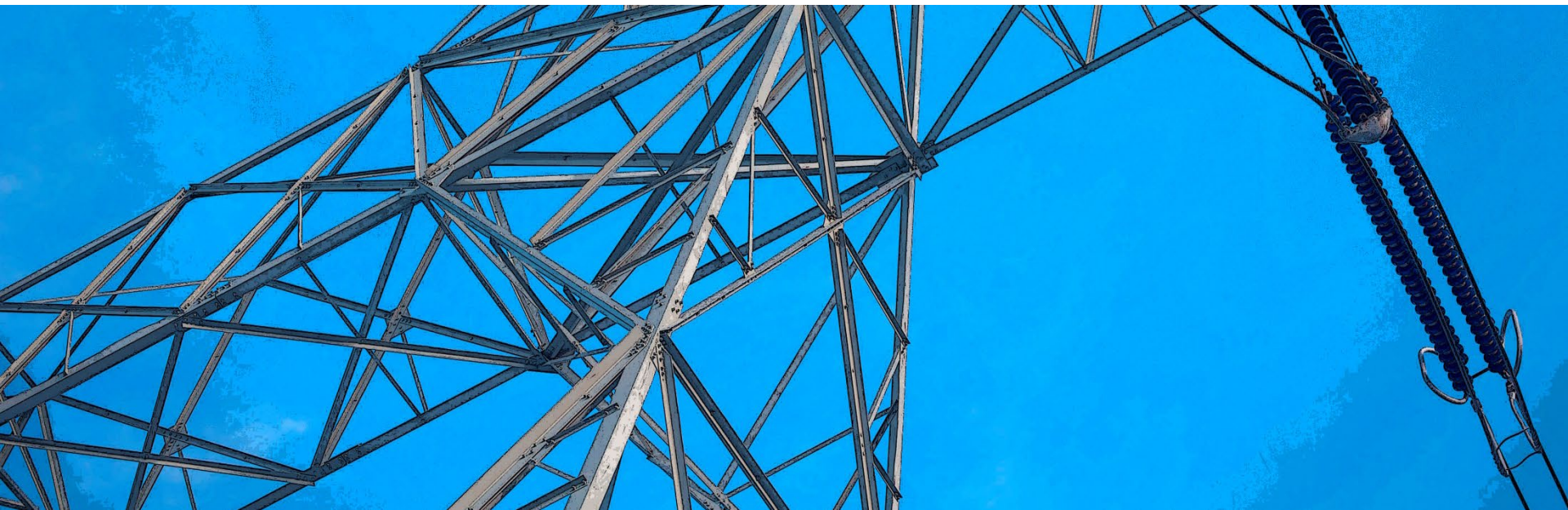


Overview: Phase 3 Sector Savings

Phase 3 Customer Sector Savings (MWh/yr)



Residential Programs



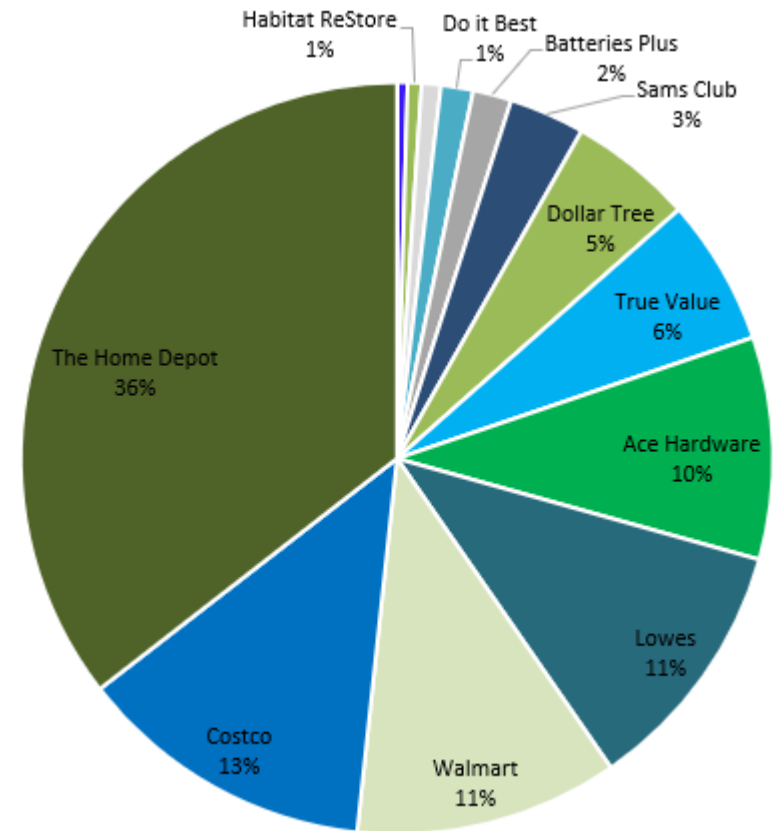
Residential Program: EE Lighting

- Over 2.5 million LEDs in PY10
- Over 10.1 million phase to date
- Savings 379,329 MWh/yr.
- Ensured LEDs available to customers in all areas at a variety of retailer types

Residential Program: EE Lighting

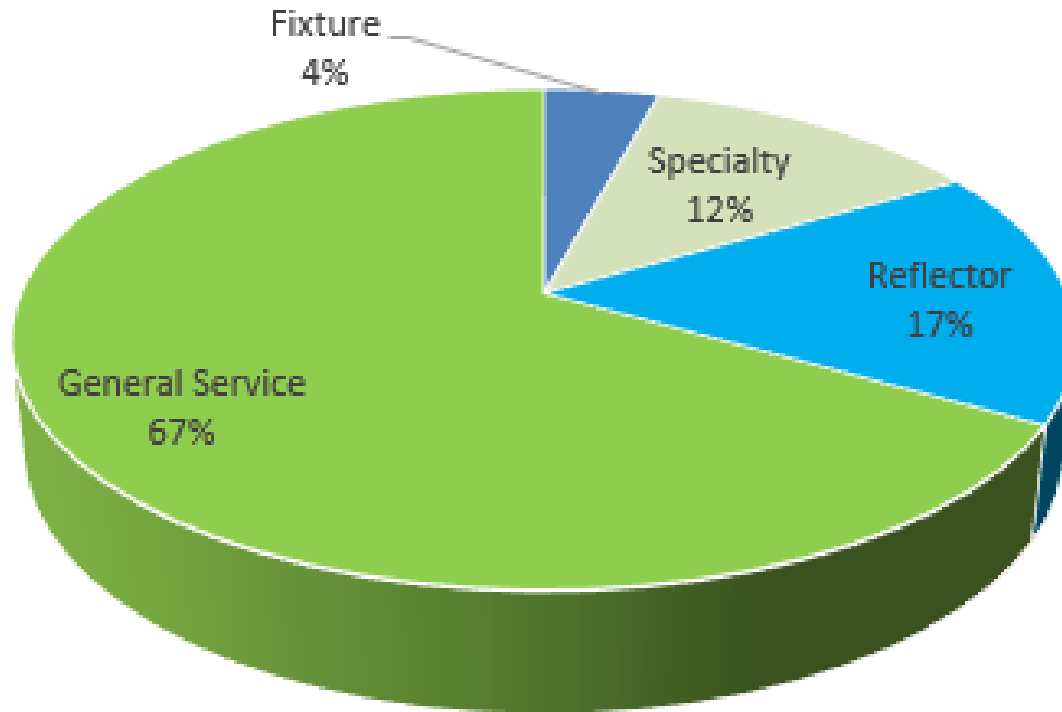
Retailer	Label	Units
The Home Depot	Big Box	917,458
Costco	Big Box	331,030
Walmart	Big Box	292,690
Lowes	Big Box	285,233
Sams Club	Big Box	84,058
Ace Hardware	Independent	246,825
True Value	Independent	162,747
Dollar Tree	Independent	137,343
Batteries Plus	Independent	42,877
Do it Best	Independent	35,814
Goodwill	Independent	21,260
Habitat ReStore	Independent	15,463
Giveaway bulbs	Independent	11,280
Grocery Outlet	Independent	384
Total		2,584,462

PY10 LEDs by Retailer



Residential Program: EE Lighting

PY10 Diverse Mix of Bulbs



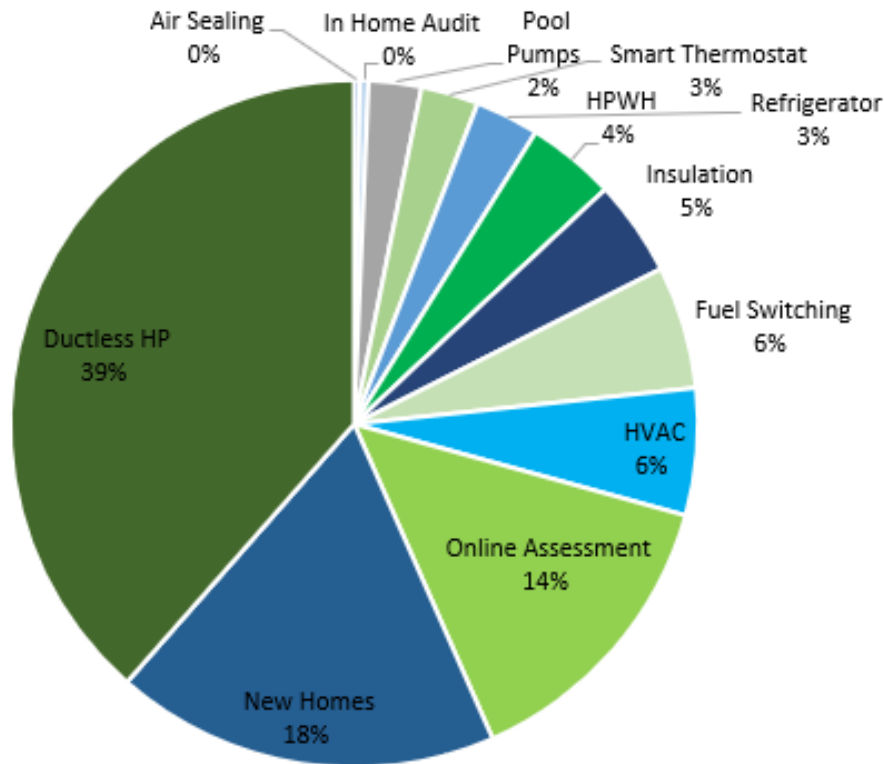
Residential Program: EE Lighting

- Given the uncertainty of the current lighting legislation, the Efficient Lighting program was designed to emphasize the lighting incentives in the early part of Phase III, with a phase out target toward the end of 2019.
- Beginning December 2019, the lighting incentives were discontinued in the major retailers such as Costco, Home Depot and Lowes.
- Limited quantities of incentivized products remained available through the end of 2019 in smaller retailers such as Ace and True Value, as they sell through special orders made for the program.
- We will still maintain the lighting on our website to encourage people to purchase LED light bulbs. Customers will be able to find information about the different types of light bulbs and how to select them.

Residential Programs: New Homes

- **Significant interest by new home builders**
 - 1,002 homes in PY10
 - Over 2,672 MWh in savings
 - Over \$1.1 million in incentives
- **Efficient new home construction**
 - Strong relationships with builders and raters, achieved the following key successes:
 - Providing incentives for more than 2,178 homes verified as 15% more efficient than IECC or ENERGY STAR® certified in phase to date
 - Driving incentives up to \$2,500 per home for participating builders
 - Achieving an average savings of more than 3,000 kWh/yr per home annually

Residential Programs: Energy Efficiency Homes



- Savings achieved PY10: 17,661
- Savings achieved phase to date: over 46,407 MWh/yr.

Residential Program: Energy Efficient Homes (continued)

PY10

- Refrigerators and ductless HP:
most popular measures rebated
- Ductless HP: 4,926 units or over
1,800 projects
- Online Assessment/In Home Audit –
7,852 kits
- ASHP/CAC: 2,460 units
- New ASHP tune-up measure had an
uptake of 23 rebates
- Home heating fuel switching closed

Measure Category	Total MWh/Year
Efficient Equipment	12,264
New Homes	2,672
Audit and Kit	1,944
Weatherization	781
Total	17,661

Residential Program: New PY10 Pilots

- **Instant Rebate** pilot for heat pump water heaters was launched in November 2018 at Lowes locations and online
 - The pilot aimed to demonstrate a cost-effective program design that eliminates additional steps traditionally required for rebate applications.
 - Pilot ended on May 31st. There were 88 reservations with only 16 redemptions.
 - We offered this again in PY11, at The Home Depot, for HPWH with the addition of dehumidifiers.
 - 1,327 reservations (322 HPWH - 1,005 dehumidifiers)
 - 190 redemptions (59 HPWH - 131 dehumidifiers)

Residential Program: PY10 Pilots

- **Instant Rebate** pilot for LED lighting was launched in May through Lowes
 - Customers validated their account information through a mobile-friendly website portal which generated a unique coupon code for a two pack of LED bulbs.
 - The pilot aimed to demonstrate a cost-effective program design that eliminates additional steps traditionally required for rebate applications.
 - Although this pilot was for a free pack of LEDs, there were 1,957 reservations with only 226 redemptions.
 - This pilot allowed us to obtain additional customer emails, which helps us to reach customers regarding our energy efficiency programs.

Online Marketplace





Home / December Thermostat Deals

DECEMBER THERMOSTAT DEALS

DECEMBER THERMOSTAT SALE WITH FREE SHIPPING



Purchase limit: 2 incentivized WiFi thermostats per customer per year

View	Sort By: Name	Show: 12	
4 Item(s)			
 <p>ECOBEE SMARTTHERMOSTAT WITH VOICE CONTROL Regular Price: \$249.00 Your PPL Rebate Price \$169.00</p> <p>ADD TO CART Add to Compare</p>	 <p>ECOBEE3 LITE THERMOSTAT Regular Price: \$169.00 Your PPL Rebate Price \$99.00</p> <p>ADD TO CART Add to Compare</p>	 <p>GOOGLE NEST LEARNING THERMOSTAT + GOOGLE HOME MINI Regular Price: \$249.00 Your PPL Rebate Price \$129.00</p> <p>ADD TO CART Add to Compare</p>	 <p>GOOGLE NEST THERMOSTAT E + GOOGLE HOME MINI Regular Price: \$169.00 Your PPL Rebate Price \$79.00</p> <p>ADD TO CART Add to Compare</p>
View	Sort By: Name	Show: 12	
4 Item(s)			

By registering for the PPL Marketplace you certify that you are a PPL residential customer, you intend to install purchased products in your own residence, and products are not for resale. Eligible customers may order up to 10 LED lamps per category (General, Reflector, Specialty), 10 LED fixtures, 5 LED light strings, 10 LED night lights, 2 Wi-Fi Thermostats, 5 weatherization products, 10 occupancy sensors, 4 dehumidifiers, and 5 advanced power strips per calendar year. Purchases \$35.00 and above receive free shipping. Thank you for using the PPL Marketplace.

There are plenty more energy-saving incentives, tips, and tools where that came from. Visit ppl.electricsavings.com to see all the ways we can help you save.



Online Marketplace

- **Online Marketplace** pilot was launched on December 4, 2018
 - Web browser-based storefront that allows customers to order energy efficient products online
 - Incentives are applied directly to the energy efficiency products, and customers can see the pre-incentive price as well as the net customer price
- Provides customers
 - Instant discounts at checkout
 - Free shipping on orders over \$35
 - Ease of access – laptop, tablet, phone
 - 24 x 7 access
 - Leverage manufacturer discounts that contributed toward special promotions for additional dollars off specific products

Online Marketplace

Top 5 Products

- Nest Learning Thermostat - 42% (*Black Friday/4+ limited time promos with Nest*)
- Nest Thermostat E - 17% of sales
- Nest E with Google Home Mini- 6%
- Ecobee3 Lite Thermostat - 5%
- Ecobee SmartThermostat with voice - 4.9%

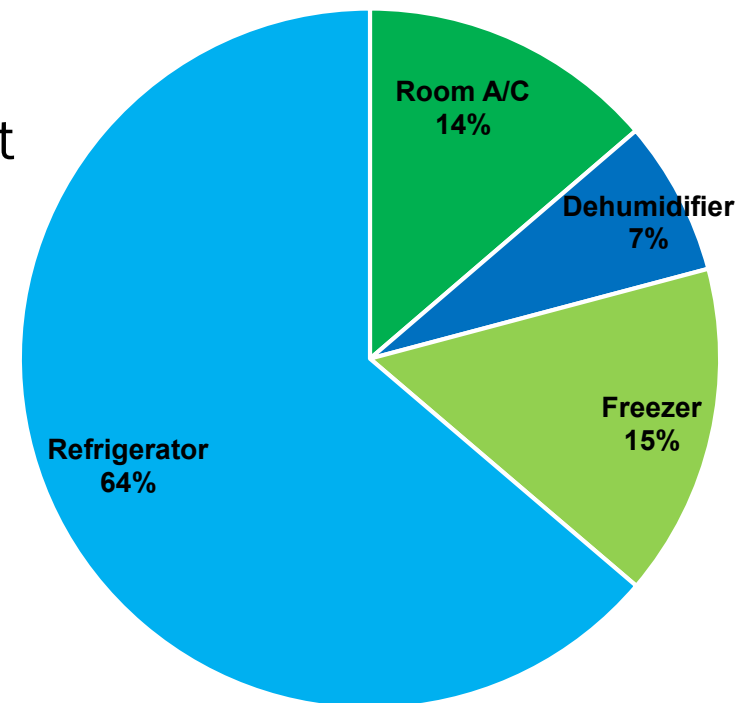
Marketing Channels

- During a campaign- 78-80% from email
- Ways to Save
- PPL Website
- Paid digital/social doesn't work, direct/targeted email rules

Residential Program: Appliance Recycling

Units collected in PY10

- Participation & savings on target
- 9,060 refrigerators
- 2,185 freezers
- 1,949 room air conditioners
- 1,016 dehumidifiers



Residential Event: Recycling Roundup

- **Held three small appliance community recycling events**
 - Home Depot – Fruitville Pike, Lancaster
 - Home Depot – Dickson City
 - HACC - Harrisburg
- **Collected used room air conditioners and dehumidifiers**

Lancaster

- 240 participants
- 330 room ACs
- 110 dehumidifiers
- 147,000 kWh/yr.

Dickson City

- 520 participants
- 648 room ACs
- 423 dehumidifiers
- 386,876 kWh/yr.

HACC

- 235 participants
- 249 room ACs
- 191 dehumidifiers
- 200,042 kWh/yr.

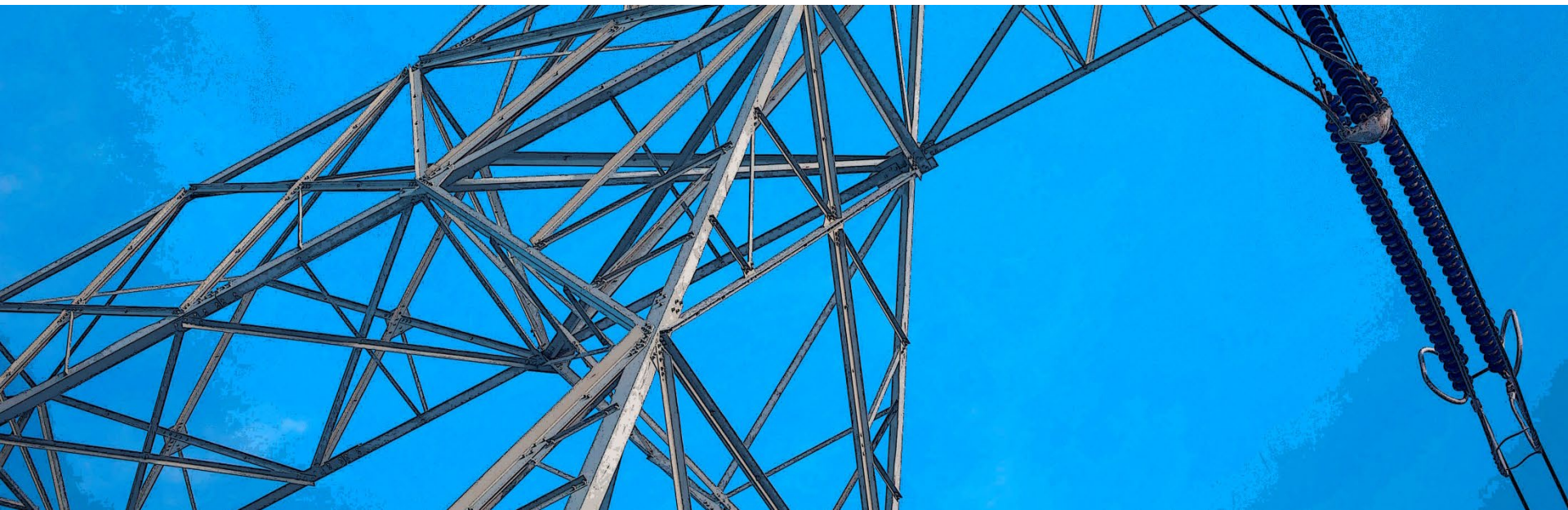
Residential Program: Student Energy Education

- Fully subscribed in PY10
- 24,000 students
 - Bright Kids (2nd – 3rd grade)
 - Take Action (5th – 7th grade)
 - Innovation (9th – 12th grade)
- Over 23,000 kits distributed
- In PY10, the new augmented reality app was used in all Take Action presentations and tier II power strips were in half of the Innovation classes (approximately 2,500 kits)
- Brought back the poster contest

Residential Program: Home Energy Education

- Over 173,000 customers received home energy reports
- Savings were on target for PY10
 - over 42,000 MWh/yr.
- PPL has offered this program since the beginning of Phase I. The evaluation of the Home Energy Education program revealed customer fatigue and yielded lower than expected customer satisfaction results.
- The program will be phased out beginning January 1 in preparation for Phase IV. Treatment to low income customers will continue through the end of the phase.
- Email challenges will be discontinued in conjunction with that as well.

Low Income Programs



Low Income Program: Low Income WRAP

- **Goal:** 7,000 WRAP jobs per year
- **Achieved:** almost 13,000 completed jobs in PY10*
 - More than 8,000 jobs in PY11 thus far
- **Creating more leads, increased marketing, education**
 - Quick Track program & On-Track auto-enroll
 - Ran direct mail, email and SM campaigns
 - Dual need to increase savings per job and over number of jobs
 - High CSAT (92%)
 - Budget is on track

Low Income Program: Multifamily LI & MMMF Status

- **Significant increase in MF penetration compared to Phase II**
- **Increased participation:**
 - 14,012 units completed;
 - Phase II: 1,400 completed in 3 years
- **Single point of contact for multi-family customers**
- **Master meter multi-family housing**
 - Jobs – 4,858 units
 - Total buildings - 524 at 87 facilities
 - Most have been in GNE, but not all (approx. 76/24 split of GNE vs. CI)

Low Income Program: Multifamily Update

- **Good**
 - Multiple outreach points
 - Educating landlords has increased consent and participation
 - Reduced customer “no-shows”
 - Planned multi-family outreach
- **Challenges**
 - Struggles with finding MMMF-SCI customers
 - Little work completed in the MF common space

Low Income Program: Joint Multi-Family Job Highlights

- **About Riverview Apartments**
 - Sunbury, PA
 - 46 units built in 1950
- **Measures/equipment installed**
 - 41 units treated (24 dual)
 - 457 bulbs
 - 151 water measures
 - 384 linear feet of pipe wrap
 - 11 water heaters
 - 19 refrigerators/freezers
 - 15 room air conditioners
 - All units treated with weather stripping and door sweeps



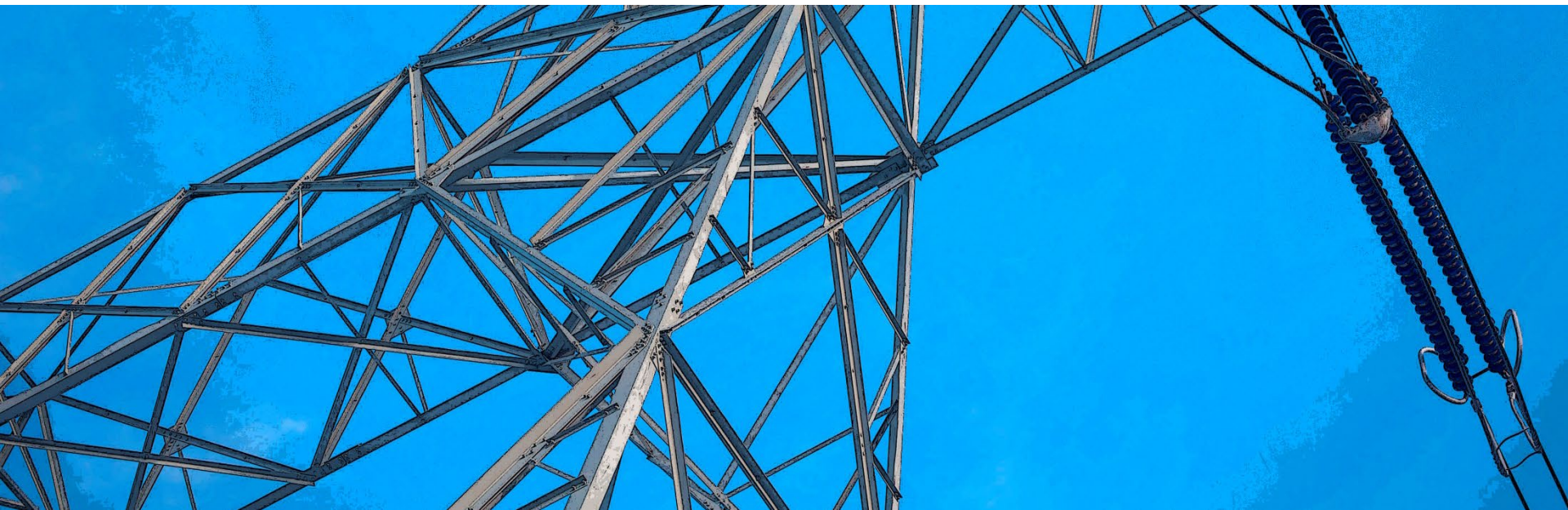
Low Income Program: Joint Multi-Family Job Challenges

- **Coordination challenges**
 - Took 6 months to coordinate the job
 - Took 6 weeks for tenant approvals
 - Took 2 months to complete the job
 - Change of ownership

Low Income Program: Low Income Kits & Education

- **Goal:** 8,000 kits per year
- **Achieved:** more than 13,500 kits in PY10
 - More than 14,000 kits in PY11 thus far
 - Kits program is now closed (last month)
- **Increased kits in PY9 to help make up for WRAP slow start**
 - Will continue to increase kits and will phase out in PY12
- **Very high CSAT (97%)**
- **Updated kits with more consistent measures in PY10**
- **Budget is on track**

Non-Residential Programs

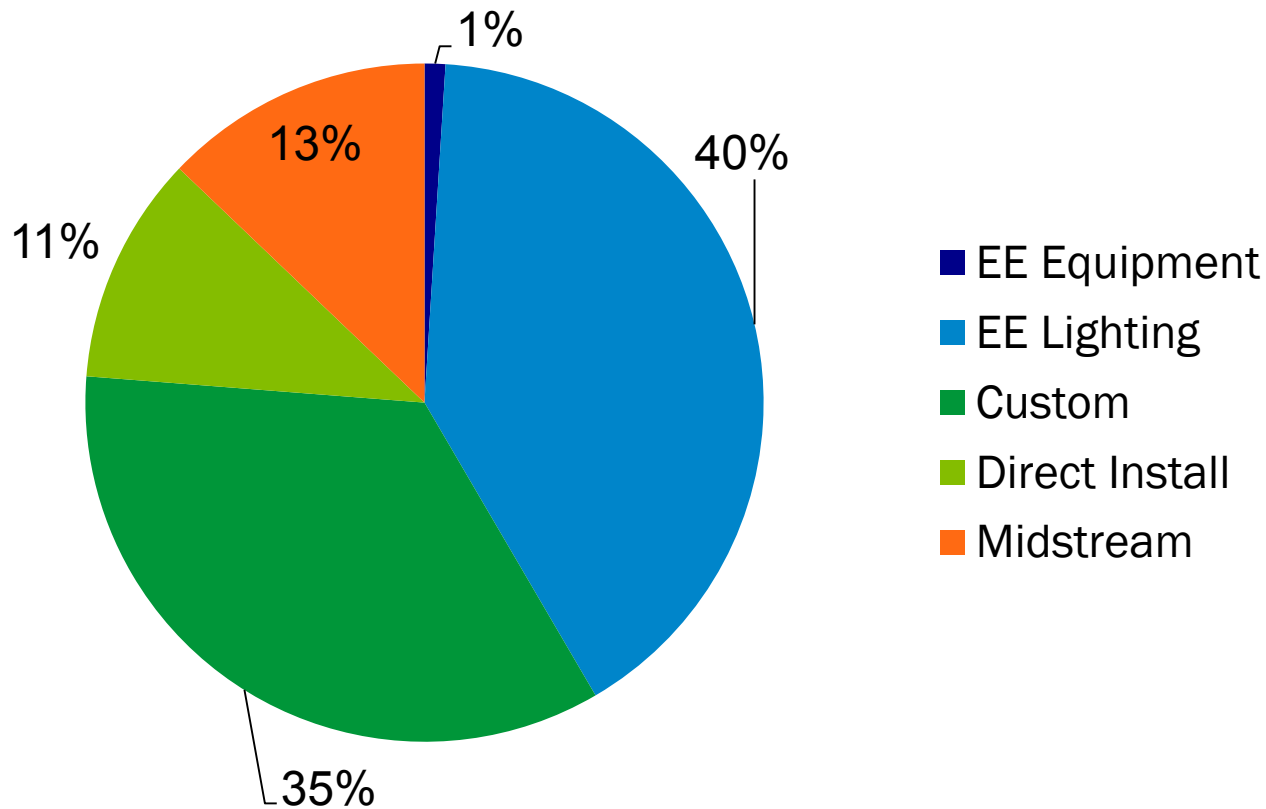


Non-Residential Programs

- **Program achievements**
 - **184,990 MWh/yr. *verified* energy savings PY10**
 - **GNE sector 45,423 MWh/yr. *verified* energy savings PY10**
 - **\$14,286,026 incentives paid**
 - **Overall program satisfaction **91%****
 - **8,758 PY10 projects**
 - **7,633 midstream projects**

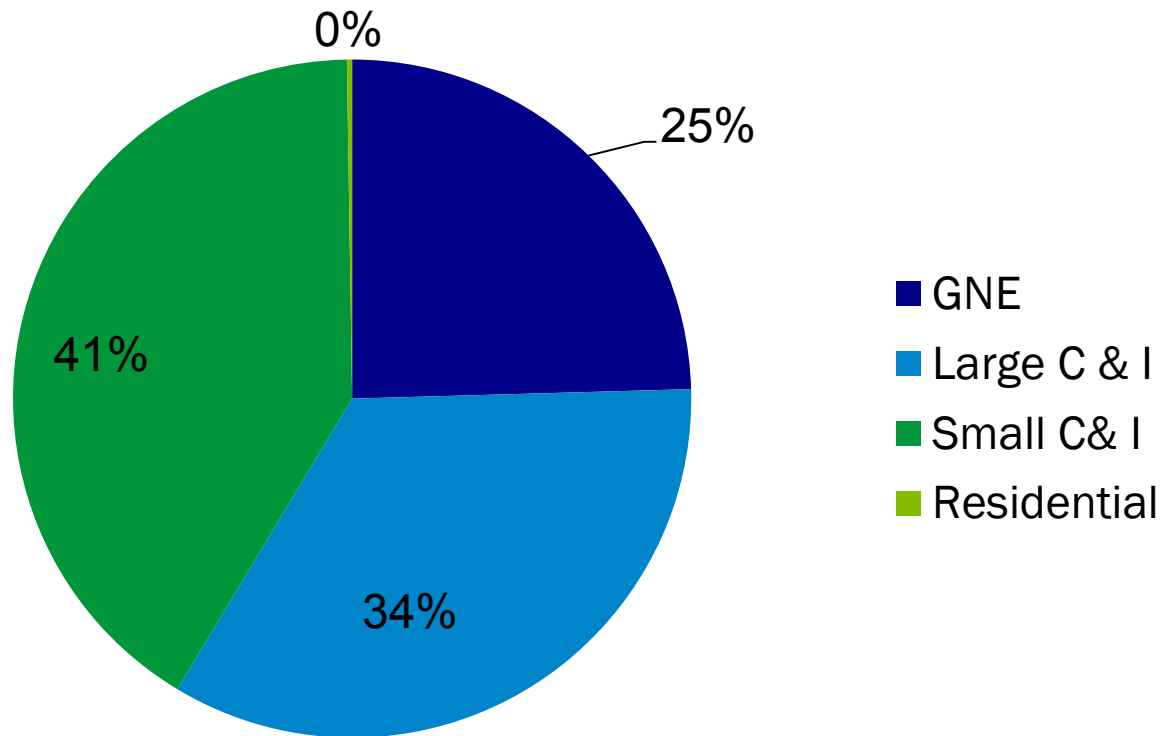
Non-Residential Programs

Energy Savings by Application for PY10



Non-Residential Programs

Energy Savings by Sector for PY10



Non-Residential: Efficient Equipment

Program year 10 verified savings by project type:

- Lighting
 - 960 projects
 - 93,138 MWh/yr.
- Equipment
 - 72 projects
 - 3,059 MWh/yr.
- (Includes both prescriptive and direct install)

Program Year 10 Incentives
\$7,607,040

Verified savings (PY8-PY10):

- 283,108 MWh

Non-Residential: Direct Install



Program year 10 verified savings for Direct Install:

- 19,450 MWh/yr.
- Roughly 20% of efficient equipment savings
 - Lighting verified savings 18,201 MWh/yr.
 - Refrigeration verified savings 1,248 MWh/yr.

Verified savings (PY8-PY10):

- 27,420 MWh

Program Year 10 Incentives
\$1,882,004

Non-Residential: Midstream

Program year 10 verified savings for Midstream:

- 7,633 projects
- 24,306 MWh/yr.
- 19 distributors, 80+ locations

Program Year 10 Incentives
\$936,925

Verified savings (PY8-PY10):

- 42,137 MWh

Non-Residential: Custom

Program year 10 verified savings for Custom:

- 72 projects
- 63,938 MWh/yr.
(Included 2 CHP projects)

Program Year 10 Incentives
\$3,860,057

Verified savings (PY8-PY10):

- 164,504 MWh/yr.

Non-Residential: CEI

Verified savings:

- PY9 savings 641 MWh/yr.
- PY10 savings 549 MWh/yr.

- 4 school districts
- 18 participating schools
 - 10 elementary schools
 - 4 middle schools
 - 4 high schools

Program Year 10 Incentives
\$22,473

Program concluded for Phase III

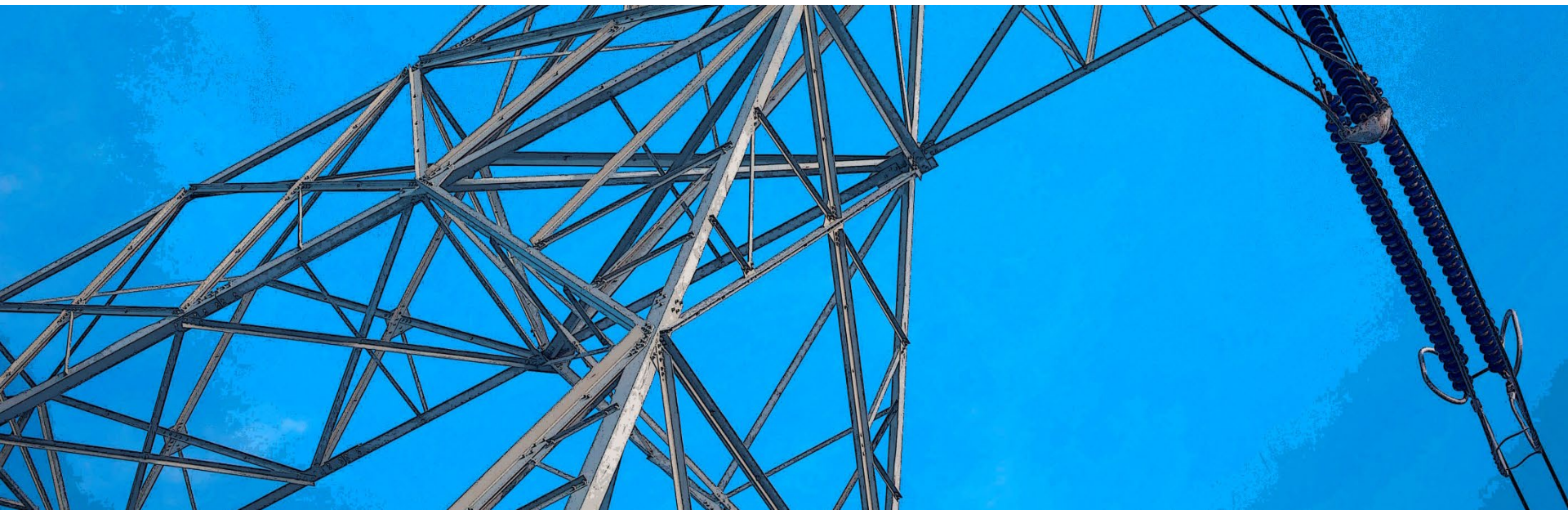
Non-Residential Program:

MWh Savings Verified*

Sector	Verified * MWh/yr.	Reported PY11	Total MWh/yr.	Phase 3 MWh Goals
LCI	189,379	28,082	217,461	297,000
SCI	183,616	53,963	237,579	312,810
GNE	116,268	56,559	172,827	201,000
RES	1,676	154	1,830	
Total	490,940	138,758	629,697	810,810

- Verified savings thru PY10 by sector

Demand Response Program



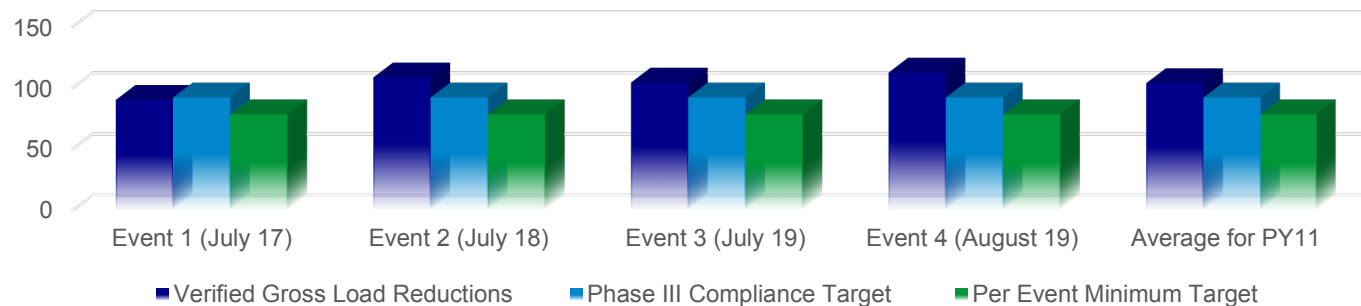
Demand Response Program

- **Demand Response PY11 season**
 - Approximately 132 MWs enrolled
 - 92 MW compliance target (avg. of all Phase III events)
 - Per event minimum target of 78.2 MW
- **Events are called the day ahead at 10:10 AM (based on 9:45am forecast) if PJM day ahead forecast reaches 96% of PJM peak load forecast**
 - Up to six events per year
 - Each event is four consecutive hours

Demand Response Program

- **Demand Response PY11 season**
 - We met all PY11 targets
 - Results – 103.7 MW avg. (Not official until January, 2020)
 - 4 events called
 - Event 1 – 90 MW avg. Event 2 – 108.4 MW avg.
 - Event 3 – 104.2 MW avg. Event 4 – 112.4 MW avg.
 - New Cumulative Average - 112.6 MW avg.

PY11 DEMAND RESPONSE RESULTS



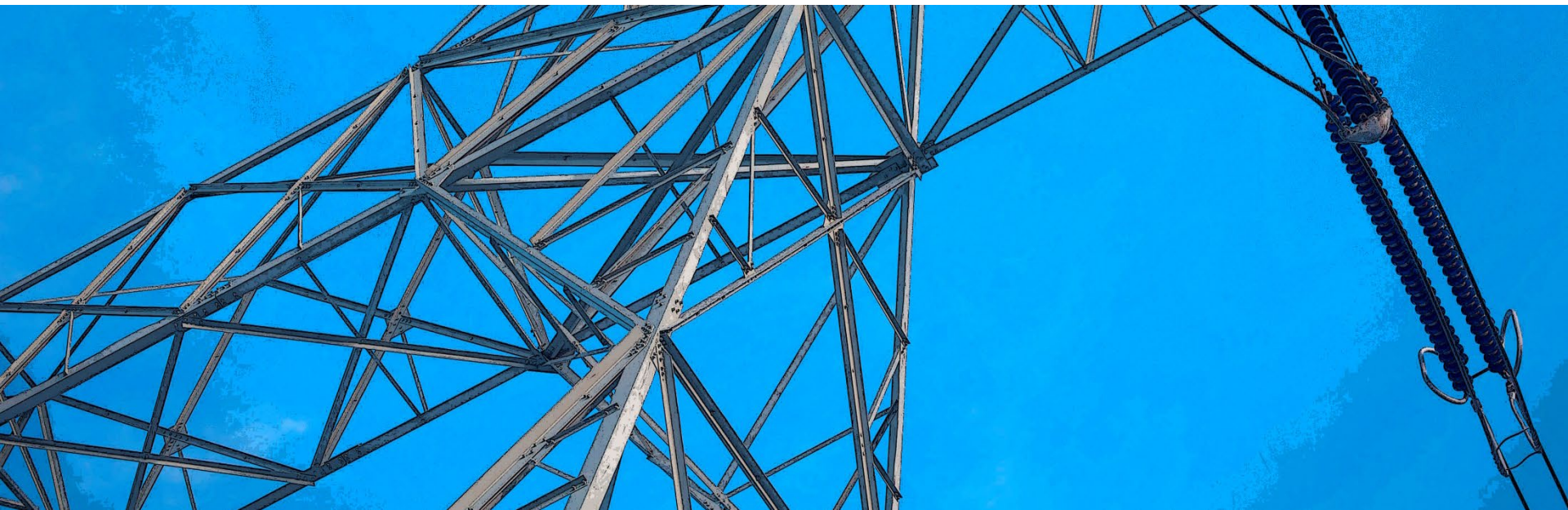
Demand Response Program

- **Challenges remain**
 - Concerns continue over consecutive day events or multiple events in a week
 - 3 day event in July (pre-fatigue/planning)
 - Natural progression downwards with our average over the program years
 - 126.7 MWs → 111.5 MWs → 103.7 MWs
 - Cannot determine peak reductions until well after the event is over
 - Few customers with large amounts of the portfolio
 - Challenging to always confirm each customer's intent to participate in an event
 - Major customers did not always bring full commitment

Contacts

- Dirk Chiles
dschiles@pplweb.com; 484-634-3005
- Chris Schoemaker
crschoemaker@pplweb.com; 484-634-3060
- Heather Bash (non-residential)
hmsmeltz@pplweb.com; 484-634-3218
- Mary Ann Kelly-Merenda (residential)
makelly-merenda@pplweb.com; 484-634-3034
- Sean Pressmann (low income & demand response)
sdpressmann@pplweb.com; 484-634-3047

Questions? Comments?



Thank you! Drive Safe!

