

Act 129 Statewide Evaluator Quarterly Report

3rd Quarter, Program Year 3

Presented to:

Pennsylvania Public Utility Commission

June 11, 2012

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List of Acronyms

C&I: Commercial and Industrial

CFL: Compact Fluorescent Light

CPITD: Cumulative Program Inception to Date

DR: Demand Response

EE: Energy Efficiency

GNP: Government, Non-Profit and Institutional
Sector

HVAC: Heating, Ventilation and Air Conditioning

IQ: Incremental Quarter

LCI: Large Commercial and Industrial Sector

MW: Megawatt

MWh: Megawatt-hour

NTG: Net-to-Gross

PEG: Program Evaluation Group

PY: Program Year

PYTD: Program Year to Date

SCI: Small Commercial and Industrial Sector

SWE: Statewide Evaluator

TRC: Total Resource Cost

TRM: Technical Reference Manual

1 Introduction

As part of the *Audit Plan* the Statewide Evaluation team (SWE or SWE team) is required to submit quarterly reports to the Pennsylvania Public Utility Commission (PUC or Commission) with updates on energy (MWh) and demand (MW) savings, impact evaluations, cost-effectiveness, and process evaluations related to the programs implemented under PA Act 129 and detailed in the following Electric Distribution Company's (EDC) respective Energy Efficiency and Conservation (EE&C) Plan¹:

- Duquesne Light Company (Duquesne);
- the FirstEnergy companies –
 - Metropolitan Edison Company (Met-Ed),
 - Pennsylvania Electric Company (Penelec), and
 - Pennsylvania Power Company (Penn Power);
 - West Penn Power Company formerly Allegheny Power (West Penn or West Penn Power);²
- PECO Energy Company (PECO), and
- PPL Electric Utilities (PPL).

This report covers the third quarter of Program Year 3 (PY3Q3) and details the Act 129 program activities occurring in both the current program year and since the implementation of energy savings programs per the EDC EE&C plans. Thus, impacts reported as Program Year to Date (PYTD) include impacts occurring between December 1, 2011 and February 29, 2012. Impacts reported as Cumulative Program Inception to Date (CPITD) include savings since the implementation of Act 129 programs (June 1, 2009) through February 29, 2012.

The findings, conclusions, and recommendations contained in the Statewide Evaluator's Quarterly Report are the findings, conclusions, and recommendations of the Statewide Evaluator only and, as such, are not necessarily agreed to by the EDCs or the Commission. The Commission, while not adopting the findings, conclusions, and recommendations contained in the Statewide Evaluator's Quarterly Report, may consider and adopt some or all of them at a later date in appropriate proceedings, such as the annual Technical Reference Manual update, Total Resource Cost Test update, and individual EDC Energy Efficiency and Conservation Plan revision proceedings.

¹ See Statewide Evaluation Team, *Audit Plan and Evaluation Framework for Pennsylvania*, November 2011.

² While West Penn Power has since merged with the FirstEnergy Companies, it will be referred to as a separate company for purposes of this report.

2 Quarterly Report Summary

The following sections present a summary of the EDC program impacts and SWE activities completed to date.

2.1 Aggregated EDC Portfolio Impact Summary

Table 2-1 presents the seven EDCs' aggregated cumulative program inception to date (CPITD³) reported gross MWh and MW impacts and cumulative program inception to date – quarter (CPITD-Q⁴) gross MWh and MW impacts based on verified savings through Program Year 2 (PY2) and gross savings from PY3. The following table also includes estimates in the reduction of CO₂ emissions through the end of the third quarter for PY3 (PY3Q3) based on CPITD-Q MWh savings. This quarter ended on February 29, 2012.

Table 2-1: Summary of EDC Quarterly Report Impacts – Program Year 3, 3rd Quarter

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]
Total Energy Savings (MWh)	3,109,262	3,028,803
Total Demand Reduction (MW)	449	438
TRC Benefits (\$) ^[a]	Not Reported	Not Reported
TRC Costs (\$) ^[b]	Not Reported	Not Reported
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported
CO ₂ Emissions Reduction ^[d] (Tons)	2,518,502	2,453,330
NOTES:		
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.		
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.		
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.		
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).		

³ CPITD Reported Gross = CPITD Reported Gross Savings through PY2 + PYTD Reported Gross Savings. All savings reported as CPITD are reported this way.

⁴ CPITD-Q Gross = CPITD Verified Gross Savings through PY2 + PYTD Reported Gross Savings. All savings reported as CPITD –Q gross savings are computed this way. CPITD-Q savings provide the best available estimate of savings achieved through the current quarter. CPITD Verified Gross savings will be reported in the Annual Report.

2.2 Impact Summary by EDC

The following table contains a summary of the energy and demand savings impacts of each EDC during PY3.⁵

Table 2-2: Summary of EDC Energy and Demand Savings

	Statewide	Duquesne	PECO	PPL	Met-Ed	Penelec	Penn Power	West Penn
PYTD Reported Gross ⁶ Energy Savings (MWh)	980,668	92,939	150,429	371,581	73,112	94,446	24,303	173,858
CPITD Reported Gross ⁷ Energy Savings (MWh)	3,109,262	265,372	1,040,247	891,897	257,972	290,389	93,361	270,024
CPITD-Q Gross ⁸ Energy Savings (MWh)	3,028,803	261,339	1,024,653	871,444	254,434	278,314	90,831	247,788
% of 2013 Energy Savings Target Achieved	69%	61.8%	86.7%	76.0%	57.1%	64.4%	63.4%	39.4%
PYTD Reported Gross Demand Reduction (MW)	132	8.919	22	57.9	9.58	14.03	2.86	17.1
CPITD Reported Gross Demand Reduction (MW)	449	28	173	140	30.72	36.74	9.56	31.4
CPITD-Q Gross Demand Reduction (MW)	438	27	171	133	32.89	35.89	10.05	28.4
% of 2013 Demand Reduction Target	37%	23.9%	48.2%	44.8%	27.6%	33.2%	22.8%	18.1%

Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 3,109,262 MWh.
- The CPITD-Q gross energy savings is 3,028,803 MWh.

Portfolio Demand Reduction⁹

- The CPITD reported gross demand reduction is 449 MW.
- The CPITD-Q gross demand reduction is 438 MW.

⁵ Note: The “Savings Achieved as a % of 2011 Targets” are based on CPITD-Q reported savings. Thus, this achievement is subject to change pending results of final impact evaluation activities.

⁶ Gross savings represent change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated.

⁷ Gross savings represent change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated.

⁸ CPITD-Q Gross = CPITD Verified Gross Savings through PY2 + PYTD Reported Gross Savings. All savings reported as CPITD –Q gross savings are computed this way. CPITD-Q savings provide the best available estimate of savings achieved through the current quarter. CPITD Verified Gross savings will be reported in the Annual Report. Verified gross impact is calculated by applying the realization rate to reported gross impacts. Realization rate is a term used in several contexts in the development of reported program savings. The primary applications include the ratio of project tracking system savings data (e.g. initial estimates of project savings) to savings (a) adjusted for data errors and (b) that incorporate evaluated or verified results of the tracked savings.

⁹ Demand reduction to include both the demand savings from the installation of energy efficiency measures and the demand reduction associated with demand response programs.

Low-Income Sector

- The number of measures offered to the Low-Income Sector comprises approximately 10% of the total number of measures offered through all programs.
- The CPITD reported gross energy savings for low-income sector programs is 286,614 MWh.
- The CPITD-Q gross energy savings for low-income sector programs is 151,103 MWh¹⁰.

Government and Non-Profit Sector

- The CPITD reported gross energy savings for government and non-profit sector programs is 330,624 MWh.
- The CPITD-Q gross energy savings for government and non-profit sector programs is 307,100 MWh.

Program Year portfolio highlights as of the end of the reporting period:

- The PYTD reported gross energy savings is 980,668 MWh.
- The PYTD reported gross demand reduction is 43.15 MW.
- The PYTD reported participation is 1,569,604 participants.¹¹

2.3 Statewide Evaluator Summary

Below is a summary of the activities undertaken by the SWE team during the PY3Q3.

The SWE has reviewed the EDC Quarterly Reports for PY3Q3 for completeness against the requirements of the SWE *Audit Plan*. The SWE reviewed the available CPITD reported gross impacts, CPITD-Q gross impacts, and PYTD gross impacts for each EDC. The SWE team audit activities and findings related to the savings reported in the EDCs' quarterly reports can be found in Sections 4 through 10 of this report.

A summary of the SWE team findings includes:

- Currently¹² 80 programs have been implemented and are generating savings across the state.
- Approximately 22 additional programs are expected to be implemented and generate savings after PY3Q3.
- Progress towards 2013 MWh savings targets ranges from 39% - 87%.
- Progress towards 2013 MW reduction targets ranges from 18% - 48%.

Key SWE team activities during the PY3Q3 included the following:

- Residential program desk audits.

¹⁰ CPITD-Q energy savings in the low-income sector were not report by Duquesne, PECO, or PPL in the most recent quarterly reports.

¹¹ Statewide participants are based upon the participant numbers reported by each EDC. Most EDCs excluded the number of CFL bulbs distributed from these numbers; other EDCs estimated the number of bulbs per participant and included that estimate in their totals.

¹² Currently as of February 2012.

- Low-Income program desk audits.
- Non-residential program desk audits and on-site inspections.
- Participation in TWG meetings.
- Baseline study analyses for residential, commercial and industrial sectors.
- Analysis of statewide energy efficiency potential.

3 Statewide Evaluator Audit Activities

As part of the SWE audit activities, the members of the SWE team review with each EDC current program implementation and evaluation activities and address any pressing issues. Currently, the SWE team holds bi-weekly teleconferences with each EDC to discuss current and planned M&V activities, to schedule upcoming site-visits and audit activities, and to address any unresolved questions or issues that may arise throughout the evaluation process. During the current program year, the SWE team travels to each EDC and to specific project sites to conduct on-site audits of the various programs implemented in PY3. Additionally, the SWE team is in the process of conducting desktop audits for various programs. An update on each of these activities is provided in the following sections.

3.1 Audit Activities

The following sections contain a summary of the types of activities conducted by the SWE to audit the programs and evaluations during PY3Q3.

3.1.1 Residential Programs

The residential program audits typically consist of a desktop audit which includes a review of: program kWh and kW savings calculations and database quality. The information required to conduct these reviews was provided by the EDCs in conjunction with their respective PY3Q3 reports. An update on these audits, by program type and EDC, is provided in the respective EDC sections.

3.1.2 Low-Income Programs

The SWE conducted desktop audits of residential low-income programs in PY3Q3 to verify that all assumptions and algorithms followed the appropriate TRM or custom protocols and to ensure that the database savings matched what was reported in each EDC's quarterly report. The findings from the SWE PY3Q3 low-income desktop audit activities are presented in the respective EDC sections.

In addition, the SWE conducted site visits of the PECO and Duquesne low-income programs. Findings are presented in the respective EDC sections.

3.1.3 Non-Residential Programs

The following sections detail audit findings for non-residential programs. Each quarter, the SWE audits each of the non-residential programs run by the EDCs. Whereas residential programs are typically separated into discrete programs, most EDCs combine their non-residential programs into meta-programs for reporting and evaluation purposes. For example, a lighting program and an HVAC program may be combined into one efficient equipment program. The SWE audit of non-residential programs typically aligns with evaluation groups developed by EDC evaluators such that SWE audit findings and recommendations would be relevant and directly applicable to each EDC. One drawback to this approach is that program groupings are not always consistent between EDCs. For example, one EDC may group all prescriptive and custom projects into one program, whereas another will evaluate those two programs separately. In addition, there may be situations where one EDC uses different criteria to

define their programs (e.g., building type vs. measure type). The SWE believes that auditing programs based on EDC program groupings produce the best and most relevant review.

The SWE audit activities vary from quarter to quarter based on what was accomplished by the EDCs and the EDC evaluators. The reviews generally target the following categories:

- Tracking Database and Reporting
- Reported kWh and kW Savings
- Sampling Plan
- Verified kWh and kW Savings
- TRC Calculations

For the PY3Q3 report, the SWE performed the following activities.

- **Review of Tracking Database & Reporting:** The SWE reviewed quarterly databases submitted by EDCs to verify proper recording and transfer of information from databases to quarterly reports. This review included a comparison of reported kWh, reported kW, and incentive values between the database and the quarterly report. Because evaluators have not completed their evaluation activities to date, verified numbers were not reported.
- **Review of Sampling Plan:** The SWE reviewed sampling plans submitted by EDC evaluators to verify that methodologies used to select a representative sample for the evaluation met the requirements outlined in the Audit Plan. The general guidelines presented by the Audit Plan are:
 - 90/10 Confidence and Precision requirement for Non-Residential Portfolio
 - 85/15 Confidence and Precision requirement for each Program within each Portfolio
 - Government/Non Profit and Low-Income sector populations should be treated as independent program populations and sampled at 85/15 if their contribution to the respective sector level portfolios is >20%
 - All Confidence and Precision levels are minimum levels. EDC evaluators are encouraged to exceed minimum requirements
- **On-site Inspections:** The SWE performed a number of on-site inspections. There are two major types of inspections that the SWE conducts; ride-along and independent inspections. The purpose of these inspections is to review evaluation work of the EDC evaluators, verify that the appropriate savings protocols are being applied correctly and review realization rates calculations.

Several important acronyms for this section are:

- SCI: Small Commercial and Industrial Sector
- LCI: Large Commercial and Industrial Sector
- GNP: Government, Non-Profit, and Institutional Sector

3.2 Program Evaluation Group Meetings

The Program Evaluation Group (PEG) meetings are attended by representative from the following:

- Technical Utility Services (TUS) Staff
- SWE team
- EDCs
- EDC Evaluation, Measurement and Verification (EM&V) contractors and
- Pennsylvania Energy Association

The SWE team held the following PEG meetings during PY3Q3.

- December 13, 2011
- January 18, 2012
- February 15, 2012

The focus of each PEG meeting varied depending on the interests and needs of the parties in attendance. The following topics were discussed at one or more PEG meetings:

- Residential Baseline Studies,
- Commercial and Industrial Baseline Studies,
- Residential Energy Efficiency Potential Study,
- Commercial and Industrial Energy Efficiency Potential Study,
- Methodology for Program Potential Scenarios,
- Demand Response Study,
- Low-Income Program Audit Findings,
- Net-to-Gross (NTG) White Paper,
- Quarterly Reporting Template, and
- Act 129 Phase II Planning Issues.

3.3 EDC Meetings

The SWE team held bi-weekly teleconferences with each of the EDCs during PY3Q3 to discuss on-going and/or emerging issues. Some of the topics discussed during these bi-weekly teleconferences included:

- Interim measures and proposed deemed savings values;
- Proper use of TRM deemed savings values for such measures as refrigerator recycling;
- Sample sizes for statistically significant evaluations by program type and projected impact;
- TRC calculations and assumptions;
- Demand response programs and audit activities;
- NTG studies and results;
- Analysis and results from statewide baseline study; and
- Analysis and results from statewide energy efficiency potential study.

3.4 Status of TRM Update

The Program Evaluation Group, chaired by the SWE, will be updating high priority measures for the 2013 TRM Update. The SWE utilized two methods to identify high priority measures for the residential and non-residential sectors. The first method relies on the market potential study findings to identify the measures with the highest contribution of kWh savings to the total 5-year program potential. The second method uses the cumulative savings through PY2 to identify which measures have achieved the

most savings to date. The SWE will consider the measures identified through both methods to come up with a final list of measures to investigate and research for the TRM update. This process ensures that the effort put into updating the TRM will have the maximum effect of ensuring accurate savings for the state of Pennsylvania.

The approximate timeline for the TRM update is shown below:

Table 3: Technical Reference Manual Order Update Schedule

Date:	Action:
September 13, 2012	2013 TRM and TRM Tentative Order at Public Meeting
December 20, 2012	2013 TRM and TRM Final Order at Public Meeting
June 1, 2013	Effective Date of the 2013 TRM

3.5 Demand Response Study

The primary objective of the SWE Demand Response (DR) study is to provide the Commission staff with information that will inform their decision whether or not to include DR programs in future phases of Act 129 by quantifying the ability of DR programs to reduce retail electric rates. This will involve examining the structure of DR mandates and investigating alternatives to the top 100 hours criteria imposed during Phase 1. The cost-effectiveness of DR offerings in Pennsylvania will also be an important focus of the study. If the costs of acquiring resources are greater than the energy and capacity benefits they produce given market conditions, the program is not beneficial to the ratepayer.

The study has four primary goals:

1. Describing, evaluating and recommending alternatives to using the peak 100 hours as a performance metric for assessing demand savings including the practical limitations of targeting the peak 100 hours in advance.
2. Analyzing appropriate DR goals considering results and practices in both Pennsylvania and other jurisdictions.
3. Analyzing the potential economic benefits of the DR programs as currently structured relative to Locational Marginal Prices (LMPs), cost avoidance and the monetization of benefits by PJM. The SWE will note potential alternate structures that may benefit Pennsylvania ratepayers and EDCs.
4. Considering measurement and verification protocols and evaluation practices that maximize the potential for DR program expenditures to result in reductions to wholesale and retail energy prices consistent with the policy objectives of Act 129.

In the 2011 TRC Final Order, the Commission directed the EDCs to not include any charges, penalties or payments from PJM in the calculation of the TRC ratio for DR programs. However, the Commission is interested in knowing if there is a subset of the customers participating in Act 129 Load Curtailment programs who would have reduced their load without incentives provided through Act 129. In other words, what is the incremental amount of savings achieved by Act 129 above the existing PJM programs? To answer this question the SWE will work with the EDC's to determine net savings of the Act

129 DR programs. Net savings achieved by the DR programs will take into account savings that would have occurred without Act 129. The DR study seeks to understand and quantify this dual participation and perform a cost-effectiveness analysis on the net savings of Act 129 DR events in 2012 to provide the Commission with the data and information necessary to make informed decisions regarding the cost-effectiveness of DR programs in the context of Act 129.

3.6 Net-to-Gross Issues

The SWE is in the process of reviewing NTG issues relating to DR with the EDCs. This information will play an integral part in the SWE's DR study. Progress on this issue will be presented in future reports.

3.7 Baseline Study Updates

The SWE completed all residential baseline surveys in early December and began work in PY3Q3 on aggregating and reviewing data from the surveys.

3.8 Potential Study Updates

The SWE began work on the potential study in PY3Q3 by completing the list of measures to be reviewed in the potential study. The SWE then began research on the measure savings, costs, useful lives and penetrations for all measures in the study. The SWE began to populate modeling software with this information for each of the seven EDCs. The potential study will be finalized in PY3Q4.

4 Duquesne Light Impact Summaries and Audit Findings

The sections contains information on Duquesne’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 4-1: Summary of Duquesne Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets ^[e]
Total Energy Savings (MWh)	265,372	261,339	62%
Total Demand Reduction (MW)	28	27	24%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	214,951	211,969	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RFCE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

Duquesne has reported PY3 gross energy savings for 17 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY3 portfolio savings.

Table 4-2: Summary of Program Impacts on Gross Reported Portfolio Savings – Duquesne

Program:	Percent of PYTD Gross MWh Savings Portfolio
Residential: EE Program (Upstream Lighting)	48.2%
Office Building - Large - EE	8.0%
Mixed Industrial EE	7.3%
Residential: EE Program (REEP): Rebate Program	7.1%
Retail Stores - Small - EE	5.7%
Retail Stores - Large - EE	5.4%
Residential: Appliance Recycling	3.5%
Public Agency/Non-Profit	2.9%
Primary Metals EE	2.8%
Healthcare EE	2.8%
Office Building - Small - EE	2.0%
Commercial Sector Umbrella EE	1.8%
Residential: Low-Income EE	1.2%
Residential: School Energy Pledge	0.8%
Chemical Products EE	0.3%
Industrial Sector Umbrella EE	0.1%
Residential: Low-Income EE (Upstream Lighting)	<0.1%

4.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 4-3: Summary of Programs Implemented to Date by Duquesne

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Residential: Energy Efficiency (EE) Program (REEP): Rebate Program• Residential: EE Program (Upstream Lighting)• Residential: Appliance Recycling• Residential: School Energy Pledge• Residential: Low-Income EE• Residential: Low-Income EE (Upstream Lighting)• Commercial Sector Umbrella EE<ul style="list-style-type: none">○ Retail Stores – Small – EE○ Retail Stores – Large – EE○ Office Building – Large – EE○ Office Building – Small – EE○ Government & Non-Profit EE○ Healthcare EE• Chemical Products EE• Mixed Industrial EE• Primary Metals EE• Industrial Sector Umbrella EE
<i>Programs to be Implemented or with No Reported PY3 Savings:</i>
<ul style="list-style-type: none">• Demand Response Programs

4.2 Status of EM&V Activities

4.2.1 Status of EM&V Plans

A revised verification sampling plan was submitted to the SWE team for review and approval. The non-residential portion was reviewed and approved; Duquesne is currently working with the SWE team to update the residential sampling plan.

4.2.2 Status of M&V Activities

Duquesne's EM&V team has begun evaluation work for non-residential projects and measures for projects installed in PY3Q1 and PY3Q2.

4.3 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

4.3.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;

- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 4-4: Summary of CFL Program Audit - Duquesne

Category:	PY3Q3 Report:	Database Verification:	Notes:
No. Bulbs	Not Reported	N/A	Duquesne does not report individual bulb counts in their quarterly reports.
Gross Energy Savings	IQ: 23,334 MWh PYTD: 44,842 MWh	√	This represents the savings from bulbs sold through the upstream CFL program administered through Ecos.
Gross Demand Reduction	IQ: 1.075 MW PYTD: 2.068 MW	√	This represents the savings from bulbs sold through the upstream CFL program administered through Ecos.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 5 individual invoices were reviewed for bulbs sold during PY3Q3. Bulb counts and total dollars reimbursed were verified.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

4.3.2 Appliance Recycling Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. Duquesne emailed all JACO work orders submitted by 10 customers. In the random sample the SWE found no QC errors between the customer invoices and Duquesne’s database.

4.3.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the sample of 10 customers, the SWE selected four “Apogee Kits” in addition to three programmable thermostats, and ENERGY STAR Room AC unit and two “four bulb kits.” In the random sample the SWE found no QC errors between the customer invoices and Duquesne’s database.

4.3.4 New Construction Program

Currently, there is no active Residential New Construction Program.

4.4 Low-Income Program Audit Summary

4.4.1 Review of Savings Database

The SWE requested that Duquesne provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. A random sample of 15 participants was selected and it was verified that all measures followed TRM protocols and assumptions. The lone exception was Duquesne appropriately adjusted the refrigerator replacement savings downward based on evaluation findings.

Lastly, the SWE verified that the incremental energy and demand savings in the Duquesne database matched the savings reported in the Duquesne PY3Q3 report. Therefore, the SWE found no issues with Duquesne's low-income reporting.

4.4.2 On-Site Inspections

The SWE conducted 8 site visits of Duquesne's low-income program. The site visits were conducted in February 2012 and were of PY3Q1 installations. The visits consisted of verifying installation and operability of all invoiced measures. Site visit results were cross-checked against the Duquesne database. The site visits revealed no issues as all measures were appropriately installed and reported.

4.5 Non-Residential Program Audit Summary

Duquesne lists 11 programs under its non-residential portfolio. Seven of these programs are offered to the Commercial and Government/Non-Profit sectors and four are offered to the Industrial sector. There were no new participants in the Chemical Products program during PY3Q3, but each of Duquesne's 10 other non-residential programs produced new energy and demand impacts during the quarter. The gross reported energy savings for these programs was 20,817 MWh and the gross reported demand impact was 4.131 MW. Table 4-5 provides the reported number of participants, energy savings, demand savings and incentives paid from PY3Q3. The two Retail EE programs are presented together because Duquesne did not report the incentives paid to the Small and Large program separately.

Table 4-5: Duquesne Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
CSUP Commercial Umbrella	18	338	0.074	\$20,000
Public Agency / Non-Profit	70	2,168	0.663	\$189,000
HEEP (Health Care)	7	1,830	0.232	\$0
Office Buildings - Small	57	1,398	0.412	\$87,000
Office Buildings-Large	20	1,617	0.16	\$106,000
Retail Stores	214	9,352	1.894	\$665,000
Industrial Sector Umbrella EE	1	127	0.018	\$11,000
Chemical Products	0	0	0	\$0
Mixed Industrial	15	2,282	0.5	\$119,000
Primary Metals	3	1,705	0.178	\$12,000
Totals	405	20,817	4.131	\$1,209,000

4.5.1 Review of Savings Database

Duquesne provided a database of all PY3Q3 activity to the SWE team for review. Table 4-6 provides the participant count, energy impact, demand impact and total incentives paid by program according to the Duquesne database extract. As with the previous section, the two retail programs (small and large) are presented together.

Table 4-6: Duquesne Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
CSUP Commercial Umbrella	18	338	0.074	\$19,521
Public Agency / Non-Profit	70	2,168	0.663	\$222,367
HEEP (Health Care)	7	1,830	0.232	\$105,032
Office Buildings - Small	57	1,398	0.412	\$80,578
Office Buildings-Large	20	1,617	0.160	\$104,087
Retail Stores	214	9,352	1.894	\$603,993
Industrial Sector Umbrella EE	1	127	0.018	\$11,041
Chemical Products	0	0	0.000	\$0
Mixed Industrial	15	2,282	0.500	\$158,951
Primary Metals	3	1,705	0.178	\$91,457
Totals	405	20,817	4.131	\$1,397,026

In Table 4-7, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as follows:

$$\text{Reported Figure} - \text{Database Summary} = \text{Discrepancy}$$

Table 4-7: Duquesne Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
CSUP Commercial Umbrella	0	0	0.00	\$479
Public Agency / Non-Profit	0	0	0.00	-\$33,367
HEEP (Health Care)	0	0	0.00	-\$105,032
Office Buildings - Small	0	0	0.00	\$6,422
Office Buildings-Large	0	0	0.00	\$1,913
Retail Stores	0	0	0.00	\$61,007
Industrial Sector Umbrella EE	0	0	0.00	-40.89
Chemical Products	0	0	0.00	\$0
Mixed Industrial	0	0	0.00	-\$39,951
Primary Metals	0	0	0.00	-\$79,457
Totals	0	0	0.00	-\$188,026

Table 4-7 shows perfect agreement between the reported participant counts, energy savings and demand savings for each of Duquesne’s non-residential programs. The total reported incentive amounts for PY3Q3 were \$188,026 lower than the rebates shown in the savings database. This is because Duquesne reports the incentives that were actually paid during the quarter rather than the sum of the incentives associated with projects completed in the quarter.

4.5.2 Review of Sample Design

Navigant’s sampling plan for evaluating Duquesne’s commercial and industrial programs was approved on April 2, 2012. Per the Audit Plan, the non-residential portfolio evaluation must achieve 10% relative precision with 90% confidence (90/10), which is targeted by the sample plan. The sample design combined Duquesne’s C&I programs into two program groups: the Commercial Program Group and the Industrial Program Group. Although the Audit Plan prescribes that the evaluation for each program achieve 15% relative precision with 85% confidence (85/15), due to the nature and construction of Duquesne’s programs, the SWE accepts 85/15 at the program group level.

The Commercial Program Group contains the Umbrella, Small Office, Large Office, Health Care, Retail, and Public Agency Partnerships/Education/Non-Profit programs. The evaluation plans specifies that Navigant will sample at the project level. All measures recorded in PMRS for each sampled project will be verified. Because the savings contributed by the GNP sector make up greater than 20% of the program group, GNP projects are verified separately. The Commercial Program Group sample is stratified by size, based on energy savings per project.

The Industrial Program Group contains the Umbrella, Primary Metals, Chemical Products, and Mixed Industrials programs. The evaluation plan specifies that Navigant will sample at the measure level. This method is accepted due to the large and complex nature of measures in industrial facilities and the fact that multiple measures at one site may not necessarily be linked or interdependent. Although samples are selected on a measure basis, the evaluator may also verify similar measures found on site to

increase the overall sample size. The Industrial Program Group sample is stratified by size, based on energy savings per measure.

4.5.3 On-site Inspections

The SWE has conducted four ride-along site visits for Duquesne's PY3 projects. The installed measures included lighting, VFDs and refrigeration equipment. The SWE will issue ride-along site inspection reports as the evaluator's reports are received.

4.6 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- Given the magnitude of the impact associated with CFL savings, the SWE team requests that Duquesne report, as a footnote or as otherwise appropriate, the IQ, PYTD, and CPITD bulb count, energy savings and demand savings associated with this component of the Residential Energy Efficiency Products Program.
- The SWE team commends Duquesne for the zero variance between tracked and reported savings for the non-residential programs.

5 PECO Impact Summaries and Audit Findings

The sections contains information on PECO’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 5-1: Summary of PECO Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets ^[e]
Total Energy Savings (MWh)	1,040,247	1,024,653	87%
Total Demand Reduction (MW)	173	171	49%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	842,600	829,969	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RICE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

PECO has reported PY3 gross energy savings for 11 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY3 portfolio savings.

Table 5-2: Summary of Program Impacts on Gross Reported Portfolio Savings – PECO

Program:	Percent of PYTD Gross MWh Savings Portfolio
Smart Equipment Incentives - C&I	30.0%
Smart Lighting Discounts Program	17.3%
Smart Equipment Incentives - G/NP	16.1%
Smart Home Rebates Program	11.9%
Low-Income Energy Efficiency Program	11.5%
Smart Appliance Recycling Program	7.6%
Smart Construction Incentives	5.3%
Smart Equipment Incentives - G/NP Multi-Tenant	0.1%
Smart Equipment Incentives - C&I Multi-Tenant	0.1%
Smart Appliance Recycling Program - C/NP	<0.1%
Smart Appliance Recycling Program - C&I	<0.1%

5.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 5-3: Summary of Programs Implemented to Date by PECO

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Smart Equipment Incentives – Commercial & Industrial• Smart Lighting Discounts Program• Smart Home Rebates Program• Smart Equipment Incentives – Government/Nonprofit• Low-Income Energy Efficiency Program• Smart Appliance Recycling Program• Smart Construction Incentives• Smart Equipment Incentives – Commercial & Industrial Multi-Tenant• Smart Equipment Incentives – Government/Nonprofit Multi-Tenant
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• Conservation Voltage Reduction• Residential Direct Load Control• Commercial Direct Load Control• Residential New Construction• Demand Response Aggregator Contracts• Distributed Resources• Residential Whole Home Performance• Permanent Load Reduction

5.1 Status of EM&V Activities

5.1.1 Status of EM&V Plans

No EM&V Plan updates were provided in PY3Q3.

5.1.2 Status of M&V Activities

The following are updates and findings from each program:

- **Low-Income Energy Efficiency Program:** The LEEP billing analysis is beginning in PY3 and will be completed by PY3Q4. The Calibrated Simulation Analysis will also be completed by PY3Q4.
- **Smart Lighting Discounts:** This program has been significantly reduced for PY3 with average monthly bulb sales dropping from more than 300,000 in PY2 to around 15,000 bulbs in PY3. The focus of this program in PY3 has shifted from standard CFLs to specialty CFL sales. In-store intercept surveys and shelf surveys original planned for April and May of 2012 have been rescheduled for June and July of 2012 to more accurately capture the emerging impacts of EISA phase-in as retail stores sell through their existing stocks of 100W traditional incandescent bulbs, and purchasers begin to choose among the more energy efficient alternatives.

- **Smart Appliance Recycling:** The first wave of participant surveys for PY3Q1 and PY3Q2 participants was completed in early March.
- **Smart Home Rebates:** PECO's EM&V team delivered a report in PY3Q3 finding that, based on verified gross savings, the program achieved 116% of the planned PY2 energy savings goal and 703% of the planned PY2 demand savings goal. As a result, PECO raised the efficiency standards of this program to ENERGY STAR Most Efficient in an attempt to identify and advance the models with the greatest efficiency within each product category. PECO also placed a greater focus on HVAC equipment. The effects of these program changes will be studied as part of PECO's process evaluation.
- **Smart Equipment Incentives Commercial and Industrial Program:** The first sample wave for the SEI C&I program was completed in January of 2012. PY3Q1 and PY3Q2 sample projects have been selected and the EM&V team is working to review the project files and create site-specific M&V plans. The team is also in the process of updating the sample design with the PY3Q3 database. PECO's process evaluation now includes additional CATI surveys to interview wait-listed customers. These interviews are designed to highlight differences in customer satisfaction and perception related to the program and PECO between participating customers and wait-listed customers, as well as to gain insights into whether or not there are ways the program can improve their communication with wait-listed customers.
- **Government and Nonprofit Smart Equipment Incentives Program:** The first sample wave for the SEI C&I program was completed in January of 2012. PY3Q1 and PY3Q2 sample projects have been selected and the EM&V team is working to review the project files and create site-specific M&V plans. The team is also in the process of updating the sample design with the PY3Q3 database. PECO's process evaluation now includes additional CATI surveys to interview wait-listed customers. These interviews are designed to highlight differences in customer satisfaction and perception related to the program and PECO between participating customers and wait-listed customers, as well as to gain insights into whether or not there are ways the program can improve their communication with wait-listed customers.
- **Residential Load Control:** For the PY3 curtailment season (Jun - Sept) PECO called a total of two major curtailment events. For the July 12, 2011 event, the general population of switches was called with the M&V population. Additionally, on the event of July 22, 2011 the general population was curtailed but the M&V population was not curtailed. Based on discussions with program and implementation staff, Navigant will be modifying the impact evaluation approach for PY4. This change will be reflected in a revised PY3 evaluation plan. In-depth interviews are currently underway for program implementation staff and program participants.
- **Demand Response Aggregator:** The DRA program launched in PY3Q3, following the execution of contracts with Enerwise Global Technologies, EnergyConnect, and EnerNOC. The aggregator in PECO's Demand Response Management System must register each participant recruited by April 30, 2012. There were no participants in the program in Py3Q3. Impact evaluation activities in Q3 laid the groundwork for this evaluation by setting forth a schedule for coding up the protocol, gaining access to customer load data, and specifying a testing procedure. Process evaluation activities include in-depth interviews of the program manager and aggregator

personnel in the Spring of 2012 and interviews of a sample of participants and drop-outs (if any) during and after the peak summer season.

- **Distributed Energy Resources:** The DER program launched in PY3Q3, following the execution of a contract with Comverge. Comverge is currently recruiting PECO customers; each participant recruited must be registered by April 16, 2012. The impact evaluation of this program will reflect the PJM protocol, that is, based on the distributed resource metered data, some meters of which may not be PECO meters. Any issues around this protocol will be identified and resolved following the May 9 test of this program. Process evaluation activities include in-depth interviews of the program manager (completed this quarter) and CSP personnel in (4th quarter) as well as interviews of a sample of participants and drop outs (if any) during and after the peak summer season.

5.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

5.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 5-4: Summary of CFL Program Audit - PECO

Category:	Database		
	PY3Q2 Report:	Verification:	Notes:
No. Bulbs	IQ: 25,024 PYTD: 538,225	√	This represents the number of bulbs reimbursed and given-away through the Smart Lighting Program in PY3Q3.
Gross Energy Savings	IQ: 1,186 MWh PYTD: 26,056 MWh	√	This represents the savings from bulbs reimbursed and given-away through the Smart Lighting Program in PY3Q3.
Gross Demand Reduction	IQ: 0.1 MW PYTD: 1.4 MW	√	This represents the savings from of bulbs reimbursed and given-away through the Smart Lighting Program in PY3Q3.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 5 individual invoices were reviewed for bulbs sold and distributed during PY3Q3. Bulb counts and total dollars reimbursed were verified.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

5.2.2 Appliance Recycling Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. PECO uploaded all JACO work orders submitted by 10 customers. In the random sample the SWE found no QC errors between the customer invoices and PECO’s database.

5.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the sample of 10 customers, the SWE selected one heat pump water heater, three air source heat pumps, two central air conditioners, two ENERGY STAR refrigerators and two ENERGY STAR clothes washers. In the random sample the SWE found no QC errors between the customer invoices and PECO’s database.

5.2.4 New Construction Program

Currently, there is no active Residential New Construction Program.

5.3 Low-Income Program Audit Summary

5.3.1 Review of Savings Database

The SWE requested that PECO provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. A random sample of 15 participants was selected and it was verified that savings claimed from additional CFLs distributed to LEEP participants were calculated following appropriate TRM protocols and

assumptions. The SWE also verified that all energy and demand savings values by “job-type” were consistent with the approved custom measure protocol submitted by PECO.

Lastly, the SWE verified that the incremental energy and demand savings in the PECO database matched the savings reported in the PECO PY3Q3 report. Therefore, the SWE found no issues with PECO’s low-income reporting.

5.3.2 On-Site Inspections

The SWE conducted 11 site visits of PECO’s low-income program. The site visits were conducted in December 2011 and were of PY3Q1 installations. The visits consisted of verifying installation and operability of all invoiced measures. Site visit results were cross-checked against the PECO database. The site visits revealed the following issues:

- There were a few cases where anywhere from 1 to up to 8 CFLs had burned out. The SWE understands that these bulbs were installed over 6 months ago in some cases, but given normal operation of CFLs installed in a bathroom, for example, a bulb would be expected to last longer than 6 months. This may be due to customer actions, but PECO/CMC should take care to ensure that appropriate CFLs are installed in appropriate fixtures (i.e. not install non-dimming CFLs in dimming fixtures).
- There was one instance where a CFL was installed in a basement that the customer reported was used maybe two to three times per week and for an average of less than an hour per day over the course of a week. CFLs should not be installed in low-use locations.

Other than these issues, which PECO agreed to address, all measures were installed at a very high rate (94% CFLs, 100% refrigerator replacement, 100% air conditioner replacement, 100% pipe insulation, 100% faucet aerators, 100% gas furnace).

5.4 Non-Residential Program Audit Summary

PECO reported savings impacts from three non-residential programs in PY3Q3: Smart Equipment Incentives C&I, Smart Equipment Incentives GNP and Smart Construction Incentives. The participation, energy and demand impacts of the multi-tenant components of the Smart Equipment Incentives programs were reported separately for PY3Q3. Incentives paid to multi-tenant participants were not reported separately. The gross reported energy savings of these programs was 34,097 MWh and the gross reported demand savings was 4.5 MW and almost \$3.28 million in incentives were paid to participants. Table 5-5 provides the reported number of participants, energy savings, demand savings and incentives paid from PY3Q3. Demand impact figures were adjusted to reflect a line loss factor of 7.1% prior to reporting.

Table 5-5: PECO Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives - C&I	176	18,811	2.6	\$1,578,000
Smart Equipment Incentives - C&I Multi-tenant	63	11	0.0	
Smart Equipment Incentives - GNP	89	12,717	1.6	\$1,205,000
Smart Equipment Incentives - GNP Multi-tenant	15	136	0.0	
Smart Construction Incentives	15	2,422	0.3	\$494,000
Totals	358	34,097	4.5	\$3,277,000

5.4.1 Review of Savings Database

PECO provides several reports to the SWE which capture program activity at various levels of detail. One report provides information at the project level, another at the measure level. These reports are produced separately for each program. Since PY3Q2, at the request of the SWE, PECO has provided a single report which tracks all non-residential activity at the project level in a single database. The contents of this database are summarized below in Table 5-6. The SWE applied a line loss factor of 7.1% to demand impacts and rounded incentive amounts to the nearest \$1,000 to facilitate a comparison with reported figures.

Table 5-6: PECO Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives - C&I	176	18,811	2.6	\$1,578,000
Smart Equipment Incentives - C&I Multi-tenant	63	11	0.0	
Smart Equipment Incentives - GNP	89	12,717	1.6	\$1,205,000
Smart Equipment Incentives - GNP Multi-tenant	15	136	0.0	
Smart Construction Incentives	15	2,422	0.3	\$494,000
Totals	358	34,097	4.6	\$3,277,000

In Table 5-7, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as follows:

$$\text{Reported Figure} - \text{Database Summary} = \text{Discrepancy}$$

Table 5-7: PECO Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives - C&I	0	0	0.0	\$0.00
Smart Equipment Incentives - C&I Multi-tenant	0	0	0.0	
Smart Equipment Incentives - GNP	0	0	0.0	\$0.00
Smart Equipment Incentives - GNP Multi-tenant	0	0	0.0	
Smart Construction Incentives	0	0	0.0	\$0.00
Totals	0	0	0.0	\$0.00

The participation counts, energy savings, demand savings and incentive amounts in the project databases match the reported numbers perfectly. PECO has imposed consistent definitions of participation across programs at the request of the SWE since PY3Q1 and this has eliminated any inconsistencies found in previous quarters.

5.4.2 Review of Sample Design

The PECO non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

5.4.3 On-site Inspections

Since PECO’s evaluators have not conducted any inspections to-date, the SWE has not had the opportunity to conduct any ride-along inspections for PY3. Navigant has selected a sample of projects completed in Q1 and Q2 and the site visits are set to begin in May. The SWE plans to accompany Navigant on a subset of these visits.

5.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- For the residential low-income program, PECO/CMC should take care to ensure that appropriate CFLs are installed in appropriate fixtures (i.e. not install non-dimming CFLs in dimming fixtures). Also, CFLs should not be installed in low-use locations.
- The SWE team commends PECO for the zero variance between tracked and reported savings for the non-residential programs.

6 PPL Impact Summaries and Audit Findings

The sections contains information on PPL’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 6-1: Summary of PPL Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets^[e]
Total Energy Savings (MWh)	891,897	871,444	57%
Total Demand Reduction (MW)	140	133	45%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	722,437	705,870	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RFCE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

PPL has reported PY3 gross energy savings for 11 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY3 portfolio savings.

Table 6-2: Summary of Program Impacts on Gross Reported Portfolio Savings – PPL

Program:	Percent of PYTD Gross MWh Savings Portfolio
Efficiency Equipment Incentive Program (C&I lighting)	43.2%
Residential Lighting Program	25.5%
Custom Incentive Program	14.4%
Energy Efficiency Behavior & Education Program	5.5%
Efficient Equipment Incentive Program (non-lighting measures)	4.7%
Appliance Recycling Program	4.5%
Low-Income WRAP	1.1%
Renewable Energy Program	0.6%
E-Power Wise Program	0.2%
HVAC Tune-up Program	0.2%
Residential Energy Assessment & Weatherization Program	0.1%

6.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 6-3: Summary of Programs Implemented to Date by PPL

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Appliance Recycling Program• Compact Fluorescent Lighting Campaign• Custom Incentive Program• Energy Efficiency Behavior & Education Program• Efficiency Equipment Incentive Program<ul style="list-style-type: none">○ Efficiency Equipment Incentive Program (C&I Lighting)• E-Power Wise Program• Low-Income WRAP• Renewable Energy Program• HVAC Tune-Up Program• Home Assessment & Weatherization Program
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• New Home Program• Time-of-Use (TOU) Program• Direct Load Control Program• Load Curtailment Program

6.1 Status of EM&V Activities

6.1.1 Status of EM&V Plans

PPL began to update individual program evaluation plans in PY3Q3. Final updates will be posted to the SWE SharePoint site in PY3Q4. The revisions reflect changes to the SWE's Audit Plan, the custom measure protocol process, the SWE's Guidance Memos, and the annual Technical Reference Manual changes. Some evaluation approaches were adjusted to include new delivery channels or to ensure the level of evaluation rigor is more consistent with the program's impact. The evaluation plans also reflect the updated sampling plan developed for PY3 and PY4.

6.1.2 Status of M&V Activities

- **Custom Incentive Program:** Site visits are ongoing and are conducted both before and after measure installation, as needed to develop the site specific evaluation, measurement, and verification plan and to conduct the evaluation.
- **Efficient Equipment Incentive Program:** Commercial lighting PY3Q1 and PY3Q2 samples were conducted during Q3. The Q3 sample has been selected and documentation requested. The sample for the direct discount delivery channel of the Efficient Equipment Incentive Program is on the same schedule with lighting measures. The direct discount delivery channel is a strata within the Efficient Equipment Incentive Program.

6.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

6.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 6-4: Summary of CFL Program Audit - PPL

Category:	PY3Q2 Report:	Database Verification:	Notes:
No. Bulbs	IQ: 129,354 PYTD: 293,539	√	This represents the number of bulbs reimbursed and given-away through the Residential Lighting Program and entered in PPL’s database in PY3Q3.
Gross Energy Savings	IQ: 42,086 MWh PYTD: 94,872	√	This represents the savings from bulbs reimbursed and given-away through the Residential Lighting Program and entered in PPL’s database in PY3Q3.
Gross Demand Reduction	IQ: 1.93 MW PYTD: 4.43	√	This represents the savings from bulbs reimbursed and given-away through the Residential Lighting Program and entered in PPL’s database in PY3Q3.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 3 individual invoices were reviewed for bulbs sold and distributed during PY3Q3. Bulb counts and total dollars reimbursed were verified.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

6.2.2 Appliance Recycling Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. PPL uploaded all JACO work orders submitted by 10 customers. In the random sample the SWE found no QC errors between the customer invoices and PPL’s database.

6.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload its database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the sample of 10 customers, the SWE selected one retrofit lighting measure, three room air conditioners, two ENERGY STAR refrigerators, one heat pump hot water heater, one programmable thermostat and two ductless

mini split heat pumps. In the random sample the SWE found no QC errors between the customer invoices and PPL's database.

6.2.4 New Construction Program

Currently, there is no active Residential New Construction Program.

6.3 Low-Income Program Audit Summary

6.3.1 Review of Savings Database

The SWE requested that PPL provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. PPL has two low-income programs: E-Power Wise and the Winter Relief Assistance Program (WRAP). E-Power Wise consists of kits that contain measures such as CFLs, aerators, and showerheads. A random sample of 15 participants was selected and it was verified that savings associated with these measures were calculated following appropriate TRM protocols and assumptions. The program also includes an educational portion, for which PPL claimed savings.

WRAP provides a variety of energy efficiency and weatherization measures to low-income customers. The SWE verified that all energy and demand savings values by "job-type" were consistent with the approved custom measure protocol submitted by PPL for this program.

Lastly, the SWE verified that the incremental energy and demand savings in the PPL database matched the savings reported in the PPL PY3Q3 report for both programs.

6.3.2 On-Site Inspections

PPL conducts hundreds of site inspections per year of its low-income WRAP program. Therefore, in order to best utilize PPL and the SWE's resources, the SWE has agreed to review site visit reports completed by PPL's third party contractors in lieu of conducting additional site visits. PPL submitted site reports shortly before the publication of this report; therefore the SWE's review is still underway.

6.4 Non-Residential Program Audit Summary

PPL listed six programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. All six programs achieved energy and demand savings during PY3Q3. PPL's programs are designed to be cross-cutting, allowing customers from all rate classes to participate in the programs. Because the revised quarterly report format does not include sector level insight, the SWE did not separate the participation and impacts of the non-residential portions of PPL's programs from the participation and impacts from the residential portion. This sector level information will be presented in the annual reports.

6.4.1 Review of Savings Database

PPL provided a series of databases capturing all PY3Q3 activity to the SWE team for review. Table 6-5 provides the participant count, energy savings and demand savings, by program and sector, according to the PPL database extracts.

Table 6-5: PPL Non-Residential Programs Savings Database Summary

Sector	Program	Participants	MWh	MW
Small C&I	Appliance Recycling	86	158	0.03
Small C&I	C&I Lighting - New Construction	16	1,951	0.42
Small C&I	C&I Lighting Retrofit	406	13,673	2.97
Small C&I	Custom Incentives	16	893	0.08
Small C&I	EE Non-Lighting	1,771	1,265	0.18
Large C&I	Appliance Recycling	1	2	0.00
Large C&I	C&I Lighting - New Construction	3	967	0.21
Large C&I	C&I Lighting Retrofit	23	6,513	1.05
Large C&I	Custom Incentives	11	11,138	1.23
Large C&I	EE Non-Lighting	3	245	0.03
Gov't/Non-Profit	Appliance Recycling	34	56	0.01
Gov't/Non-Profit	C&I Lighting - New Construction	23	1,235	0.40
Gov't/Non-Profit	C&I Lighting Retrofit	107	6,845	1.33
Gov't/Non-Profit	Custom Incentives	6	10,704	1.21
Gov't/Non-Profit	EE Non-Lighting	202	1,333	0.13
Gov't/Non-Profit	Renewable Energy Program	57	2,119	0.56
Totals		2,765	59,097	9.84

The SWE team did not compare PPL’s reported non-residential impacts to this database summary because the program participation and impacts were not reported at a sector level.

6.4.2 Review of Sample Design

The PPL non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

6.4.3 On-site Inspections

The SWE has conducted seven ride-along site visits for PPL’s PY3 projects. The installed measures included lighting, VFDs, air-conditioning and refrigeration equipment. The SWE will issue ride-along site inspection reports as the evaluator's reports are received.

6.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- PPL should work to provide the type of data in the format needed to complete the audits to determine variance of reported and tracked savings of non-residential programs.

7 Met-Ed Impact Summaries and Audit Findings

The sections contains information on Met-Ed’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 7-1: Summary of Met-Ed Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets^[e]
Total Energy Savings (MWh)	257,972	254,434	57%
Total Demand Reduction (MW)	31	33	28%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	208,957	206,092	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RICE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

Met-Ed has reported PY3 gross energy savings for 11 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 7-2: Summary of Program Impacts on Gross Reported Portfolio Savings – Met-Ed

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	42.3%
Appliance Turn-In	16.8%
Home Energy Audits and Outreach	14.2%
Small C&I Performance Contracting/Equipment	9.7%
EE HVAC	6.2%
Large C&I Performance Contracting/Equipment	3.9%
Remaining Government/Non-Profit	2.4%
New Construction	1.9%
WARM Programs	1.5%
Street Lighting	1.1%
Non-Profit	<0.1%

7.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 7-3: Summary of Programs Implemented to Date by Met-Ed

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Home Energy Audits• Appliance Turn-In• EE HVAC• EE Products• New Construction• Whole Building• WARM Programs• Energy Audit, Assessment and Equipment Rebate• C/I Performance Contracting/Equipment• Industrial Motors and VSD• Street Lighting• Non-Profit• Remaining Government/Non-Profit
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• Behavioral Modification and Education• Multiple Family• Demand Reduction• PJM Demand Response

7.1 Status of EM&V Activities

7.1.1 Status of EM&V Plans

No plan revisions were submitted for review in PY3Q3.

7.1.2 Status of M&V Activities

ADM is employing batch-wise stratified sampling for the C/I Equipment and Government/Non-Profit programs, stratified sampling for the residential “Warm Extra Measures” program, and simple random sampling for all other programs. In accordance with the SWE’s recent updates to the Audit Plan, the sample sizes will be sufficient to report verified savings with $\pm 15\%$ relative precision at the 85% confidence level for all programs. Verified savings will be reported with $\pm 10\%$ precision at the 90% confidence level for the residential and non-residential sectors respectively, and the Government/Non-Profit sectors will be treated as independent programs with 85/15 confidence/precision if their savings comprise at least 20% of the sector-level savings.

As of the PY3Q3 EDC reporting deadline, Met-Ed has completed the desk review of the Appliance Turn-In Program only. No other samples have been selected for PY3.

7.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

7.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 7-4: Summary of CFL Program Audit – Met-Ed

Category:	PY3Q2 Report:	Database Verification:	Notes:
No. Bulbs	IQ: 78,758	IQ: 78,758	This represents the number of bulbs reimbursed through the upstream CFL program.
Gross Energy Savings	Not Reported	IQ: 11,452 MWh	Met-Ed does not report CFL savings separately in their reports.
Gross Demand Reduction	Not Reported	IQ: 0.60 MW	Met-Ed does not report CFL savings separately in their reports.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 3 individual invoices were reviewed in PY3Q3.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

7.2.2 Appliance Recycling Program

The SWE will review the sample for this program when the data becomes available.

7.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload their database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the random sample the SWE found no QC errors between the customer invoices and Met-Ed’s database.

7.2.4 New Construction Program

All Residential New Construction audit activities will be performed at the end of the program year.

7.3 Low-Income Program Audit Summary

7.3.1 Review of Savings Database

The SWE requested that Met-Ed provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. A random sample of 15 participants was selected and it was verified that savings associated with the WARM Extra Measures program followed the appropriate TRM protocols. Met-Ed provided documentation of any assumptions that differed from the TRM and rationale for the departure. These differences generally involved in-service rates, which are to be adjusted based on evaluation findings. For WARM Plus, the SWE verified that all energy and demand savings values by “job-type” were consistent with the approved custom measure protocol submitted by Met-Ed for this program.

Lastly, the SWE cross-checked the Met-Ed total energy and demand savings values against what was reported in Met-Ed’s PY3Q3 report. No discrepancies were found between the database and the quarterly report.

7.3.2 On-Site Inspections

A third-party contractor already completes hundreds of inspections per year of Met-Ed’s low-income program. Therefore, in order to best utilize Met-Ed and the SWE’s resources, the SWE has agreed to review the site reports completed by the third-party contractors in lieu of conducting additional site visits. A review of Met-Ed site reports will be completed during PY3Q4.

7.4 Non-Residential Program Audit Summary

Met-Ed lists six programs in its non-residential portfolio. Only three of these programs achieved energy and demand savings during PY3Q3. The reported gross energy savings from non-residential programs in PY3Q3 was 4,218 MWh and the reported gross demand savings was 0.61 MW. The number of participants, gross reported energy impact and gross reported demand impact for PY3Q3 are shown in Table 7-5.

Table 7-5: Met-Ed Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	56	3,351	0.46
Large C&I Performance Contracting/Equipment	4	750	0.09
Remaining Government/Non-Profit	5	117	0.06
Totals	65	4,218	0.61

7.4.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies. Table 7-6 contains the total participant counts, energy savings and demand savings by program, from Met-Ed non-residential projects in the FirstEnergy savings database. Incentive amounts were not provided in the FirstEnergy extract for the non-residential projects and are omitted from Table 7-6.

Table 7-6: Met-Ed Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	57	3,405	0.47
Large C&I Performance Contracting/Equipment	4	750	0.09
Remaining Government/Non-Profit	4	93	0.05
Totals	65	4,248	0.61

In Table 7-7, the discrepancies between the reported figures and the information contained in the FirstEnergy tracking database are presented. All discrepancies are reported as follows:

Reported Figure – Database Summary – Discrepancy

Table 7-7: Met-Ed Non-Residential Program Discrepancies

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	-1	-54	-0.01
Large C&I Performance Contracting/Equipment	0	0	0.00
Remaining Government/Non-Profit	1	24	0.01
Totals	0	-30	0.00

The total number of non-residential participants and total demand impacts in the database summary match the figures reported in Met-Ed PY3Q3 report. One project that was classified as Remaining Government/Non-Profit in the PY3Q3 report was listed as Small C&I Performance Contracting in the database summary. The sums of the energy impacts provided in the database summary were 30 MWh higher than the reported gross energy impact.

7.4.2 Review of Sample Design

The Met-Ed non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

7.4.3 On-site Inspections

Met-Ed’s evaluators began conducting site visits at the end of April and will continue site visits through the summer. The SWE has yet to accompany ADM on any of these visits but plans to accompany ADM on a subset of these visits.

7.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- Given the magnitude of the impact associated with CFL savings, the SWE team requests that Met-Ed report, as a footnote or as otherwise appropriate, the IQ, PYTD, and CPITD bulb count,

energy savings and demand savings associated with this component of the Residential Energy Efficiency Products Program.

- Review and provide explanation for the variances between tracked and reported savings noted in the non-residential programs.

8 Penelec Impact Summaries and Audit Findings

The sections contains information on Penelec’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 8-1: Summary of Penelec Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets ^[e]
Total Energy Savings (MWh)	290,389	278,314	64%
Total Demand Reduction (MW)	37	36	33%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	235,215	225,434	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RICE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

Penelec has reported PY3 gross energy savings for 11 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 8-2: Summary of Program Impacts on Gross Reported Portfolio Savings – Penelec

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	33.6%
Small C&I Performance Contracting/Equipment	17.3%
Appliance Turn-In	12.6%
Remaining Government/Non-Profit	12.6%
Home Energy Audits and Outreach	11.2%
Large C&I Performance Contracting/Equipment	7.7%
EE HVAC	2.0%
WARM Programs	1.5%
New Construction	0.9%
Streetlighting	0.4%
Non-Profit	0.3%

8.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 8-3: Summary of Programs Implemented to Date by Penelec

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Home Energy Audits• Appliance Turn-In• EE HVAC• EE Products• New Construction• Whole Building• WARM Programs• Energy Audit, Assessment and Equipment Rebate• C/I Performance Contracting/Equipment• Industrial Motors and VSD• Street Lighting• Non-Profit• Remaining Government/Non-Profit
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• Multiple Family• Behavioral Modification and Education• Demand Reduction• PJM Demand Response

8.1 Status of EM&V Activities

No plan revisions were submitted for review in PY3Q3.

8.1.1 Status of M&V Activities

ADM is employing batch-wise stratified sampling for the C/I Equipment and Government/Non-Profit programs, stratified sampling for the residential “Warm Extra Measures” program, and simple random sampling for all other programs. In accordance with the SWE’s recent updates to the Audit Plan, the sample sizes will be sufficient to report verified savings with $\pm 15\%$ relative precision at the 85% confidence level for all programs. Verified savings will be reported with $\pm 10\%$ precision at the 90% confidence level for the residential and non-residential sectors respectively, and the government/non-profit sectors will be treated as independent programs with 85/15 confidence/precision if their savings comprise at least 20% of the sector-level savings.

As of the PY3Q3 EDC reporting deadline, Penelec has completed the desk review of the Appliance Turn-In Program only. No other samples have been selected for PY3.

8.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

8.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 8-4: Summary of CFL Program Audit – Penelec

Category:	PY3Q2 Report:	Database Verification:	Notes:
No. Bulbs	IQ: 73,621	IQ: 73,021	This represents the number of bulbs reimbursed through the upstream CFL program. There is a difference of 600 bulbs; the SWE team requests that Penelec clarify this variance.
Gross Energy Savings	Not Reported	IQ: 12,045 MWh	Penelec does not report CFL savings separately in their reports.
Gross Demand Reduction	Not Reported	IQ: 0.63 MW	Penelec does not report CFL savings separately in their reports.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 3 individual invoices were reviewed in PY3Q3.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

8.2.2 Appliance Recycling Program

The SWE will review the sample for this program when the data becomes available.

8.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload their database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the random sample the SWE found no QC errors between the customer invoices and Penelec’s database.

8.2.4 New Construction Program

All Residential New Construction audit activities will be performed at the end of the program year.

8.3 Low-Income Program Audit Summary

8.3.1 Review of Savings Database

The SWE requested that Penelec provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. A random sample of 15 participants was selected and it was verified that savings associated with the WARM Extra Measures program followed the appropriate TRM protocols. Penelec provided documentation of any assumptions that differed from the TRM and rationale for the departure. These differences generally involved in-service rates, which are to be adjusted based on evaluation findings. For WARM Plus, the SWE verified that all energy and demand savings values by “job-type” were consistent with the approved custom measure protocol submitted by Penelec for this program.

Lastly, the SWE cross-checked the Penelec total energy and demand savings values against what was reported in Penelec’s PY3Q3 report. No discrepancies were found between the quarterly report and the database.

8.3.2 On-Site Inspections

A third-party contractor already completes hundreds of inspections per year of Penelec’s low-income program. Therefore, in order to best utilize Penelec and the SWE’s resources, the SWE has agreed to review the site reports completed by the third-party contractors in lieu of conducting additional site visits. A review of Penelec site reports will be completed during PY3Q3.

8.4 Non-Residential Program Audit Summary

Penelec lists six programs in its non-residential portfolio. No PY3Q3 activity was reported for the PJM Demand Response Program. Table 8-5 provides the figures reported in Penelec’s Quarterly Report for each of its other five non-residential programs. The reported gross energy savings is 6,813 MWh and the gross reported demand savings is 1.11 MW.

Table 8-5: Penelec Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	104	4,653	0.79
Large C&I Performance Contracting/Equipment	5	54	0.03
Streetlighting	20	215	0.00
Non-Profit	6	174	0.03
Remaining Government/Non-Profit	73	1,717	0.26
Totals	208	6,813	1.11

8.4.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies. The SWE team identified each of the distinct participants and the energy and demand impacts associated with that participant for each Penelec’s non-residential programs. The tracking data provided

by FirstEnergy did not include incentive amounts. Table 8-6 provides the participant counts and the sum of the energy and demand impacts for each program.

Table 8-6: Penelec Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	104	4,645	0.79
Large C&I Performance Contracting/Equipment	5	54	0.03
Street Lighting	20	215	0.00
Non-Profit	6	174	0.03
Remaining Government/Non-Profit	73	1,717	0.26
Totals	208	6,804	1.11

In Table 8-7, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as follows:

Reported Figure - Database Summary = Discrepancy

Table 8-7: Penelec Non-Residential Program Discrepancies

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	0	8	0.00
Large C&I Performance Contracting/Equipment	0	0	0.00
Streetlighting	0	0	0.00
Non-Profit	0	0	0.00
Remaining Government/Non-Profit	0	0	0.00
Totals	0	8	0.00

The only variance between the savings database and Penelec’s PY3Q3 report occurred in the gross energy impact of the Small C&I Performance Contracting/Equipment program. The figure in the PY3Q3 quarterly report was eight MWh higher than the sum of the impacts contained in the tracking data.

8.4.2 Review of Sample Design

The Penelec non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

8.4.3 On-site Inspections

Penelec’s evaluators began conducting site visits at the end of April and will continue site visits through the summer. The SWE has yet to accompany ADM on any of these visits but plans to accompany ADM on a subset of these visits.

8.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- Provide clarity as to the variance in CFL bulb count of the CFL Give-Away component of the Efficient Equipment Program between the quantity reported in the PY3Q3 Report and the quantity tracked in the PY3Q3 database. Additionally, please comment on this variance effects the program's gross energy and demand savings.
- Given the magnitude of the impact associated with CFL savings, the SWE team requests that Penelec report, as a footnote or as otherwise appropriate, the IQ, PYTD, and CPITD bulb count, energy savings and demand savings associated with this component of the Residential Energy Efficiency Products Program.
- The SWE team commends Penelec for the minimal variance between tracked and reported savings for the non-residential programs.

9 PennPower Impact Summaries and Audit Findings

The sections contains information on PennPower’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 9-1: Summary of PennPower Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets ^[e]
Total Energy Savings (MWh)	93,361	90,831	63%
Total Demand Reduction (MW)	10	10	23%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	75,622	73,573	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RFCE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

PennPower has reported PY3 gross energy savings for nine programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 9-2: Summary of Program Impacts on Gross Reported Portfolio Savings – PennPower

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	54.5%
Appliance Turn-In	12.3%
Home Energy Audits and Outreach	9.8%
Small C&I Performance Contracting/Equipment	9.0%
EE HVAC	3.9%
New Construction	3.4%
Remaining Government/Non-Profit	3.1%
Large C&I Performance Contracting/Equipment	2.6%
WARM Programs	1.5%

9.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 9-3: Summary of Programs Implemented to Date by PennPower

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Home Energy Audits• Appliance Turn-In• EE HVAC• EE Products• New Construction• Whole Building• WARM Programs• Energy Audit, Assessment and Equipment Rebate• C/I Performance Contracting/Equipment• Industrial Motors and VSD• Remaining Government/Non-Profit
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• Multiple Family• Demand Reduction• Behavioral Modification and Education• Street Lighting• Non-Profit• PJM Demand Response

9.1 Status of EM&V Activities

9.1.1 Status of EM&V Plans

No plan revisions were submitted for review in PY3Q3.

9.1.2 Status of M&V Activities

ADM is employing batch-wise stratified sampling for the C/I Equipment and Government/Non-Profit programs, stratified sampling for the residential “Warm Extra Measures” program, and simple random sampling for all other programs. In accordance with the SWE’s recent updates to the Audit Plan, the sample sizes will be sufficient to report verified savings with $\pm 15\%$ relative precision at the 85% confidence level for all programs. Verified savings will be reported with $\pm 10\%$ precision at the 90% confidence level for the residential and non-residential sectors respectively, and the government/non-profit sectors will be treated as independent programs with 85/15 confidence/precision if their savings comprise at least 20% of the sector-level savings.

As of the PY3Q3 EDC reporting deadline, PennPower has completed the desk review of the Appliance Turn-In Program only. No other samples have been selected for PY3.

9.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

9.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 9-4: Summary of CFL Program Audit – PennPower

Category:	PY3Q2 Report:	Database Verification:	Notes:
No. Bulbs	IQ: 25,835	IQ: 25,253	This represents the number of bulbs reimbursed through the upstream CFL program. There is a difference of 582 bulbs; the SWE team requests that PennPower clarify this variance.
Gross Energy Savings	Not Reported	IQ: 4,687 MWh	PennPower does not report CFL savings separately in their reports.
Gross Demand Reduction	Not Reported	IQ: 0.24 MW	PennPower does not report CFL savings separately in their reports.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 3 individual invoices were reviewed in PY3Q3.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

9.2.2 Appliance Recycling Program

The SWE will review the sample for this program when the data becomes available.

9.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload their database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the random sample the SWE found no QC errors between the customer invoices and Penn Power’s database.

9.2.4 New Construction Program

All Residential New Construction audit activities will be performed at the end of the program year.

9.3 Low-Income Program Audit Summary

9.3.1 Review of Savings Database

The SWE requested that PennPower provide all spreadsheets and supporting calculations detailing the measures installed, total participants, and energy and demand savings for the low-income program. A random sample of 15 participants was selected and it was verified that savings associated with the WARM Extra Measures program followed the appropriate TRM protocols. PennPower provided documentation of any assumptions that differed from the TRM and rationale for the departure. These differences generally involved in-service rates, which are to be adjusted based on evaluation findings. For WARM Plus, the SWE verified that all energy and demand savings values by “job-type” were consistent with the approved custom measure protocol submitted by Penn Power for this program.

Lastly, the SWE cross-checked the PennPower total energy and demand savings values against what was reported in PennPower’s PY3Q3 report. No discrepancies were found between the quarterly report and the database.

9.3.2 On-Site Inspections

A third-party contractor already completes hundreds of inspections per year of Penn Power’s low-income program. Therefore, in order to best utilize PennPower and the SWE’s resources, the SWE has agreed to review the site reports completed by the third-party contractors in lieu of conducting additional site visits. A review of PennPower site reports will be completed during PY3Q4.

9.4 Non-Residential Program Audit Summary

PennPower lists six programs under its non-residential umbrella, which includes the SCI, LCI and GNP sectors. Only three of these programs reported savings during PY3Q3. The reported number of participants, energy savings and demand savings are presented for these programs in Table 9-5. The gross reported energy savings of these programs was 1,055 MWh and the gross reported demand savings were 0.22 MW. Incentive amounts were not included in the tracking database for non-residential customers, so these figures are not included in Table 9-5.

Table 9-5: PennPower Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	13	611	0.14
Large C&I Performance Contracting/Equipment	1	8	0.01
Remaining Government/Non-Profit	5	436	0.07
Totals	19	1,055	0.22

9.4.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies for PY3Q3. Table 9-6 provides the total participant counts, energy savings and demand savings, by program, from PennPower non-residential projects in the FirstEnergy savings database.

Table 9-6: PennPower Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	13	610	0.14
Large C&I Performance Contracting/Equipment	1	8	0.01
Remaining Government/Non-Profit	5	436	0.07
Totals	19	1,054	0.22

In Table 9-7, the discrepancies between the figures reported in Penn Power’s quarterly report and the information contained in the savings database are presented. All discrepancies are reported as follows:

Reported Figure – Database Summary – Discrepancy

Table 9-7: PennPower Non-Residential Program Discrepancies

Program	Participants	MWh	MW
Small C&I Performance Contracting/Equipment	0	1	0.00
Large C&I Performance Contracting/Equipment	0	0	0.00
Remaining Government/Non-Profit	0	0	0.00
Totals	0	1	0.00

The only discrepancy shown in Table 9-7 is in the energy savings for the Small C&I Performance Contracting/Equipment program. The difference of 1 MWh could be due to rounding error and is not indicative of any reporting issues.

9.4.2 Review of Sample Design

The PennPower non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

9.4.3 On-site Inspections

PennPower’s evaluators began conducting site visits at the end of April and will continue site visits through the summer. The SWE has yet to accompany ADM on any of these visits but plans to accompany ADM on a subset of these visits.

9.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- PennPower should provide clarity as to the variance in CFL bulb count of the CFL Give-Away component of the Efficient Equipment Program between the quantity reported in the PY3Q3 Report and the quantity tracked in the PY3Q3 database. Additionally, please provide comments regarding the impact of this variance on the program’s gross energy and demand savings.

- Given the magnitude of the impact associated with CFL savings, the SWE team requests that PennPower report, as a footnote or as otherwise appropriate, the IQ, PYTD, and CPITD bulb count, energy savings and demand savings associated with this component of the Residential Energy Efficiency Products Program.
- The SWE team commends PennPower for the zero variance between tracked and reported savings for the non-residential programs.

10 West Penn Power Impact Summaries and Audit Findings

The sections contains information on West Penn Power’s energy and demand impacts to date, current evaluation activities and findings, and current SWE audit activities, findings, and recommendations.

Table 10-1: Summary of West Penn Power Quarterly Report Impacts

	CPITD Reported Gross Impact	CPITD-Q Reported Impact ^[a]	Savings Achieved as % of 2013 Targets ^[e]
Total Energy Savings (MWh)	270,024	247,788	39%
Total Demand Reduction (MW)	31	28	18%
TRC Benefits (\$) ^[a]	Not Reported	Not Reported	Not Applicable
TRC Costs (\$) ^[b]	Not Reported	Not Reported	Not Applicable
TRC Benefit-Cost Ratio ^[c]	Not Reported	Not Reported	Not Applicable
CO ₂ Emissions Reduction ^[d] (Tons)	218,719	200,708	Not Applicable
NOTES:			
[a] Avoided supply costs, including the reduction in costs of electric energy, generation, transmission, and distribution capacity, and natural gas valued at marginal cost for periods when there is a load reduction. Subject to TRC Order. TRC Benefits reporting requirement is waived for quarterly reports.			
[b] Costs paid by the program administrator and participants plus the increase in supply costs for any period when load is increased. Subject to TRC Order. TRC Costs reporting requirement is waived for quarterly reports.			
[c] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.			
[d] 8.1x10 ⁻⁴ metric tons of CO ₂ per kWh (EPC’s eGRID2007 Version 1.1, RFCE Region annual non-baseload CO ₂ output emissions rate, year 2005 data).			
[e] Savings based on CPITD.			

West Penn Power has reported PY3 gross energy savings for 9 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 10-2: Summary of Program Impacts on Gross Reported Portfolio Savings – West Penn Power

Program:	Percent of PYTD Gross MWh Savings Portfolio
Residential Home Performance Program	54.2%
Residential Energy Efficient Products Program	13.3%
C&I Equipment Program – Large	10.8%
C&I Equipment Program – Small	8.1%
Governmental and Institutional Program	7.2%
Limited Income Energy Efficiency Program (LIEEP)	3.9%
Residential Appliance Turn-In Program	1.9%
Residential Energy Efficient HVAC Equipment Program	0.6%
Joint Utility Usage Management Program	<0.1%

10.1 Program Implementation and Evaluation Summary

The following table contains a summary of programs reporting participation and savings to-date, programs evaluated in PY3, and programs to be implemented or with no reported savings.

Table 10-3: Summary of Programs Implemented to Date by West Penn Power

<i>Programs Reporting PY3 Gross Savings:</i>
<ul style="list-style-type: none">• Residential Home Performance Program• Residential Energy Efficiency Products Program• C&I Equipment Program – Large• C&I Equipment Program – Small• Governmental and Institutional Program• Limited Income Energy Efficiency Program (LIEEP)• Residential Appliance Turn-In Program• Residential Energy Efficient HVAC Equipment Program• Joint Utility Usage Management Program
<i>Programs to be Implemented or with No PY3 Reported Savings:</i>
<ul style="list-style-type: none">• Critical Peak Rebate (CPR) Rate• Customer Resources Demand Response Program• Distributed Generation Program• Time of Use (TOU) with Critical Peak Pricing Rebate• Customer Load Response Program• Conservation Voltage Reduction (CVR) Program

10.1 Status of EM&V Activities

10.1.1 Status of EM&V Plans

No plan revisions were submitted for review in PY3Q3.

10.1.2 Status of M&V Activities

In accordance with the SWE's recent updates to the Audit Plan, the impact evaluation sample sizes will be sufficient to report verified savings with $\pm 15\%$ relative precision at the 85% confidence level for all programs. Verified savings will be reported with $\pm 10\%$ precision at the 90% confidence level for the residential and non-residential sectors respectively, and the GNP sectors will be treated as independent programs with 85/15 confidence/precision if their savings comprise at least 20% of the sector-level savings.

Currently, no samples have been selected for PY3.

10.2 Residential Program Audit Summary

The following sections contain SWE findings and recommendations based on the audit of residential programs.

10.2.1 Residential Lighting Program

To audit these programs, the SWE team conducted the following activities:

- Verified the number of bulbs reported;
- Verified the savings protocol utilized to report kWh and kW savings;
- Verified the baseline assumptions utilized to calculate savings; and
- Verified the bulbs tracked against invoices received.

To verify each of these aspects, the SWE team reviewed those values reported in the PY3Q3 Report to the data tracked in the EDC’s database and tracking system. The following table contains a summary of the SWE team audit findings and recommendations:

Table 10-4: Summary of CFL Program Audit – West Penn Power

Category:	PY3Q2 Report:	Database Verification:	Notes:
No. Bulbs	Not Reported	PYTD: 828,376	West Penn Power does not report CFL sales separately in their reports.
Gross Energy Savings	Not Reported	PYTD: 41,425 MWh	West Penn Power does not report CFL savings separately in their reports.
Gross Demand Reduction	Not Reported	PYTD: 2.14 MW	West Penn Power does not report CFL savings separately in their reports.
Use of TRM Protocols	Not Applicable	√	All savings calculated in accordance with the TRM protocols.
Baseline Assumptions	Not Applicable	√	All baseline assumptions valid.
Invoice Review	Not Applicable	√	A total of 5 individual invoices were reviewed for bulbs sold and distributed during PY3Q3. Bulb counts and total dollars reimbursed were verified.
Notes:			
<ul style="list-style-type: none"> • IQ: Incremental Quarterly • PYTD: Program Year to Date 			

10.2.2 Appliance Recycling Program

For PY3Q3, the SWE requested that each EDC upload their database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. West Penn Power uploaded all JACO work orders submitted by 10 customers. In the random sample the SWE found no QC errors between the customer invoices and West Penn Power’s database.

10.2.3 Efficient Equipment Program

For PY3Q3, the SWE requested that each EDC upload their database for each residential program. The SWE then chose a random sample of 10 customers from this database and requested that the EDC upload those customer’s corresponding invoices to the SWE SharePoint website. In the random sample the SWE found no QC errors between the customer invoices and West Penn Power’s database.

10.2.4 New Construction Program

Currently, there is no active Residential New Construction Program.

10.3 Low-Income Program Audit Summary

10.3.1 Review of Savings Database

The SWE requested that West Penn Power provide all energy and demand savings calculations and supporting participant data. All assumptions and calculations were verified to ensure that they followed the appropriate TRM protocols.

10.3.2 On-Site Inspections

A third-party contractor already completes hundreds of inspections per year of West Penn Power's low-income program. Therefore, in order to best utilize West Penn Power and the SWE's resources, the SWE has agreed to review the site reports completed by the third-party contractors in lieu of conducting additional site visits. The SWE is awaiting West Penn Power to submit these reports and will provide findings of the review in subsequent quarterly reports.

10.4 Non-Residential Program Audit Summary

West Penn Power began to report the impacts produced by its non-residential energy efficiency programs in a manner consistent with the other three First Energy EDCs during PY3Q3. Under this new reporting structure, West Penn Power lists three programs under the non-residential umbrella. These three programs achieved a gross reported energy savings of 12,792 MWh and reported gross demand savings of 2.0 MW during PY3Q3. The reported participation, gross energy impact, gross demand impact and incentive amounts for each program is provided in Table 10-5.

Table 10-5: West Penn Power Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Commercial and Industrial Equipment Program - Small	34	6,092	0.8	\$358,129
Commercial and Industrial Equipment Program - Large	8	3,356	0.4	\$538,409
Government and Institutional Program	44	3,344	0.8	\$5,009
Totals	86	12,792	2.0	\$901,547

10.4.1 Review of Savings Database

West Penn Power provided a tracking database to the SWE team detailing project activity during PY3Q3. During this quarter, 81 of the non-residential projects were implemented by West Penn Power and five projects were implemented by FirstEnergy's implementation contractor, SAIC. The SWE is working with West Penn Power and FirstEnergy to ensure that changes in program tracking are transparent and auditable.

Table 10-6: West Penn Power Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Commercial and Industrial Equipment Program - Small	34	6,092	0.8	\$331,292
Commercial and Industrial Equipment Program - Large	8	3,356	0.4	\$283,146
Government and Institutional Program	44	3,344	0.8	\$186,141
Totals	86	12,792	2.0	\$800,578

In Table 10-7, the discrepancies between the reported figures and the information contained in the program databases are presented. All discrepancies are reported as follows:

Reported Figure – Database Summary – Discrepancy

Table 10-7: West Penn Power Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Commercial and Industrial Equipment Program - Small	0	0	0.0	\$26,837
Commercial and Industrial Equipment Program - Large	0	0	0.0	\$255,263
Government and Institutional Program	0	0	0.0	-\$181,132
Totals	0	0	0.0	\$100,969

West Penn Power’s PY3Q3 data request response included a Summary to Reporting tab which was useful to the SWE in assigning each project to the appropriate reporting group. As Table 10-7 shows, no discrepancies were found in the participation counts, energy impacts or demand impacts. Incentive discrepancies can be attributed to the lag between project completion and payment of the rebate associated with that project. This means that PY3Q3 incentive payments included some projects which were completed in PY3Q1. SAIC tracking database does not include incentive amounts, so this comparison will be excluded from future SWE comparisons as SAIC becomes West Penn Power’s primary implementer.

10.4.2 Review of Sample Design

The West Penn Power non-residential sampling plan for PY3 was reviewed in the PY3Q2 SWE report. Please refer to this report for further details. A summary of the sample plan review will also be presented in the SWE PY3 Annual Report.

10.4.3 On-site Inspections

Since FirstEnergy’s evaluators have not conducted any inspections to-date, the SWE has not had the opportunity to conduct any ride-along inspections for PY3. ADM has selected a sample of projects completed in Q1 and Q2 but the site visits have not been scheduled. The SWE plans to accompany ADM on a subset of these visits.

10.5 Final Recommendations

Based on SWE audit findings, the SWE team recommends the following:

- Given the magnitude of the impact associated with CFL savings, the SWE team requests that West Penn Power report, as a footnote or as otherwise appropriate, the IQ, PYTD, and CPITD bulb count, energy savings and demand savings associated with this component of the Residential Energy Efficiency Products Program.
- The SWE team commends West Penn Power for the zero variance between tracked and reported savings for the non-residential programs.

11 Summary and Recommendations

The SWE team, the PA PUC TUS staff, the EDCs and the EDC evaluation contractors have worked hard to develop a solid foundation for the EM&V of the Act 129 energy efficiency and demand response programs. The SWE team notes that improvements continue to be made to the SWE audit processes and appreciates the support and responsiveness of the Energy Association, the Pennsylvania EDCs and their evaluation contractors.

Based on the findings from the SWE audit activities conducted in PY3Q3, the SWE team makes the following recommendations to the PA PUC relating to the Act 129 energy efficiency and demand response programs:

- EDCs should continue to work with the SWE team to resolve variances in tracked and reported savings for the non-residential programs. In general, however, the SWE team commends the EDCs for the increased accuracy between quarterly tracked and reported savings.
- The SWE team requests that the FirstEnergy Companies expand the reporting of their residential programs with lighting components to include the IQ, PYTD, and CPITD bulb counts and energy and demand savings. Given the magnitude of the lighting contributions to these programs' savings, the reporting of these program components would be informative and aide in the audit of these programs.