Act 129 Statewide Evaluator Quarterly Report

1st Quarter, Program Year 3

Presented to:

Pennsylvania Public Utility Commission

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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) Plan[1]:

- Duquesne Light Company (Duquesne),
- PECO Energy Company (PECO),
- PPL Electric Utilities Corporation (PPL),
- Metropolitan Edison Company (Met-Ed),
- Pennsylvania Electric Company (Penelec),
- Pennsylvania Power Company (Penn Power), and
- West Penn Power Company[2] (West Penn).

These reports are intended to identify progress towards the attainment of Act 129 savings targets, best practices exhibited, areas for improvements, and any necessary recommendations based on the current findings and data reported to date.

This report covers the first quarter of Program Year 3 (PY3 Q1) 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 June 1, 2011 and August 31, 2011. Impacts reported as Cumulative Program Inception to Date (CPITD) include savings since the implementation of Act 129 programs (June 1, 2009) through August 31, 2011.

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 Manual update, and individual EDC Energy Efficiency and Conservation Plan revision proceedings.

[1] See Statewide Evaluation Team, *Audit Plan and Evaluation Framework for Pennsylvania*, December 1 2009, page 138.
[2] West Penn Power formerly referred to as Allegheny Power or Allegheny.

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 reported, as well as aggregated interim verified[3], PYTD reported gross MWh and MW impacts.

Interim or preliminary verified savings reported in this report reflect verified savings for measures that did not yet have approved savings protocols in PY3 or for additional evaluation, measurement and verification (EM&V) activities that have occurred during this current program year. Table 2-1 below presents available data on PYTD gross, verified and net MWh and MW savings and reductions in CO_2 emissions through the end of the first quarter for PY3 (PY3 Q1). This quarter ended on August 31, 2011.

[3] Interim or preliminary verified savings refer to the energy or demand savings verified through partial evaluations. The evaluations will not be complete until the close of the current program year, and the verified savings will not be verified to the required levels of confidence and precision until the measurement and verification activities have been conducted on a statistically significant sample of the complete program year population.

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

	PYTD Reported Gross Impact	Interim PYTD Verified Impact [a]	Interim PYTD Net Impact [b]
Total Energy Savings (MWh)	310,809	22,742	22,742
Total Demand Reduction (MW)	48.18	1.2	1.2
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[f] (Tons)	251,755	18,421	18,421

NOTES:
[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.
[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.
[c] 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.
[d] 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.
[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is required in annual reports only.
[f] 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).

2.2 Statewide Evaluator Summary

Below is a summary of the activities undertaken by the SWE team during the first quarter of PY3.

The SWE has reviewed the EDC Quarterly Reports for PY3 Q1 for completeness against the requirements of the SWE *Audit Plan*. The SWE reviewed the available PYTD gross impacts, interim verified impacts and interim net 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 Section 6 of this report.

A summary of the SWE team findings includes:

- Currently[4] 90 programs have been implemented and are generating savings across the state; of the 90, 37 programs have evaluated and reported preliminary verified savings by the EDCs.

[4] Currently as of November 2010.

- Approximately 15 additional programs are expected to be implemented and generate savings after PY3 Q1.
- Progress towards 2013 MWh savings targets ranges from 7.5%-58.7%.
- Progress towards 2013 MW reduction targets ranges from 2.3%-30.0%.

Key SWE team activities during the PY3 Q1 included the following:

- Completed desk audits for appliance rebate programs, appliance recycling programs, residential lighting programs, and non-residential programs.
- Held one Technical Working Group (TWG) meeting in August 2011 to discuss issues relating to energy efficiency measure data and savings protocols to be included in the 2012 TRM, developed a methodology for the Pennsylvania energy efficiency potential study, and developed plans for the statewide residential and commercial baseline studies.
- Finalized the 2011 TRC order in July.
- Worked on the development of the 2012 TRM Order and interim measure protocols.
- Held weekly team meetings with the BTUS staff and bi-weekly meeting with each EDC and their respective EM&V evaluation teams.

3 EDC Impact Summaries

The following tables summarize the current savings for each EDC; each table includes a column that presents the reported impacts as a percentage of the 2013 total EDC savings target during PY3 Q1.[5]

3.1 Statewide Summary

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

Table 3-1: 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)	**260,886**	12,730	64,445	108,318	26,592	39,542	9,259	49,923
PYTD Interim Verified[7] Energy Savings (MWh)	**22,742**	0	22,742	0	0	0	0	0
CPITD Reported Gross[8] Energy Savings (MWh)	**2,311,148**	186,836	953,892	641,855	213,257	236,494	78,814	146,090
CPITD Interim Verified[9] Energy Savings (MWh)	**1,262,138**	31,576	693,831	320,575	91,205	90,478	34,473	73,930
% of 2011 Energy Savings Target Achieved	**N/A**	22.4%	176.2%	83.9%	61.4%	62.8%	72.2%	35.3%
% of 2013 Energy Savings Target Achieved	**N/A**	7.5%	58.7%	28.0%	20.5%	20.9%	24.1%	11.8%
PYTD Reported Gross Demand Reduction (MW)	**42.58**	0.8	8.3	19.17	5.22	7.55	1.54	5.6
PYTD Interim Verified Demand Reduction (MW)	**1.2**	0	1.2	0	0	0	0	0
CPITD Reported Gross Demand Reduction (MW)	**328.47**	19.79	148.7	88.64	27.77	33.76	9.81	19.9
CPITD Interim Verified Demand Reduction (MW)	**157.13**	2.62	106.4	31.57	6.96	7.3	2.28	11.3
% of 2013 Demand Reduction Target	**N/A**	2.3%	30.0%	10.6%	5.8%	6.8%	5.2%	7.2%

Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 2,311,148 MWh.

[5] Note: The "Savings Achieved as a % of 2011 Targets" are based on interim verified 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] 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.

[8] 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.

[9] 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.

- The CPITD interim verified energy savings is 1,262,138 MWh.

Portfolio Demand Reduction[10]

- The CPITD reported gross demand reduction is 328.47 MW.
- The CPITD interim verified demand reduction is 157.13 MW.

Low Income Sector

- The number of measures offered to the Low-Income Sector comprises approximately 24.4% of the total number of measures offered through all programs.
- The CPITD reported gross energy savings for low-income sector programs is 218,405 MWh.
- The CPITD interim verified energy savings for low-income sector programs is 97,353 MWh.

Government and Non-Profit Sector

- The CPITD reported gross energy savings for government and non-profit sector programs is 236,755 MWh.
- The CPITD interim verified energy savings for government and non-profit sector programs is 45,552 MWh.

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

- The PYTD reported gross energy savings is 260,886 MWh.
- The PYTD interim verified energy savings is 22,742 MWh.
- The PYTD reported gross demand reduction is 42.58 MW.
- The PYTD interim verified demand reduction is 1.2 MW.
- The PYTD reported participation is 288,482 participants.[11]

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

[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.

3.2 Duquesne Light

Table 3-2: Summary of Duquesne Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	12,730	0	0	7.5%
Total Demand Reduction (MW)	0.8	0	0	2.3%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	10,311	0	0	N/A

NOTES

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

Duquesne has reported PY3 gross energy savings for 12 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-3: Summary of Program Impacts on Gross Reported Portfolio Savings – Duquesne

Program:	Percent of PYTD Gross MWh Savings Portfolio
Residential: EE Program (Upstream Lighting)	66.0%
Residential: EE Program (REEP): Rebate Program	20.6%
Residential: Appliance Recycling	6.2%
Residential: Low Income EE	1.8%
Healthcare EE	1.6%
Public Agency/Non-Profit	1.2%
Retail Stores - Small EE	1.2%
Mixed Industrial EE	0.7%
Commercial Sector Umbrella EE	0.3%
Office Building - Small - EE	0.2%
Retail Stores - Large EE	0.2%
Office Building - Large - EE	0.0%
Residential: School Energy Pledge	0.0%
Residential: Low Income EE (Upstream Lighting)	0.0%
Industrial Sector Umbrella EE	0.0%
Chemical Products EE	0.0%
Primary Metals EE	0.0%

3.3 PECO Energy Company

Table 3-1: Summary of PECO Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	64,445	22,742	22,742	58.7%
Total Demand Reduction (MW)	8.3	1.2	1.2	30.0%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	52,200	18,421	18,421	N/A

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

PECO has reported PY3 gross energy savings for 7 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-2: Summary of Program Impacts on Gross Reported Portfolio Savings – PECO

Program:	Percent of PYTD Gross MWh Savings Portfolio
Smart Lighting Discounts Program	35.3%
Smart Equipment Incentives - C&I	22.4%
Smart Home Rebates Program	13.0%
Low-Income Energy Efficiency Program	9.9%
Smart Appliance Recycling Program	9.2%
Smart Construction Incentives	5.5%
Smart Equipment Incentives - Government/Nonprofit	4.8%
Conservation Voltage Reduction	0.0%
Residential Direct Load Control	0.0%
Commercial Direct Load Control	0.0%

3.4 PPL Electric Utilities

Table 3-3: Summary of PPL Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	108,318	0	0	28.0%
Total Demand Reduction (MW)	19.17	0	0	10.6%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	87,738	0	0	N/A

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

PPL has reported PY3 gross energy savings for 10 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-4: Summary of Program Impacts on Gross Reported Portfolio Savings – PPL

Program:	Percent of PYTD Gross MWh Savings Portfolio
Efficient Equipment Incentive Program (Commercial & Industrial lighting)	58.3%
Residential Lighting Program	21.2%
Custom Incentive Program	11.1%
Appliance Recycling Program	4.9%
Efficient Equipment Incentive Program (Non-Lighting Measures)	2.7%
Low-Income WRAP	0.6%
Renewable Energy Program	0.4%
HVAC Tune-Up Program	0.3%
E-Power Wise Program	0.3%
Residential Energy Assessment & Weatherization Program	0.1%
Energy Efficiency Behavior & Education Program	0.0%

3.5 Metropolitan Edison Company

Table 3-5: Summary of Met-Ed Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	26,592	0	0	20.5%
Total Demand Reduction (MW)	5.22	0	0	5.8%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	21,540	0	0	N/A

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

Met-Ed has reported PY3 gross energy savings for 13 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-6: Summary of Program Impacts on Gross Reported Portfolio Savings – Met-Ed

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	33.2%
Appliance Turn-In	18.8%
Energy Audit, Assessment & Equipment Rebate	12.4%
Home Energy Audits	9.2%
EE HVAC	8.6%
Remaining Government/Non-Profit	5.4%
C/I Performance Contracting/Equipment	4.9%
Streetlighting	2.9%
WARM Programs	1.6%
New Construction	1.5%
Industrial Motors and VSD	1.4%
Whole Building	0.1%
Non-Profit	0.1%
Demand Reduction	0.0%
Multiple Family	0.0%
PJM Demand Response	0.0%

3.6 Pennsylvania Power Company

Table 3-7: Summary of Penn Power Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	9,259	0	0	24.1%
Total Demand Reduction (MW)	1.54	0	0	2.5%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	7,500	0	0	N/A

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

Penn Power has reported PY3 gross energy savings for 10 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-8: Summary of Program Impacts on Gross Reported Portfolio Savings – Penn Power

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	48.6%
Energy Audit, Assessment and Equipment Rebate	13.0%
Appliance Turn-In	12.9%
Home Energy Audits	9.4%
EE HVAC	5.4%
Remaining Government/Non-Profit	3.2%
C/I Performance Contracting/Equipment	3.1%
Industrial Motors and VSD	1.7%
New Construction	1.7%
WARM Programs	0.8%
Demand Reduction	0.0%
Whole Building	0.0%
Multiple Family	0.0%
PJM Demand Response	0.0%
Streetlighting	0.0%
Non-Profit	0.0%

3.7 Pennsylvania Electric Company

Table 3-9: Summary of Penelec Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets [f]
Total Energy Savings (MWh)	39,542	0	0	20.9%
Total Demand Reduction (MW)	7.55	0	0	6.8%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	32,028	0	0	NA

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

Penelec has reported PY3 gross energy savings for 13 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY3 portfolio savings.

Table 3-10: Summary of Program Impacts on Gross Reported Portfolio Savings – Penelec

Program:	Percent of PYTD Gross MWh Savings Portfolio
Energy Audit, Assessment and Equipment Rebate	24.8%
EE Products	22.3%
C/I Performance Contracting/Equipment	14.7%
Remaining Government/Non-Profit	12.9%
Appliance Turn-In	11.5%
Home Energy Audits	7.7%
EE HVAC	2.2%
Industrial Motors and VSD	1.8%
WARM Programs	1.3%
Non-Profit	0.6%
New Construction	0.2%
Streetlighting	0.1%
Whole Building	0.0%
Demand Reduction	0.0%
Multiple Family	0.0%
PJM Demand Response	0.0%

3.8 West Penn Power

Table 3-11: Summary of West Penn Power Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact[a]	Interim PYTD Net Impact[b]	Savings Achieved as % of 2013 Targets[f]
Total Energy Savings (MWh)	49,923	0	0	11.8%
Total Demand Reduction (MW)	5.6	0	0	7.2%
TRC Benefits ($) [c]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Costs ($) [d]	Not Reported	Not Reported	Not Reported	Not Reported
TRC Benefit-Cost Ratio	Not Reported	Not Reported	Not Reported	Not Reported
CO_2 Emissions Reduction[g] (Tons)	40,438	0	0	N/A

NOTES:

[a] Adjusted by applying realization rate determined by independent EM&V contractor to the Portfolio PYTD Reported Gross Impact, which is calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates. Interim realization rates for the Program Year and impacts are to be used for quarterly reports, i.e., realization rates are to be calculated with available data. Interim realization rates are used to calculate Interim PYTD Verified Impacts. Interim realization rates are based on realization rate calculations from a portion of the sample anticipated over the entire Program Year.

[b] Adjusted by applying net-to-gross ratio to the Portfolio PYTD Verified Impact, which is calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios. Interim net-to-gross ratios for the Program Year are to be used for quarterly reports, i.e., net-to-gross ratios are to be calculated with available data. Net-to-Gross ratio is 1.0 for Program Year 3.

[c] 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 the PY3 Q1 quarterly report.

[d] 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.

[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY3 Q1 quarterly report.

[f] Savings based on CPITD.

[g] 8.1x10-4 metric tons of CO2 per kWh (EPC's eGRID2007 Version 1.1, RFCE Region annual non-baseload CO2 output emissions rate, year 2005 data).

West Penn 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 3-12: Summary of Program Impacts on Gross Reported Portfolio Savings – West Penn

Program:	Percent of PYTD Gross MWh Savings Portfolio
Residential Home Performance Program	52.5%
Custom Applications Program	13.2%
Compact Fluorescent Lighting (CFL) Rewards Program	10.2%
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	6.2%
Residential Energy Star and High Efficiency Appliance Program	6.0%
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	4.4%
Governmental/Non-Profit Lighting Efficiency Program	3.9%
Custom Technology Applications Program	2.6%
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	0.9%
Residential Low Income Joint Utility Usage Management Program	0.1%
Commercial HVAC Efficiency Program	0.0%
Critical Peak Rebate (CPR) Rate	0.0%
Customer Resources Demand Response Program	0.0%
Distributed Generation Program	0.0%
Time of Use (TOU) with Critical Peak Pricing Rate	0.0%
Customer Load Response Program	0.0%

4 Program Implementation and Evaluation Summary by EDC

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 by each EDC. Programs "implemented" include only those programs with reported gross impacts; "evaluated" programs include programs with preliminary verified impacts.

Table 4-1: Summary of Programs Implemented to Date by Each EDC

Duquesne
Programs Implemented and Reporting Savings:
• Residential: EE Program (REEP): Rebate Program • Residential: EE Program (Upstream Lighting) • Residential: School Energy Pledge • Residential: Appliance Recycling • Residential: Low Income EE • Residential: Low Income EE (Upstream Lighting) • Commercial Sector Umbrella EE • Healthcare EE • Industrial Sector Umbrella EE • Chemical Products EE • Mixed Industrial EE • Office Building – Large – EE • Office Building – Small – EE • Primary Metals EE • Public Agency/Non-Profit • Retail Stores – Small EE • Retail Stores – Large EE
Programs Reporting Preliminary Verified Savings:
• *None reported.*
Programs to be Implemented or with No Reported Savings:
• *None reported.*
PECO
Programs Implemented and Reporting Savings:
• Low-Income Energy Efficiency Programs • Smart Lighting Discounts Program • Smart Appliance Recycling Program • Smart Home Rebates Program • Smart Equipment Incentives – C&I • Smart Equipment Incentives – Government/Non-Profit • Smart Construction Incentives • Conservation Voltage Reduction
Programs Reporting Preliminary Verified Savings:
• Smart Lighting Discounts Program
Programs to be Implemented or with No Reported Savings:

- Residential Direct Load Control
- Commercial Direct Load Control

PPL

Programs Implemented and Reporting Savings:

- Appliance Recycling Program
- Residential Lighting Program
- Custom Incentive Program
- Energy Efficiency Behavior & Education Program
- Efficient Equipment Incentive Program (Non-Lighting Measures)
- Efficiency Equipment Incentive Program (Commercial & Industrial Lighting)
- E-Power Wise Program
- Low-Income WRAP
- Renewable Energy Program
- HVAC Tune-Up Program
- Residential Energy Assessment & Weatherization Program

Programs Reporting Preliminary Verified Savings:

- *None reported.*

Programs to be Implemented or with No Reported Savings:

- Residential New Construction Program
- Direct Load Control Program

Met-Ed

Programs Implemented and Reporting Savings:

- Home Energy Audits
- Appliance Turn-In
- EE HVAC
- EE Products
- New Construction
- Whole Building
- Multiple Family
- WARM Programs
- Energy Audit, Assessment and Equipment Rebate
- C/I Performance Contracting/Equipment
- Industrial Motors and VSD
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs Reporting Preliminary Verified Savings:

- 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
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- PJM Demand Response

Penelec

Programs Implemented and Reporting Savings:

- Home Energy Audits
- Appliance Turn-In
- EE HVAC
- EE Products
- New Construction
- Whole Building
- Multiple Family
- WARM Programs
- Energy Audit, Assessment and Equipment Rebate
- C/I Performance Contracting/Equipment
- Industrial Motors and VSD
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs Reporting Preliminary Verified Savings:

- 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
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- PJM Demand Response

Penn Power

Programs Implemented and Reporting Savings:

- Home Energy Audits
- Appliance Turn-In

- EE HVAC
- EE Products
- New Construction
- Whole Building
- Multiple Family
- WARM Programs
- Energy Audit, Assessment and Equipment Rebate
- C/I Performance Contracting/Equipment
- Industrial Motors and VSD
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs Reporting Preliminary Verified Savings:

- Home Energy Audits
- Appliance Turn-In
- EE HVAC
- EE Products
- New Construction
- WARM Programs
- Energy Audit, Assessment and Equipment Rebate
- C/I Performance Contracting/Equipment
- Industrial Motors and VSD
- Remaining Government/Non-Profit

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- PJM Demand Response

West Penn

Programs Implemented and Reporting Savings:

- Compact Fluorescent Lighting (CFL) Rewards Program
- Residential Energy Star and High Efficiency Appliance Program
- Residential Home Performance Program
- Residential Whole Home Appliance Efficiency Program
- Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program
- Residential Low Income Joint Utility Usage Management Program
- Governmental/Non-Profit Lighting Efficiency Program
- Commercial HVAC Efficiency Program
- Commercial Products Efficiency Program
- Custom Technology Applications Program
- Custom Applications Program
- Commercial and Industrial Drives Program

Programs Reporting Preliminary Verified Savings:

- *None reported.*

Programs to be Implemented or with No Reported Savings:

- Critical Peak Rebate (CPR) Rate
- Customer Resources Demand Response Program

- Distributed Generation Program
- Time of Use (TOU) with Critical Peak Pricing Rate
- Customer Load Response Program

5 Status of EDC EM&V Activities

This section briefly addresses the activities undertaken by the EDCs in terms of developing and implementing EM&V plans and protocols.

5.1 Status of EM&V Plans

As per the guidelines outlined in the *Audit Plan,* the SWE team has reviewed EM&V Plans submitted by the EDCs to verify that the plans comply with the TRM and TRC Orders and meet the minimum evaluation requirements set forth in the *Audit Plan*. The *Audit Plan* provided an outline for the evaluation framework expectations and guidelines necessary to address the following research objectives:

- Determine Realization Rates for Gross Savings;
- Determine Net to Gross (NTG) Ratios[12];
- Determine Method for Calculating Savings; and
- Set acceptable levels of Rigor, Precision and Bias for M&V activities.

No revised EM&V Plans were submitted for SWE review in PY3 Q1.

5.2 Status of EDC M&V Activities

The following sections provide a summary of M&V activities by EDC based upon the details provided in each EDC's quarterly report and from information gathered through SWE data requests and audits.

5.2.1 Duquesne

Impact Evaluation

Impact evaluations for the programs reporting first quarter PY3 savings have not been started. Target sample sizes, current sample counts and preliminary realization rates for each program are presented in the following table.

Table 5-1: Summary of Evaluation Activities - Duquesne

Program	PYTD Sample Participants	PY Sample Participant Target	Preliminary Realization Rate for kWh	Preliminary Realization Rate for kW
Residential: EE Rebate	0	65	0.90	0.98
Residential: School Energy Pledge	0	55	0.97	0.97
Residential: Refrigerator Recycling	0	55	1.00	1.00
Residential: Low Income EE	0	55	1.00	1.00
Commercial Program	0	64	0.86	0.74
Industrial Program: Deemed	0	9	1.00	1.00
Industrial Program: Custom	0	17	0.90	0.90
TOTAL PORTFOLIO	0	320	N/A	N/A

[12] Note: Currently, the NTG Ratio is set at 1.0 until further direction by the Commission.

Process Evaluation

A process evaluation has not been conducted at this time.

5.2.2 PECO

Impact Evaluation

Impact evaluation activities for PY3 will be conducted throughout the program year. Sample sizes and realization rates for each program are presented in the following table.

Table 5-2: Summary of Evaluation Activities - PECO

Program	PYTD Sample Participants	PY Sample Participant Target	Preliminary Realization Rate for kWh	Preliminary Realization Rate for kW
Low-Income Energy Efficiency Program	0	92	N/A	N/A
Smart Lighting Discount Program	473,381	2,000,000	1.00	1.00
Smart Appliance Recycling Program	0	225	N/A	N/A
Smart Home Rebates Program	0	200	N/A	N/A
Smart Equipment Incentives – C&I	0	40	N/A	N/A
Smart Equipment Incentives – Government/Nonprofit	0	16	N/A	N/A
Smart Construction Incentives	0	0	N/A	N/A
Conservation Voltage Reduction	0	0	N/A	N/A
Residential Direct Load Control Installation Verification[1]	100	100	N/A	N/A
Commercial Direct Load Control Installation Verification	0	100	N/A	N/A

Notes:
1. PY3TD sample participations value represents 100 air conditioning units in 79 homes.

PECO's summaries of the impact evaluation methods underway to derive verified savings for each program are presented below.

- Smart Lighting Discount: The M&V completed for Q1 consisted of reviewing the Q1 tracking data provided to the evaluation team as well as reviewing all manufacturer invoices received and approved.
- Low-Income Energy Efficiency Program: Participant surveys provided information on installation rates, which are used to adjust savings. The Navigant team utilized the deemed savings for the CFL components and approved protocols for the weatherization audits. The LEEP billing analysis is beginning in PY3 and will be completed by the second quarter.
- Smart Appliance Recycling Program: Phone surveys are being conducted semi-annually to gather data to support the impact element of the Smart Appliance Recycling Program evaluation. Information from the survey will be used to calculate a part-use factor which will then be applied to a gross savings estimate. A phone survey sample of 125 Q1 and Q2 participants will be conducted in February 2012 and will be repeated in mid-to-late July.

- Commercial and Industrial Smart Equipment Incentives Program: Currently, the PY3 evaluation is focused on planning for PY3, including data analysis of first quarter program results. A secondary activity is to review findings from PY2 to inform PY3 evaluation efforts. The impact evaluation plan for PY2 has been modified from the PY2 approach to use a lower level of rigor for the strata 3 projects. Verification for strata 1 and 2 projects will continue to rely on use of on-site M&V.
- Government and Nonprofit Smart Equipment Incentives Program: Currently, the PY3 evaluation is focused on planning for PY3, including data analysis of first quarter program results. The impact evaluation plan for PY3 has been modified from the PY2 approach to use a lower level of rigor for the strata 3 projects. Verification for larger strata 1 and 2 projects will continue to rely on use of on-site M&V.
- Conservation Voltage Reduction: PECO's CVR program was fully implemented and operational through the PY3 Q1. PECO received full approval of the custom EM&V plan for CVR by the SWE during PY2 Q3.
- Direct Load Control: PECO began calling test and system-wide load control events in PY3. Data from 100 M&V meters on residential participant homes will be used in the impact analysis of the residential direct load control program. M&V meters have yet to be installed at C&I customer sites. On-site verification of installations will be completed during PY3 Q2.
- Smart Construction Incentives: In PY3, the Navigant team will perform an impact assessment to determine gross energy and demand savings leveraging the computer simulation submitted with the project documentation and may be supplemented through engineering algorithms and/or on-site investigation. As of the close of PY3 Q1, these activities have not begun.

Process Evaluation

PECO's summaries of the process evaluation methods underway for each program are presented below.

- Smart Lighting Discounts: For PY3, data collection methods used in the process evaluation will include the following elements: in-store intercept surveys conducted in March and April 2012, in-depth interviews conducted in March and April 2011 with program staff, program implementation staff (Ecos), and trade allies (Lighting Manufacturers and Participating Corporate Retailers), and General Population telephone surveys conducted in April 2012.
- Low-Income Energy Efficiency Program: Activities consist primarily of in-depth interviews with utility and implementation contractor staff, and telephone surveys. These telephones surveys will be conducted at the end of PY3.
- Smart Appliance Recycling Program: Phone survey data will be used to support the process element of the Smart Appliance Recycling Program evaluation. A phone survey of a sample of 125 Q1 and Q2 participants was conducted in February 2011 and will be repeated in late July 2012 for the remaining 125 in the sample. Findings from the nonparticipant survey will also be used to assess program awareness, determine reasons for nonparticipation, and gather suggestions for how to improve the program.

- Smart Home Rebates: As in PY2, process evaluation will include a review of program planning, design, outreach, and implementation based on review of program data and interviews with program staff, implementers, trade allies, and participating customers.
- Commercial and Industrial Smart Equipment Incentive: Central to the process evaluation for PY3 will be in-depth qualitative interviews with program managers and implementation contractors and review of relevant program-tracking databases, documents, and other materials to understand how the program works and how it is marketed. In addition, a CATI survey will be used to interview participating customers to better understand customer satisfaction and perceptions related to the program. With PECO's initiation of a waitlist in PY3, additional CATI surveys will be used to interview waitlisted customers to determine the differences in customer satisfaction and perception. The Navigant team will conduct several interviews with program trade allies to identify outreach effectiveness and barriers to participation.
- Government and Nonprofit Smart Equipment Incentives Program: This process evaluation will follow the same format as the Commercial and Industrial Smart Equipment Incentive Program process evaluation.
- Conservation Voltage Reduction Program: The process evaluation covering PY2, the program year in which the savings were claimed, will focus on two key areas; (1) review of customer complaints related to service quality and; (2) telephone surveys with a sample of those on affected feeders. The analysis of customer complaint data and telephone surveys will be conducted in October-November 2012.
- Direct Load Control: In the first quarter of PY3, the process evaluation was begun with a post control event survey of residential direct load participants. In the second quarter of PY3, interviews will be conducted with a sample of residential and commercial participants and in-depth interviews with implementers and program staff. A total of 70 residential program participants will be interviewed for this study on a number of topics including reasons for participating in the program, marketing issues, and satisfaction with the Residential A/C Saver program, program improvements, air conditioning hours of use and thermostat control, acceptance of alternative incentive structures, participation in other smart saver programs, and a firmographics description of program participants. In PY3 the surveys focus additionally on customer satisfaction with the direct load control program and satisfaction and comfort during load control events.
- Smart Construction Program: Process evaluation activities have not yet begum for this program. The first step will be completing in-depth interviews with the selected program and implementer staff in November of 2011.

5.2.3 PPL

Impact Evaluation

Evaluation efforts are currently being finalized for PY2, a summary of realization rates and confidence intervals for the PY3 participant sample will be updated in the PY3 Annual Report. More details about the PY2 results are available in PPL Electric's Annual Report, which was filed November 15, 2011.

Process Evaluation

The PPL Electric Implementation of Act 129 Energy Efficiency & Conservation Plan, Program Year One Process Evaluation was submitted on September 15, 2010. The process evaluation was updated at the end of PY2, and submitted with the impact evaluation report on November 15, 2011. The PY3 process evaluation will be conducted at the end of PY3 and submitted in November of 2012.

5.2.4 FirstEnergy – Met-Ed, Penelec, Penn Power

Impact Evaluation

ADM, FirstEnergy's evaluation contractor, noted PY3 is the second year of full-scale portfolio implementation. ADM will continue the general approach used for PY2 for Met-Ed's, Penelec's, and Penn Power's PY2 evaluations. ADM may, however, alter the sample schedule or evaluation protocols for certain programs pending a thorough review of PY2 evaluation results and findings.

Currently no sample selections or evaluation activities have been conducted for PY3 programs and savings.

Process Evaluation

According to the PY3 Q1 reports, the following process evaluation updates were provided.

The process evaluation efforts included the following initiatives:

- Review of measures and program delivery mechanisms in the Companies' plan portfolios;
- Interviews with the Companies' internal staff and Conservation Service Provider (CSP) staff;
- Drafting of process evaluation plans for all programs;
- Creation of logic models for each program; and.
- Identification of researchable issues for each program.

The process evaluation resulted in immediate feedback to the Companies' regarding the following items:

- Review of rebate forms to ensure that proper data fields are collected and documented;
- Review of various program tracking systems;
- Review of program evaluability, with specific suggestions to each Company that will increase the evaluability of certain programs; and
- Projections of energy savings achievements by May 31, 2011 for key programs, and projections of potential energy savings under alternate scenarios that involve program modifications.

Currently, TetraTech, FirstEnergy's evaluation contractor, completed interviews with program managers, CSPs, program participants and non-participants to evaluate the process of programs implemented to-date. The Companies are currently reviewing TetraTech's reports for several important programs.

5.2.5 West Penn Power

As reported in West Penn's PY3 Q1 Report, the following evaluation activities were undertaken:

Impact Evaluation:

Currently no sample selections or evaluation activities have been conducted for PY3 programs and savings.

Process Evaluation

West Penn Power is currently in the planning stages of its program evaluation process.

6 Statewide Evaluator Audit Activities

As part of the SWE audit activities, the members of the SWE team will meet with each EDC to review current program implementation and evaluation activities and to 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 will travel 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.

6.1 TWG Meetings

The following topics were addressed at the TWG Meeting held August 9, 2011 in Harrisburg, PA.

- Remaining TRM issues related to:
  - Updating deemed savings values for Appliance Recycling measures,
  - Fuel switching measures,
  - NTG issues,
  - Lighting and Appendix C,
  - Motors, VFDs and Appendix D,
  - Energy Star Appliances,
  - Residential measures in commercial applications, and
  - Ground Source Heat Pumps.
- Highlights from the July 28, 2011 TRC Order.
- Discussion of methodology proposed for the statewide energy efficiency potential study.
- Discussion of methodology for the residential baseline study.
- Discussion of methodology for the commercial baseline study.
- Discussion of the possibility of a Net-to-Gross (NTG) working group.
- Discussion of the SWE's quarterly data request to the EDCs.
- Discussion of demand response audit activities for the summer of 2011.

6.2 Audit Plan Update

The Audit Plan was developed by the SWE team pursuant to the evaluation requirements under Act 129 and the EE&C Program Implementation Order. Included in the Audit Plan are guidelines and expectations for the seven Pennsylvania EDCs whose program plans were approved by the PA PUC to promote the goals and objectives of Act 129. It serves as an evaluation framework that outlines the expected metrics, methodologies and guidelines for measuring performance by detailing the processes that should be used to evaluate the programs sponsored by the EDCs throughout the state of Pennsylvania.

The Audit Plan is considered to be a living document that can be revised on a regular basis throughout the contract term. The SWE team issued updates to the Audit Plan on July 13th, 2011 and November 4th, 2011. Major changes in the July 13th, 2011 update include:

- Reorganized sections to group topics under implementation, evaluation, and audit categories.
- Created new sections, including "Research Objectives", "Guidance on Calculating Claimed Savings", "Calculating Verified Gross Savings", "Calculating Verified Net Savings", "Interim Measure Protocols", "Custom Measure Protocols", "Reporting Savings", "Dynamic Sampling Methodology", "Pennsylvania Act 129 SharePoint Site", and "Public Accessible Website Data Requirements" sections.
- Updated program summaries based on most recent EE&C plans filed with the Commission.
- Clarified Section 3 and 4 of the Audit Plan to distinguish between responsibilities of the program administrator (EDC, EDC Conservation Service Providers, and/or EDC Implementer) and the EDC evaluator.
- Provided framework for interim protocol approval process.
- Provided framework for custom measure protocols.
- Updated sampling and uncertainty methodology.
- Updated expected deadlines for key deliverables.

Major changes in the November 4th, 2011 update include:

- Changed all references to CEEP to BTUS (Bureau of Technical Utility Services).
- Changed all references to Allegheny Power to West Penn Power.
- Added new section to discuss guidance memos.
- Updated TRC-related issues according to the 2011 TRC Order, including clarifying the use of NTG ratios for planning purposes and modifying the definition of free-ridership and spillover.
- Corrected due dates of SWE quarterly and annual reports.
- Added a clarification that impact evaluation results, as they are made available, will be used to update the TRM during the annual TRM update process.

6.3 Status of TRM Update

The SWE team received comments from the seven EDCs and other interested parties on proposed modifications to the savings protocols currently included in the TRM. Additionally, the SWE team

recommended that several measure protocols be revised based on PY2 evaluation results. The SWE in collaboration with the PA PUC staff, EDCs and their EM&V contractors identified specific areas of improvement to the TRM for both commercial and residential protocols. The 2012 TRM Final Order is scheduled for the Commission's public meeting on December 15th, 2011.

Residential changes include, but are not limited to, the following:

- HVAC issues include providing additional guidance on usage of algorithms for different measures, addition of heating and cooling subscripts for CAPY and EFLH terms for clarity, removal of proper sizing and quality installation measures, developing stipulated values for furnace high efficiency fan measure.
- Refrigerator/Freezer Recycling and Replacement issues include modifying subscripts for terms in algorithms for clarity, modifying the applicability of the protocol to include both residential and non-residential sectors and to account for savings in cases where the replacement unit is either ENERGY STAR or non-ENERGY STAR qualified.
- Lighting issues include providing additional guidance on the use of appropriate baseline wattage for general service lamps pre- and post-EISA 2007 standards.
- Appliances issues include updating deemed values for refrigerators and freezers based on latest ENERGY STAR calculators and expanding the clothes washer measure by adding deemed values for different combinations of water heater and dryer types.
- Definition issues include clarifying "EER", "SEER", and "HSPF" terms.

Commercial and industrial changes include, but are not limited to, the following:

- Hours of use issues include clarifying appropriate use of stipulated values and logging, defining acceptable methodologies for determining alternate hours of use in ex ante and ex post cases, expanding the building type table along with HOU and coincidence factor values, and clarifying requirements for "other" category.
- Appendix C issues include providing additional guidance on usage of Appendix C (procedure for exceptional cases), addition of new fixture codes, custom coincidence factors and controls options, and other minor programming corrections. Additionally, the TRM language has been updated to better support Appendix C.
- Baseline issues include clarifying the use of code standards to determine the baseline condition for commercial protocols and addition of lighting power densities using ASHRAE methodology for exterior lighting in case of new construction projects
- Motors and drives issues include clarifying the appropriate use of stipulated values and metering, expanding the ESF and DSF table with additional baseline cases, and other minor programming corrections and revising definitions in Appendix D.
- HVAC and Chiller issues include modifying baseline for ground source heat pumps (GSHP), groundwater source heat pumps, and water source heat pumps, clarifying the use of SEER and EER for calculating the energy and peak demand savings for air conditioning and air source heat

pump units less than 65,000 BtuH, addition of EFLH values for Allentown and addition of zip code mapping table to assign each zip code to a particular city.

- Definition issues include clarifying "load factor", "coincidence factor", "early replacement", "replace on burnout", "EER", "SEER", "HSPF" terms and addition of temperature ranges to identify the appropriate interactive factor values.

6.4 Interim Measure Protocols

For measures not already in the TRM that are suitable for deemed or partially deemed savings, EDCs may use interim measure protocols (IMPs) to determine savings prior to adoption via the formal TRM process. The SWE team approves protocols for use after a collaborative and iterative review process with the TWG. In order to effectively allocate resources, the TWG focused on "priority 1 measures", which were considered to be the measures most likely to contribute immediate savings to the EDC portfolios. Since the first round of IMPs were approved in 2010, the SWE team and EDCs have developed 13 residential and 21 commercial IMPs. All IMPs approved on 9/16/2011 and 9/23/2011 were included in the 2012 TRM update. All other protocols will be submitted for the 2013 TRM update.

Table 6-1 summarizes the residential protocols completed and under review that will be included in the TRM update for 2012. Table 6-2 summarizes the commercial protocols completed and under review that will be included in the TRM update for 2012.

Table 6-1: Residential Interim Measure Protocols Approved

Category	Protocol	Approval Date
HVAC	Pool Pump Load Shifting	9/16/2011
	Pool Pump with Variable Frequency Drive ("VFD") Motor and Load Shifting	
	Pool Pump with VFD Motor	
	High Efficiency Two-Speed Pool Pump	
HOME ELECTRONICS	ENERGY STAR Office Equipment	9/16/2011
LIGHTING	ENERGY STAR Light-Emitting Diodes ("LED")	9/16/2011
	Residential Occupancy Sensors	
	Holiday Lights	
	Low-Income Lighting	
APPLIANCES	Appliance Recycling and Replacement with non-ENERGY STAR Refrigerators	9/23/2011
	ES Compact Refrigerators	11/3/2011
	ES Water Coolers	11/3/2011
WATER HEATING	Water Heater Tank Wrap	9/16/2011

Table 6-2: Commercial & Industrial Interim Measure Protocols Approved

Category	Protocol	Approval Date
HVAC	Ductless Mini-Split Heat Pumps – Commercial <5.4 tons	9/16/2011
	Small C&I Heating, Ventilation and Air Conditioning ("HVAC") Refrigerant Charge Correction	
	Geothermal Heat Pumps	
	ENERGY STAR Room Air Conditioner	
LIGHTING	Exterior Lighting for New Construction	9/23/2011
	LED Channel Signage	9/16/2011
APPLIANCES	Office Equipment - Network Power Management Enabling	9/16/2011
	ENERGY STAR Electric Steam Cooker	
	ENERGY STAR Clothes Washer	
REFRIGERATION	Refrigeration – Night Covers for Display Cases	9/16/2011
	Refrigeration – Strip Curtains for Walk-In Freezers and Coolers	
	Refrigeration – Auto Closers	
	Refrigeration – Door Gaskets for Walk-In Coolers and Freezers	
	Refrigeration – Suction Pipes Insulation	
	Refrigeration – Evaporator Fan Controller	
	Refrigeration – Special Doors with Low or No Anti-Sweat Heat for Low Temp Case	
	Floating Head Pressure Control	11/15/2011
WATER HEATING	Electric Resistance Water Heaters	9/16/2011
	Heat Pump Water Heaters	
	Low Flow Pre-Rinse Sprayers	

6.5 Demand Response Programs

The SWE team held teleconferences with each of the EDCs to discuss demand response programs, pilots, and evaluation activities that were to be conducted during PY3 Q1. The SWE team drafted audit checklists for these programs and is currently waiting for the EDCs to collect and review the data from these tests and pilots. It is important to note that none of the EDCs reported any savings for demand response programs during PY3 Q1.

6.6 Total Resource Cost Test Order

On July 28, 2011, the Commission issued a Total Resource Cost (TRC) Order. This Order provides clarification of a number of important policy and technical issues relating to the utilization and calculation of the TRC test for program portfolios, individual programs, and energy efficiency and demand response measures. The order provided specific clarification of the following TRC related issues:

- The application of the TRC test to demand response programs
- The development of a data base of energy efficiency measure incremental costs

- Use of gross versus net savings in TRC test calculations
- Clarification of the definition of incentives in the TRC test calculation
- Clarification of the historical average growth rate to be used to escalate transmission, distribution, capacity, and ancillary service costs between the end of the 2013 program year and the beginning of the Energy Information Administration (EIA) Annual Energy Outlook (AEO) in program year 11
- Inclusion of customer O&M costs in TRC test calculations
- The vintage of avoided costs to be used in TRC test calculations

This Order also provided direction to electric distribution companies on the following energy efficiency issues:

- The need and timing for up-to-date market baseline studies
- Frequency of reporting of cost effectiveness calculations

The Statewide Evaluation team is now using the clarifications included in the July 28, 2011 Commission TRC Order for its review of EDC calculations of the TRC cost effectiveness test.

6.7 Net to Gross Issues

On July 28, 2011 the PUC adopted the TRC Final Order that specifies methods that EDCs are to use to calculate the cost effectiveness EE&C programs. The TRC Final Order also directed the EDCs to collect data and conduct NTG studies as follows[13]:

> …the Commission directs the EDCs to collect data necessary to determine the NTG ratio for their programs and to apply the ratio when determining the cost-effectiveness of future modifications of existing programs. For those EDCs that have collected sufficient NTG data to calculate NTG ratios, as determined by the SWE, they are to use those ratios immediately to calculate the TRC for future Act 129 program modifications or changes. For those EDCs that have not collected NTG data to date, they shall from the effective date of this order begin collecting NTG data and apply NTG ratios after 6 months from the effective date of this order for Act 129 program modifications or changes.

To date, only PPL has calculated NTG ratios and has included them in their quarterly reports. All other EDCs have assumed a NTG ratio of 1 for all programs. The SWE is preparing a report for completion in December 2011 that will discuss the available methodologies for calculating NTG ratios and will make a recommendation of a methodology for use by all EDCs in order to comply with the TRC Final Order.

[13] Pennsylvania Public Utility Commission Docket Number M-2009-2180601: Implementation of Act 129 of 2008 – Total Resource Cost (TRC) Test 2011 Final Order. Entered August 2, 2011. Page 25

6.8 EDC Meetings

The SWE team continued to hold bi-weekly teleconferences with each EDC to discuss issues concerning the implementation and evaluation of Act 129 programs. Typical topics discussed include:

- Baseline study updates;
- Market potential study updates;
- Baseline issues relating to residential and commercial lighting and other energy efficiency measures;
- Evaluation activities updates;
- C&I site-visit scheduling issues;
- Program data questions;
- Refrigerator/Freezer Recycling savings protocols;
- CFL average daily hours of use;
- Reporting issues;
- Technical Working Group agendas; and
- Interim measure protocols.

7 Statewide Evaluator Program and Evaluation Support Activities

7.1 Site-visits to Customer Facilities

The following sections provide an update on activities related to SWE team visits to customer facilities in PY3 Q1.

7.1.1 Residential Programs

No site-visits were scheduled for the review of residential programs.

7.1.2 Low-Income Programs

This section summarizes initial observations, findings, and recommendations issued to each individual EDC as a result of site inspections performed between June and August 2011. The SWE team conducted 65 site visits as part of responsibilities to audit the EDC low-income portfolios.

The SWE conducted low-income site inspections for Duquesne, PECO, and West Penn Power during PY3 Q1. The purpose of these site visits was to verify that the number and type of energy efficiency measures listed on the invoices and in each EDC's database were appropriately installed and operational. Another purpose of these site visits was to verify that the energy efficiency measure information in each utility's database was accurate.

The site-visits were coordinated between the SWE representative and either an EDC representative or the EDC evaluation implementation contractor. The SWE requested that each EDC provide a random sample of 50 to 100 low-income program participants per quarter, of which the SWE selected 10 for site-visits. Inspections were conducted for measures installed in PY2 Q2, PY2 Q3, and PY2 Q4.

One major reason for conducting the site-visits is to verify the installation of each line item in the contractor invoices or work orders provided to the SWE. PECO and West Penn Power conducted a direct install program where the efficiency measures were to be installed on an *as needed* basis. In this instance, the invoices should accurately reflect the quantities and types of measures installed. In another delivery approach, Duquesne distributed 'energy efficiency kits' to program participants rather than directly installing the measures.

Where possible, the SWE compared the site inspection observations and each EDC's set of invoices with the EDC's "Program Tracking" database. Each of the three EDCs for which the SWE performed on-site inspections provided database extracts or screenshots from their data tracking and reporting systems.

The qualitative results of the SWE's on-site visits are based on visual observations and questions directed to the householder. The official list of energy efficiency measures to be checked at each participant location was developed in advance of the on-site inspections based on contractor invoice information or 'energy efficiency kit' contents information provided by the EDC. The SWE Team found that the inspection results could be affected by a customer's level of awareness and his/her ability to recall the location of non-program related CFLs.

During the site-visits, SWE representative found issues related to what was installed and the resulting amount of savings. The common issues identified during site-visit verification of all EDC Low Income Programs are:

- Incorrect CFL counts;
- Where Energy Efficiency Kits were provided, the installation rates for faucet aerators and low-flow showerheads are low.
- When included, furnace whistles have very low installation rates because customers do not know what a furnace whistle is, how to use it, or do not have a furnace with a filter.

The specific issues identified during each set of EDC customer site-visits are recorded in the following list. Please note that at the time of this publication, some of these issues may already be resolved as the

SWE Team provided detailed findings and recommendations to each EDC.

7.1.2.1 Duquesne

The SWE conducted 27 site-visits for participants that received measures in Quarters 2, 3, and 4 of Program Year 2. Duquesne's low-income energy efficiency program works with local government and housing authorities to identify apartment complexes with a large low income population. The Residential Coordinator works with the apartment complex management, school, local government, etc. to raise awareness for the program and identifies possible energy efficiency measures, for example refrigerator replacement or energy efficiency kits that, both of which are offered for free. The 27 site-visits to customers raised the following issues for Duquesne's low-income energy efficiency program:

- Some instances where the number of CFLs installed differed from the number recorded in the work order/invoice. Some customers still had CFLs in the kits or bags from in-store purchases.
- The SWE found 40 percent of furnace whistles were installed. Some customers reported that they did not know what the furnace whistle was or did not know how to use it.
- Duquesne does not have a direct install program and therefore it is difficult to ensure measures are installed. Greater customer education as to how furnace whistles are installed and the importance of installing measures received in the kits is likely the only way to increase installation rates in the absence of a direct-install program.
    - The School Energy Program was the only kit inspected that included furnace whistles. The driving force behind this program is the children's enthusiasm for saving energy. Perhaps one of the reasons there is a high installation rate of CFLs and night lights is because not only are they easy to install, but also because children can see the lights and "see" energy being saved. On the other hand furnace whistles are installed in the furnace and there is no sense that energy is being saved when the whistle is installed. Some customers also explained that they tried to install the furnace whistle but it did not fit.

7.1.2.2 PECO

The SWE conducted 20 site-visits for participants that had measures installed in Quarters 2 and 3 of Program Year 2 by PECO. PECO's Low-Income Energy Efficiency Program ("LEEP") is intended to educate and assist eligible residential customers with making their homes more energy efficient. LEEP is a direct install program, which delivers a variety of energy efficiency and weatherization measures as needed by the contractor (CMC Energy Services). The 20 site-visits to customers raised only one issue for PECO's low-income energy efficiency program:

- There was one instance where an old refrigerator was not removed. CMC Energy Services ("CMC") immediately contacted the contractor to have the refrigerator removed. PECO and CMC should ensure that all old refrigerators are removed and recycled and not allowed to remain in the home even if unplugged or disabled.

7.1.2.3 West Penn Power

The SWE conducted 18 site-visits for participants that received measures as part of West Penn Power's Home Check-Up Audit and Appliance Replacement Program in Quarters 2 and 3 of Program Year 2. The Home Check-Up Audit includes an energy audit along with standard installed measures. The appliance replacement portion of the program replaces qualifying refrigerators, freezers, and room air conditioners. The auditors provide and install standard energy efficiency measures, with the customer's consent. The installed measures are as follows:

- Non Electric Hot Water heating customers – up to 6 CFLs and energy education.
- Electric Hot Water heating customers – 6 CFLs, up to 3 Faucet Aerators, 1 Low Flow Shower Head, and energy education.

The 18 site-visits to customers raised the following issues for West Penn Power's low-income energy efficiency program:

- Some instances where the number of CFLs installed differed from the number recorded in the work order/invoice.
- Faucet aerators and low flow showerheads are being distributed to gas water heating customers and are sometimes left with customers. Faucet aerators and low-flow showerheads should be installed by the contractor only for electric water heating customers.
- Several instances where the number of aerators and showerheads differed from the recorded in the work order/invoice. West Penn Power has since made improvements to claim savings on a per-measure basis rather than per-kit basis.

7.1.3 Non-Residential Programs

Site-visits have not yet been conducted for PY3 Q1 projects. Ride-along visits will be performed with the EDC evaluators, most likely starting in January 2012. Independent visits will follow in early 2012.

7.2 Desktop Audits

The desktop audit of PY3 Q1 programs typically 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 PY3 Q1 reports. An update on these audits, by customer sector, is provided in the following sections.

7.2.1 Residential Programs

A summary of the residential audit activities is presented in the following sections.

7.2.1.1 Efficient Equipment Programs

7.2.1.1.1 Duquesne

For PY3 Q1, 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. Duquesne uploaded all rebate applications, envelopes and receipts submitted for this sample. In the random sample the SWE found no QC errors between the customer applications and Duquesne's database. Out of the sample of ten appliances rebated, there were three dehumidifiers, one whole house fans, three high efficiency furnaces and three programmable thermostats.

7.2.1.1.2 PECO

For PY3 Q1, 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. PECO uploaded all rebate applications, envelopes and receipts submitted for this sample. In the random sample the SWE found no QC errors between the customer applications and PECO's database. Two customers in the sample pulled failed to upload or mail in receipts with their rebate application. PECO followed up with these customers and paid the rebates once the receipts were submitted via mail. In this sample of ten rebate applications there were two air source heat pumps, one clothes washer, one dish washer, two refrigerators and four room air conditioners.

7.2.1.1.3 PPL

For PY3 Q1, 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. PPL uploaded all rebate applications, envelopes and receipts submitted for this sample. In the random sample the SWE found no QC errors between the customer applications and PPL's database. In the sample of ten appliances rebated there were three refrigerators, three clothes washers, two dishwashers, one programmable thermostat and one light fixture.

7.2.1.1.4 West Penn

The Statewide Evaluation Team inadvertently checked sample documents from West Penn Power that did not occur in quarter one of Program Year Three. The SWE will check new samples from quarter one

and quarter two in the upcoming quarter and will include both results in the Program Year Three Quarter Two report.

7.2.1.1.5 FirstEnergy – MedEd, Penelec, Penn Power

The Statewide Evaluation Team inadvertently checked sample documents from First Energy that did not occur in quarter one of Program Year Three. The SWE will check new samples from quarter one and quarter two in the upcoming quarter and will include both results in the Program Year Three Quarter Two report.

7.2.1.2 Appliance Recycling Program

7.2.1.2.1 Duquesne

In the sample check for PY3 Q1, The SWE found that Duquesne is using a kWh savings value of 1,407 kWh rather than the stipulated 1,659 kWh (for non-replaced appliances) and 1,205 kWh (for replaced appliances) values stipulated in the TRM. Duquesne explains the use of the adjusted value in the below excerpt from the quarterly report.

> The change in measure savings occurred after the measures were entered into the PMRS database for PY3 Q1. In order to account for the revised savings, Navigant had to create an adjusted savings per unit for each RARP measure. Based on data collected by JACO at the time of appliance pickup, Navigant found the distribution of primary and secondary units, as well as the number of appliances replaced or retired. For primary units, it is assumed that every unit is replaced (100%). For secondary units, Navigant used an average of replacement rates reported in the JACO database and those reported in Program Year 2 Quarters 3 and 4 telephone verification surveys (35% replacement and 65% retirement). Data from the telephone verification surveys were also used to find the percentage of participants who replaced their refrigerator or freezer with an Energy Star model (87%). Table 4-5 shows these distributions, as well as the total average energy and demand savings to be used for the PY3 Q1 RARP measures: 1,407 kWh energy savings and 0.1744 kW demand savings.

The Statewide Evaluation Team inadvertently checked sample documents from Duquesne that did not occur in quarter one of Program Year Three. The SWE will check new samples from quarter one and quarter two in the upcoming quarter and will include both results in the Program Year Three Quarter Two report.

7.2.1.2.2 PECO

For PY3 Q1, 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. PECO uploaded all rebate applications submitted by 10 customers (in two cases the customer selected had two appliances recycled by JACO). In the random sample the SWE found no QC errors between the customer invoices and PECO's database. Out of the sample of twelve appliances recycled, seven denoted that the

appliance would be not replaced, resulting in full savings for that measure. For the four appliances that were indicated to be replaced by the customer, PECO will used a reduced savings value of 1205 kWh as stipulated in the TRM.

7.2.1.2.3 PPL

For PY3 Q1, 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. PPL uploaded all rebate applications submitted by 10 customers (in one case the customer selected had two appliances recycled by JACO). In the random sample the SWE found no QC errors between the customer invoices and PPL's database. Out of the sample of eleven appliances recycled, seven denoted that the appliance would be not replaced, resulting in full savings for that measure. One customer did not indicate whether the appliance would be replaced. For the appliance that was indicated to be replaced by the customer, PPL will use a reduced savings value of 1205 kWh as stipulated in the TRM. In this sample there were six refrigerators, three freezers and one room air conditioner recycled.

7.2.1.2.4 West Penn

The Statewide Evaluation Team inadvertently checked sample documents from West Penn Power that did not occur in quarter one of program year three. The SWE will check new samples from quarter one and quarter two in the upcoming quarter and will include both results in the Program Year Three Quarter Two report.

7.2.1.2.5 First Energy: Met-Ed, Penelec, Penn Power

The Statewide Evaluation Team inadvertently checked sample documents from First Energy that did not occur in quarter one of program year three. The SWE will check new samples from quarter one and quarter two in the upcoming quarter and will include both results in the Program Year Three Quarter Two report.

7.2.1.3 Lighting Programs

The following table contains a summary of the program year-to-date savings impacts from each EDC's respective residential CFL lighting program.

Table 7-1: PYTD Gross and Verified MWh and MW Savings

EDC	Program	PYTD Reported Gross Impacts (MWh)	% of PY3 Gross MWh Savings Portfolio	PYTD Reported Gross Impacts (MW)	% of PY3 Gross MW Savings Portfolio
Duquesne	Residential: EE Program (Upstream Lighting)	8,406 MWh	66%	0.385 MW	48%
PECO	Smart Lighting Discounts Program	22,742 MWh	35%	1.2 MW	14%
PPL	CFL Campaign	22,933 MWh	21%	1.23 MW	6%
Met-Ed	EE Product Program[14]	8,823 MWh	33%	0.56 MW	11%
Penelec	EE Product Program[15]	8,812 MWh	22%	0.53 MW	7%
Penn Power	EE Product Program[16]	4,498 MWh	49%	0.24 MW	16%
West Penn	CFL Rewards Program	5,097 MWh	10%	0.20 MW	4%

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.

The findings from these activities are presented in the following sections.

[14] CFL measures and savings are included as part of the EE Products Program. The data presented in this table pertains to the EE Products Program in its entirety and is not specific to the CFL portion.
[15] *Ibid.*
[16] *Ibid.*

7.2.1.3.1 Duquesne

Duquesne's upstream/midstream CFL program was implemented July 2010 with several targeted area retail establishments. This program provides point of purchase discounts for customers as well as an incentive for participation by the retail store. In addition, events are held monthly within some of the stores to educate consumers on energy efficiency products. Currently fifteen retailers with 137 stores are participating in Duquesne's program.

The following table contains a summary of the SWE team audit findings and recommendations.

Table 7-2: Summary of CFL Program Audit - Duquesne

Category:	PY3 Q1 Report:	Database:	Notes:
No. Bulbs	• NR	• 173,359 bulbs incented	• Invoices indicate a total of 195,296 units were incented in PY3 Q1 through the REEP (Upstream Lighting) Program. This is a difference of 11%. • Follow-up with DLC required to review the differences between units incented and recorded.
Gross Energy Savings	• 8,406 MWh	• 8,405.73 MWh	• No issues identified.
Gross Demand Reduction	• 0.385 MW	• 0.385 MW	• No issues identified.
Use of 2010 TRM Protocols	• N/A	• per Bulb calculations not provided.	• Cannot review at this time. • Follow-up required by DLC to provide per bulb savings and assumptions for each type invented through the REEP (Upstream Lighting) Program.
Baseline Assumptions	• N/A	• per Bulb assumptions not provided.	• Cannot review at this time. Follow-up required by DLC to provide per bulb savings and assumptions for each type invented through the REEP (Upstream Lighting) Program.
Invoice Review	• N/A	• No issues identified.	• 5 invoices received and reviewed for PY3 Q1 savings. • Total payments invoiced and recorded of $179,077.94.
Notes: • NR: Not reported.			

7.2.1.3.2 PECO

PECO's CFL program provides incentives for the purchase of CFL bulbs to increase the market share of ENERGY STAR-qualified CFLs sold through retail sales channels and distributes educational materials that will increase customer awareness, acceptance, and proper disposal of energy-efficient lighting technology. PECO launched the CFL program in October 2009 and currently has agreements with eleven manufacturers and 700 retail stores, representing 20-25 unique retailers.

The following table contains a summary of the SWE team audit findings and recommendations.

Table 7-3: Summary of CFL Program Audit - PECO

Category:	PY3 Q1 Report:	Database:	Notes:
No. Bulbs	• 473,381 bulbs	• 473,381 bulbs	• Bulb counts reported matched the bulb counts in the PY3 Q1 database excerpt for POS purchases.
Gross Energy Savings	• 22,742 MWh	• 22,742 MWh	• Gross energy savings reported matched the actual energy savings in the PY3 Q1 database excerpt for POS purchases.
Gross Demand Reduction	• 1.2 MW	• 1.17 MW	• Gross demand reduction reported matched the actual demand reduction in the PY3 Q1 database excerpt for POS purchases.
Use of 2010 TRM Protocols	• ISR: 84% • CF: 0.05	• All savings calculated in accordance with the TRM protocols.	• Minor discrepancies between calculated and database reported savings found; these are likely the result of rounding errors. • Total differences are less than 1% of reported savings; no action required to correct these differences.
Baseline Assumptions	• N/A	• No issues identified.	• All assumptions are valid.
Invoice Review	• N/A	• Invoice 5527: 3 extra bulbs were recorded in the database.	• 11 buy-down invoices received; 5 were reviewed (Nos 5523R, 5524, 5526, 5527, 5528) • No action required for the discrepancy identified due to minimal impact on overall program savings.

7.2.1.3.3 PPL

PPL's CFL program has two components (a) an upstream lighting component which provides incentives to CFL and LED manufactures and (b) a give-away comp which provides customer with ENERGY STAR CFLs free-of-charge at PPL sponsored events. Ecos is the implementation contractor for this program.

The realization rate for PPL's CFL program was based on the EM&V CSP's records review. The realization rate was applied to the *ex ante* energy and demand savings to provide the *ex post* preliminary verified energy and demand savings for PY3 Q1.

The following table contains a summary of the SWE team audit findings and recommendations.

Table 7-4: Summary of CFL Program Audit - PPL

Category:	PY3 Q1 Report:	Database:	Notes:
No. Bulbs	• 480,379 bulbs	• 480,379 bulbs	• No issues identified.
Gross Energy Savings	• 22,933 MWh	• 22,933 MWh	• No issues identified.
Gross Demand Reduction	• 1.23 MW	• 1.13 MW	• The database reports a total of 1.13 MW of demand savings. This is a discrepancy of 8% under the reported value. • This is likely a typo and the SWE team recommends that PPL ensure that the cumulative demand savings are accurate in the PY3 Q2 report.
Use of 2010 TRM Protocols	• N/A	• All savings calculated in accordance with the TRM protocols.	• No issues identified.
Baseline Assumptions	• N/A	• All assumptions are valid.	• No issues identified.
Invoice Review	• N/A	• No issues were identified.	• PPL provided all Q1 invoices; the SWE team reviewed a sample of 5. No issues were identified.

7.2.1.3.4 FirstEnergy – Met-Ed, Penelec, Penn Power

The FirstEnergy Energy Efficient (EE) Products program provides incentives to customers and support to retailers that sell energy efficiency products such as ENERGY STAR qualified appliances or CFLs. The program includes promotional support, point-of-sale materials, training, promotional events and up-stream buy-down rebates to retailers, distributors or manufacturers for selected products. The EE Products Program is administered by Honeywell.

The following table contains a summary of the SWE team audit findings and recommendations.

Table 7-5: Summary of CFL Program Audit – FirstEnergy – Met-Ed, Penelec, Penn Power

Category:	PY3 Q1 Report:	Database:	Notes:
No. Bulbs	• Met-Ed: 66,891 • Penelec: 64,692 • Penn Power: 29,898	• Met-Ed: 69,547 • Penelec: 65,963 • Penn Power: 30,211	• The SWE team was unable to verify the IQ participant counts reported in the EDCs' respective PY3 Q1 reports. The total bulbs distributed, via POS and Give-away Events, are noted in the "Database" column of this table. • The SWE team recommends that FirstEnergy clearly identify the source of their CFL participant counts reported in future reports. • *Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.*
Gross Energy Savings	MWh (IQ) • N/A	MWh (IQ) • Met-Ed: 8,931 • Penelec: 8,868 • Penn Power: 4,603	• *Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.*
Gross Demand Reduction	MW (IQ) • N/A	MW (IQ) • Met-Ed: 0.47 • Penelec: 0.46 • Penn Power: 0.24	• *Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.*
Use of 2010 TRM Protocols	• N/A	• All savings calculated in accordance with the TRM protocols.	• No issues identified.
Baseline Assumptions	• N/A	• All assumptions are valid.	• No issues identified.
Invoice Review	• N/A	• N/A	• FirstEnergy provided a sample of invoices. The SWE team reviewed 9. No issues were identified.

7.2.1.3.5 West Penn

West Penn's CFL program provides mail-in and point-of-purchase rebates for the purchase of CFL bulbs. The CFL rebate program launched in January 2010; the POS program launched in August 2010. West Penn currently has four retailers participating in the CFL Rewards Program.

The following table contains a summary of the SWE team audit findings and recommendations.

Table 7-6: Summary of CFL Program Audit – West Penn

Category:	PY3 Q1 Report:	Energy Savings Calculator:	Database:	Notes:
No. Bulbs	Participants • 32,310	Participants • 32,310	• N/A	• West Penn reports "participants" in their report instead of bulb-counts; the participant count is based on the number of bulb packages sold. • No issues identified.
Gross Energy Savings	• 5,097 MWh	MWh (IQ) • 5,097 MWh	• N/A	• No issues identified.
Gross Demand Reduction	• 0.20 MW	MW (IQ) • 0.20 MW	• N/A	• No issues identified.
Use of 2010 TRM Protocols	• N/A	• All savings calculated in accordance with the TRM protocols.	• All savings calculated in accordance with the TRM protocols.	• No issue identified.
Baseline Assumptions	• N/A	• All assumptions are valid.	• All assumptions are valid.	• No issues identified.
Invoice Review	• N/A	• POS Entries: 110,343	• POS Entries: 110,492	• West Penn noted that an invoice inadvertently reported bulbs sold outside of WPP's service territory, thus explaining the difference between bulbs tracked and reported. • No other issues were identified.

7.2.2 Low-Income Programs

The SWE did not conduct desktop audits of residential low-income programs in PY3 Q1. The SWE is planning to conduct desktop audits of all EDC low-income programs in future quarters of PY3.

7.2.3 Non-Residential Programs

The following sections detail findings of the desktop audits for non-residential programs. 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

7.2.3.1 Duquesne

Duquesne listed eleven programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Of these eleven programs, eight programs achieved energy and demand savings during PY3 Q1. The Industrial Sector Umbrella EE, Chemical Products EE and Primary Metals EE programs had no new participants in the quarter and achieved no savings. The gross reported energy savings of these programs was 676 MWh and the gross reported demand savings was 0.127 MW during PY3 Q1. Table

7-7 provides the reported number of participants, energy savings, demand savings and incentives paid from PY3 Q1. The two Retail EE programs are presented together because Duquesne did not report the incentives paid to the Small and Large program separately.

Table 7-7: Duquesne Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Commercial Sector Umbrella	13	32	0.006	$11,734
HealthCare EE	1	199	0.027	$33,940
Mixed Industrial EE	1	87	0.013	$263,785
Office Building - Large	1	3	0.000	$434,118
Office Building - Small	2	30	0.010	$61,937
Public Agency/ Non-Profit	6	152	0.046	$975,386
Retail Stores (Small and Large)	7	173	0.025	$352,241
Totals	**31**	**676**	**0.127**	**$2,133,141**

7.2.3.1.1 Review of Savings Database

Duquesne provided a database of all PY3 Q1 measures activity to the SWE team for review. Table 7-8 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 7-8: Duquesne Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Commercial Sector Umbrella	13	32	0.006	$2,909.80
HealthCare EE	1	199	0.027	$12,160.15
Mixed Industrial EE	1	87	0.013	$7,422.50
Office Building - Large	1	3	0.000	$154.00
Office Building - Small	2	30	0.010	$2,567.36
Public Agency/ Non-Profit	6	152	0.046	$27,082.75
Retail Stores (Small and Large)	7	173	0.025	$11,424.44
Totals	**31**	**676**	**0.127**	**$63,721.00**

In Table 7-9, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-9: Duquesne Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Commercial Sector Umbrella	0	0	0	$8,824.20
HealthCare EE	0	0	0	$21,779.85
Mixed Industrial EE	0	0	0	$256,362.50
Office Building - Large	0	0	0	$433,964.00
Office Building - Small	0	0	0	$59,369.64
Public Agency/ Non-Profit	0	0	0	$948,303.25
Retail Stores (Small and Large)	0	0	0	$340,816.56
Totals	**0**	**0**	**0**	**$2,069,420.00**

The participant counts, energy savings and demand savings in the Duquesne project database match the reported figures exactly. The reported incentives are significantly larger than the sum of the incentives contained in the project database. Many of the incentives paid during PY3 Q1 were for projects actually completed in PY2 Q4. Incentives follow projects, i.e. incentives paid for projects reporting savings in PY2 Q4 should be reported in PY2 Q4, not PY3 Q1.

7.2.3.1.2 Review of Project Files

Duquesne submitted a sample of five participants from its non-residential programs to the SWE team as part of the PY3 Q1 data request response. Participants were stratified by energy savings and the sample was randomly selected in accordance with Navigant's stratification and sampling methods. The savings figures and incentive amounts detailed in the selected sample tab of the Duquesne data request response matched the savings database in each case. Table 7-10 shows the key statistics for the selected sample.

Table 7-10: Duquesne Comparison of Sample File to Savings Database

Program	Sample kWh	Database kWh	Sample kW	Database kW	Sample Incentive	Database Incentive
Retail Stores	31190	31190	8.3	8.3	$1,939.50	$1,939.50
Retail Stores	14632	14632	0.92	0.92	$377.24	$377.24
Education	745	745	0.35	0.35	$203.50	$203.50
CSUP Commercial Umbrella	215	215	0.01	0.01	$0.00	$0.00
CSUP Commercial Umbrella	12688	12688	1.67	1.67	$1,244.00	$1,244.00

Duquesne's PMRS system stores savings figures for all projects participating in their programs. The SWE team used the PMRS system to examine each of the projects from the selected sample in detail. This purpose of this exercise was to verify that there were no discrepancies between the figures in the savings database and those listed in the online measure summaries and to identify areas where the reporting process could be improved. The SWE team found the project detail in the PMRS to be well laid out and thorough and savings calculations to be transparent and performed according the methodology called for in the TRM.

The SWE team identified a potential tracking issue during its review. Project 5000007893.16.02 consisted of three measures: a linear fluorescent ballast retrofit, lighting sensors less than 500W and lighting sensor greater than or equal to 500W. All energy and demand savings credited to this project were attributed to the first measure, although incentives were paid for the two lighting sensor measures. Based on the measure detail provided in the PMRS system, it is unclear whether no savings were associated with the lighting sensor measures, or if the savings from these measures were included in the savings estimate for the linear fluorescent retrofit. In this situation, the SWE team requests that Duquesne clarify whether savings are factored into another measure or if there are no energy or demand savings associated with a given measure. The SWE team notes that this most likely will not result in a change in project savings, but rather a process improvement to the tracking system.

7.2.3.1.3 Review of Sample Design

Duquesne described their sample design in their quarterly report and provided the sampled C&I projects in their response to the data request. The sample consisted of thirty commercial projects and one industrial project and was selected in accordance with the process described in the quarterly report. Assuming similar populations in the remaining quarters, the Q1 sample size is adequate to achieve the confidence and precision levels required by the Audit Plan.

7.2.3.1.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the Duquesne PY3 Q1 to those in previous quarterly reports and found the reported figures for non-residential programs to be mostly consistent. Slight discrepancies were discovered for both of the Office Buildings Programs. The CPITD participant counts for both the Large EE and Small EE Programs decreased despite reported new participants in PY3 Q1. The gross energy impacts for the Small EE Program was consistent with the previous report, but the Large EE Program showed smaller CPITD gross energy impact and gross demand impact in PY3 Q1 despite adding a new participant. These discrepancies could be due to reclassification of projects conducted in previous quarters. A similar discrepancy was observed between PY2 Q4 and PY3 Q1 for the Small and Large Retail EE Programs. The SWE team understands that the reporting challenge for the EDCs given that the PY2 Q4 report is submitted after the PY3 Q1 report, but requests that consistent inclusion criteria be imposed for reporting cumulative figures, i.e. cumulative numbers for the PY2 annual report should only include projects reported in PY2 but not PY3[17].

7.2.3.2 PECO

PECO reported savings impacts from three non-residential programs in PY3 Q1: Smart Equipment Incentives C&I, Smart Equipment Incentives Government\Non-Profit and Smart Construction Incentives. There were no savings associated with the Conservation Voltage Reduction program. The gross reported energy savings of these programs was 21,025 MWh and the gross reported demand savings was 3.8

[17] This recommendation is more applicable to the PY2 annual report rather than the PY3 Q1 report, but is included here to expedite communication of comments.

MW. Table 7-11 provides the reported number of participants, energy savings, demand savings and incentives paid from PY3 Q1.

Table 7-11: PECO Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives C&I	304	14433	2.8	$1,256,000
Smart Equipment Incentives Govt/Non-Profit	76	3073	0.4	$193,000
Smart Construction Incentives	25	3519	0.6	$344,000
Totals	**405**	**21025**	**3.8**	**$1,793,000**

7.2.3.2.1 Review of Savings Database

PECO provided a series of databases capturing all PY3 Q1 measures activity to the SWE team for review. Table 7-12 provides the participant count, energy impact, demand impact and total incentives paid by program according to the PECO database extract.

Table 7-12: PECO Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives C&I	353	14433	2.8	$1,255,806
Smart Equipment Incentives Govt/Non-Profit	76	3073	0.4	$193,404
Smart Construction Incentives	25	3519	0.6	$343,782
Totals	**454**	**21025**	**3.8**	**$1,792,994**

In Table 7-13, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-13: PECO Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Smart Equipment Incentives C&I	-49	0	0	$194
Smart Equipment Incentives Govt/Non-Profit	0	0	0	-$405
Smart Construction Incentives	0	0	0	$218
Totals	**-49**	**0**	**0**	**$6**

The energy savings and demand savings figures in the project databases match the reported numbers perfectly. The project database for the C&I Retrofit program shows 203 participants and the C&I Retrofit Multi-Tenant database shows 150 PY3 Q1 participants. This results in a larger participant count in the database than was reported in the PY3 Q1 PECO report. This could be a product of the same customer participating in both programs. The slight discrepancies between the reported incentives and the

incentive amounts in the project databases are due to rounding error. The SWE recommends that quality assurance/quality control (QA/QC) processes be improved to minimize these discrepancies and ensure that reporting procedures are as consistent and accurate as possible.

7.2.3.2.2 Review of Project Files

PECO provided the SWE team with project files for 25 individual projects completed during PY3 Q1. Project files included invoices from the purchase of efficient equipment, TRM worksheets where savings were calculated, PECO auditor reports, equipment spec sheets and scanned copies of incentive checks. Table 7-14 contains a comparison of the values contained in these project files to the savings databases PECO provided the SWE team.

Table 7-14: PECO Comparison of Project Files to Savings Database

Project Type	Project Files kWh	Database kWh	kWh Difference	Project Files kW	Database kW	kW Difference	Project Files Rebate	Database Rebate	Rebate Difference
New Construction	7565.5	7565.5	0	4.05	4.05	0.0	$2,425	$2,425	$0
New Construction	12944.5	12944.5	0	3.44	3.44	0.0	$1,010	$1,010	$0
New Construction	47538	47358.6	179.4	8.69	8.51	0.2	$4,670	$4,670	$0
New Construction	367991.7	367991.7	0	62.01	62.01	0.0	$27,235	$27,235	$0
New Construction	1631479	1631479	0	186.24	186.24	0.0	$163,148	$163,148	$0
C&I Multitenant	174.5	174.5	0	0.04	0.03	0.0	$75	$75	$0
C&I Multitenant	514.5	514.5	0	0.31	0.30	0.0	$150	$95	$55
C&I Multitenant	23097.3	23097.3	0	4.28	4.28	0.0	$10,125	$10,125	$0
GIN Multitenant	93.7	93.7	0	0.01	0.01	0.0	$100	$100	$0
GIN Multitenant	100	100	0	0.01	0.01	0.0	$75	$50	$25
GIN Multitenant	650	650	0	0.32	0.32	0.0	$250	$225	$25
C&I Retrofit	27834.6	27834.6	0	5.35	5.35	0.0	$985	$985	$0
C&I Retrofit	52698.4	52698.4	0	7.74	7.74	0.0	$3,707	$3,707	$0
C&I Retrofit	100718.2	100718.2	0	17.70	17.70	0.0	$6,025	$6,025	$0
C&I Retrofit	197912.3	197912.3	0	48.25	48.25	0.0	$16,943	$16,943	$0
C&I Retrofit	198704.9	198704.9	0	48.44	48.44	0.0	$17,011	$17,011	$0
C&I Retrofit	545285.1	545285.1	0	52.98	52.98	0.0	$51,784	$51,784	$0
C&I Retrofit	2698461	2698461	0	317.52	317.52	0.0	$224,802	$224,802	$0
GIN Retrofit	17669.2	17669.2	0	1.79	1.79	0.0	$2,087	$2,087	$0
GIN Retrofit	36063	36063	0	4.12	4.12	0.0	$4,212	$4,212	$0
GIN Retrofit	78996	78996	0	3.95	3.95	0.0	$3,950	$3,950	$0
GIN Retrofit	86683.1	86683.1	0	10.23	10.23	0.0	$4,651	$4,651	$0
GIN Retrofit	150591.2	150591.2	0	17.70	17.70	0.0	$9,750	$9,750	$0
GIN Retrofit	214445.5	214445.5	0	21.55	21.55	0.0	$28,573	$28,573	$0
GIN Retrofit	619165	619165	0	9.24	9.24	0.0	$12,120	$12,120	$0

The savings databases proved to be very consistent with the project files. There were some inconsistencies in calculations of energy savings and demand savings for a walk-in cooler motor upgrade for one of the participants in the New Construction program. An annual energy savings estimate of 446 kWh per unit and a peak demand savings estimate of 0.0509 kW per unit were used in the Custom Savings Calculation worksheet. In the Application Summary file a figure of 401 kWh per unit was used. This revised savings estimate came from page 56 of the Non-TRM PECO work papers and is considered valid estimate because no savings estimate is provided in the TRM for this specific motor conversion.

The project files presented to the SWE team for the Multitenant programs were scanned copies of customer applications. For three participants, the incentives written on the application did not match the final payment issued. The SWE team assumes that one or more of the appliances listed on the application were rejected and this caused the actual rebate amount to be lower than the figure listed on the application. No major systematic issues were identified.

7.2.3.2.3 Review of Sample Design

PECO described the sample design for each program in their quarterly report. According to their evaluation plan, sampling will begin in January 2012, so the first two quarters will be combined. As a consequence, no evaluation sample was provided for Q1. The quarterly report listed anticipated populations and samples for two programs (Smart Equipment Incentives – C&I and Smart Equipment Incentives – GNP). More information, such as the assumed coefficient of variation, is needed to validate the anticipated sample size for the Smart Equipment Incentives - GNP program (16 for a population of 300 non-multi-tenant projects).

7.2.3.2.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the PECO PY3 Q1 to those in previous quarterly reports and found the reported figures for non-residential programs to be mostly consistent. There was a slight discrepancy in the number of participants in the Smart Construction Incentives program. In the PY2 Q4 report the CPITD participant count was listed as 4. In the PY3 Q1 report, 25 participants were listed in the quarter, but the CPITD count was 33 rather than the expected value of 29. The reported CPITD gross demand impact for the Smart Equipment Incentives – Government/Non-Profit Program in PY3 Q1 was actually lower than the PY2 Q4 CPITD gross demand impact for the same program despite a 0.4 MW impact reported for the quarter. The SWE team assumes that this discrepancy is due to revisions in the demand impact calculation for previous periods.

7.2.3.2.5 Review of Conservation Voltage Reduction Program

Because no savings were reported for this CVR program in PY3 Q1, the Statewide Evaluation Team did not audit the calculation of reported MWh and MW savings for this program.

7.2.3.3 PPL

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 PY3 Q1. PPL's programs are designed to be cross-cutting, allowing customers from all rate classes to participate in the programs. Therefore, total program impacts need to be segregated into the appropriate sector classification. For the non-residential umbrella, the programs achieved a reported gross energy savings of 76,189 MWh and gross demand savings of 16.26 MW during PY3 Q1. Key figures for PY3 Q1 for each program, by sector, are shown in Table 7-15. PPL reports incentives paid across these programs so Table 7-15 does not contain the reported incentives paid in the quarter.

Table 7-15: PPL Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Small C&I Appliance Recycling	72	123	0.02
Small C&I Custom Incentive	4	598	0.08
Small C&I EE Non-Lighting	711	316	0.03
Small C&I Lighting	600	32508	7.50
Small C&I HVAC Tune-Up	447	375	0.42
Large C&I Custom Incentive	10	10619	2.57
Large C&I EE Non-Lighting	58	42	0.00
Large C&I Lighting	54	21538	3.24
Large C&I HVAC	15	-3	0.00
Government/Non-Profit Custom Incentive	5	802	0.11
Government/Non-Profit Non-Lighting	554	112	0.02
Government/Non-Profit Lighting	204	8768	2.22
Government/Non-Profit Renewables	8	391	0.05
Totals	**2742**	**76189**	**16.26**

7.2.3.3.1 Review of Savings Database

PPL provided a series of databases capturing all PY3 Q1 measures activity to the SWE team for review. Table 7-16 provides the participant count, energy savings and demand savings, by program and sector, according to the PPL database extracts.

Table 7-16: PPL Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW
Small C&I Appliance Recycling	72	123	0.02
Small C&I Custom Incentive	4	598	0.07
Small C&I EE Non-Lighting	712	316	0.03
Small C&I Lighting	580	32508	6.92
Small C&I HVAC Tune-Up	447	375	0.38
Large C&I Custom Incentive	10	10619	2.47
Large C&I EE Non-Lighting	58	42	0.00
Large C&I Lighting	51	21538	3.10
Large C&I HVAC	15	-3	0.00
Government/Non-Profit Custom Incentive	5	802	0.10
Government /Non-Profit Non-Lighting	557	112	0.02
Government /Non-Profit Lighting	184	8768	2.05
Government /Non-Profit Renewables	8	391	0.04
Totals	**2703**	**76189**	**15.20**

In Table 7-17, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-17: PPL Non-Residential Program Discrepancies

Program	Participants	MWh	MW
Small C&I Appliance Recycling	0	0	0.00
Small C&I Custom Incentive	0	0	0.01
Small C&I EE Non-Lighting	-1	0	0.00
Small C&I Lighting	20	0	0.58
Small C&I HVAC Tune-Up	0	0	0.04
Large C&I Custom Incentive	0	0	0.10
Large C&I EE Non-Lighting	0	0	0.00
Large C&I Lighting	3	0	0.14
Large C&I HVAC	0	0	0.00
Government /Non-Profit Custom Incentive	0	0	0.01
Government /Non-Profit Non-Lighting	-3	0	0.00
Government /Non-Profit Lighting	20	0	0.17
Government /Non-Profit Renewables	0	0	0.01
Totals	**39**	**0**	**1.06**

There were no discrepancies between the gross annual energy savings adjustments reported in the PPL PY3 Q1 report and the savings databases. There were some minor differences in the number of participants and peak demand savings in both the Efficient Equipment Incentive Lighting Program and the Efficient Equipment Incentive Non-Lighting Program. The differences in gross demand savings are due to line loss factors being applied to the figures prior to reporting. This causes the reported demand impacts to be approximately seven percent higher than the unadjusted figures in the savings database. The discrepancies in participant counts for several programs were a result of the SWE team using a count of distinct participant account numbers rather than a count of distinct job identifier numbers. No major systematic issues were identified.

7.2.3.3.2 Review of Project Files

PPL provided the SWE team with supporting documents for a sample group of participants for each of its non-residential programs. The content of these documents was used to verify the figures contained in the savings databases for PY3 Q1. The following section examines each of the six active PPL non-residential programs individually.

PPL reported 72 participants in its Appliance Recycling program in the SCI sector in the PY3 Q1 EDC report. The response to the SWE data request did not include a savings database or any supporting project files for SCI Appliance Recycling projects. The SWE team did not elect to audit appliance

replacements occurring in non-residential settings separately from those occurring in the residential sector because the savings estimates are the same and the vast majority of appliance recycling projects occur under the residential umbrella. Observations and findings are not expected to be significantly different than residential participants.

PPL reported eight participants in its Renewable Energy program in the PY3 Q1 report. All participants installed ground source heat pumps and were part of one school district. Scanned rebate applications were submitted for each participant. In the Renewable Energy savings database, each participant showed an annual gross energy savings of 48,839 kWh, an annual demand savings of 5.6 kW and an incentive amount of $11,885. In an email string submitted to the SWE team in the project files, the total rebate amount for the eight locations is identified as $19,135.06, which is nearly $85,000 less than the sum of the incentives in the savings database. The total tonnage of the units at the eight locations ranged from 4.23 to 17.60. The SWE team requests additional documentation of the savings calculations used for this program because it does not appear that the tonnage, COP or EER of the various units were taken into consideration. It appears that instead the same annual energy savings value, peak demand savings value and incentive amount were used for each of the eight locations.

PPL reported 462 participants in its HVAC Tune-up program during PY3 Q1. Within the HVAC Tune-up program, there are four measures: a diagnostic test-in, an economizer test-in, refrigeration cycle performance improvement and thermostat adjustment or lockout. PPL randomly selected 10 participants who received the diagnostic test-in and identified the other measures that they received. Table 7-18 provides the number of PY3 Q1 participants receiving each measure.

Table 7-18: Participant Counts By Measure in the HVAC Tune-Up Program

HVAC Measure	Participant Count
HVAC - Diagnostic	171
HVAC - Economizer	173
HVAC - Refrigeration Cycle	86
HVAC - Thermostat	32

Four members of the sample group received refrigeration cycle performance improvement; eight received an economizer test-in and two participated in the thermostat measure. PPL summed the savings attributed to each member of the sample group and, in each case; the figure matched the savings database. The savings databases contained significant detail about the measures performed, but no applications, technician work orders or savings calculations sheets were provided to validate this information. The SWE recommends additional detail to track savings estimates.

PPL randomly selected 10 participants from its Efficient Equipment Incentive Lighting Program and submitted a table summarizing the annual gross energy savings, demand savings and total incentive for each. No savings calculation sheets, customer applications, equipment specifications or invoices were provided. The SWE recommends that accompanying documentation be provided for a more detailed

review. The SWE team created a summary table of the same information from the Commercial Lighting program savings database. Table 7-19 compares the contents of the savings database to those provided in the sample.

Table 7-19: PPL Commercial Lighting Database-Project Files Comparison

Customer Segment	Database kWh Savings	Sample kWh Savings	kWh Savings Difference	Database kW Savings	Sample kW Savings	kW Savings Difference	Database Incentive Amount	Sample Incentive Amount	Incentive Amount Difference
Small C&I	20,431	20,431	0	5.04	5.04	0.00	$1,960	$1,960	$0
Small C&I	22,866	22,866	0	8.14	8.14	0.00	$3,836	$3,836	$0
Small C&I	199,748	199,748	0	50.45	50.45	0.00	$30,460	$30,460	$0
Gov't/Non-Profit	9,865	9,865	0	2.44	2.44	0.00	$3,840	$3,840	$0
Gov't/Non-Profit	27,337	27,337	0	12.95	12.95	0.00	$7,500	$7,500	$0
Small C&I	16,647	16,647	0	3.88	3.88	0.00	$826	$826	$0
Gov't/Non-Profit	174,820	44,027	130793	10.20	10.20	0.00	$7,982	$3,768	$4,214
Small C&I	3,168	3,168	0	1.48	1.48	0.00	$800	$800	$0
Small C&I	1,604	1,604	0	0.57	0.57	0.00	$300	$300	$0

Gross energy savings, demand savings and incentive amounts matched perfectly for nine of the ten participants in the sample. The SWE team discovered a discrepancy between the energy savings and total incentive amount attributed to one member of the sample. Summing the energy savings of the individual measures attributed to this account number in the savings database yielded a discrepancy of over 130 MWh.

PPL provided the SWE team with extensive project files on a sample of nine non-residential customers participating in the Custom Incentives program. This sample was focused on the custom projects with the largest application savings. Savings calculation sheets, equipment specification sheets, pictures, baseline and post-installation meter data provided to the SWE team supported the reported figures in the savings database. In several cases, verified savings were used to report. The project files provided a high level of transparency into the verification process and there were no discrepancies between the verified figures and the figures reported in the savings database.

PPL provided scanned rebate applications, and detailed participant tracking information for ten participants in its Efficient Equipment Incentive Non-Lighting Program. The SWE team searched for each participant in the savings databases by customer account number and CSP job number. Two of the ten participants in the sample were included in the savings database and neither showed any discrepancies. The SWE team was unable to perform a database-project files comparison of the other eight participants because they were not included in the savings database.

7.2.3.3.3 Review of Sample Design

PPL described their sample design for each of their four C&I programs in their quarterly report. Samples were provided in the quarterly report (for the Custom Incentive Program) or in the response to the data request (for the HVAC Tune Up, Renewable Energy, and Efficient Equipment Commercial Lighting Programs). Assuming similar populations in the remaining quarters, the Q1 sample sizes are adequate to achieve the confidence and precision levels required by the Audit Plan.

7.2.3.3.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the PPL PY3 Q1 to those in previous quarterly reports and found the reported figures for non-residential programs to be consistent.

7.2.3.4 Met-Ed

Metropolitan Edison lists seven programs in its non-residential portfolio. The only program that did not have any participants in PY3 Q1 was the PJM Demand Response Program. The reported gross energy savings from non-residential programs in PY3 Q1 was 7,192 MWh and the reported gross demand savings was 1.52 MW. Several programs in the Met-Ed non-residential portfolio reported large negative EDC incentives to participants. Table 7-20 summarizes the key figures reported by Met-Ed for PY3 Q1.

Table 7-20: Met-Ed Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Energy Audit, Assessment and Equipment Rebate	73	3289	0.88	-$4,416
C&I Performance Contracting/Equipment	6	1312	0.18	-$606,242
Industrial Motors and VSD	10	368	0.05	$24,823
Street Lighting	41	775	0.00	$129,903
Non-Profit	4	22	0.01	$2,588
Remaining Government /Non-Profit	66	1426	0.40	-$671,240
Totals	**200**	**7192**	**1.52**	**-$1,124,584**

7.2.3.4.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies. Table 7-21 contains the total participant counts, energy savings, demand savings and incentive amounts, by program, from Met-Ed non-residential projects in the FirstEnergy savings database.

Table 7-21: Met-Ed Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Energy Audit, Assessment and Equipment Rebate	70	3234	0.88	$373,659
C&I Performance Contracting/Equipment	6	1312	0.18	$83,016
Industrial Motors and VSD	10	368	0.05	$36,980
Street Lighting	41	769	0.00	$455,548
Non-Profit	4	22	0.01	$3,098
Remaining Government /Non-Profit	66	1425	0.40	$225,069
Totals	**197**	**7130**	**1.51**	**$1,177,369**

In Table 7-22, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-22: Met-Ed Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Energy Audit, Assessment and Equipment Rebate	3	55	0.00	-$378,075
C/I Performance Contracting/Equipment	0	0	0.01	-$689,258
Industrial Motors and VSD	0	0	0.00	-$12,157
Street Lighting	0	6	0.00	-$325,645
Non-Profit	0	0	0.00	-$510
Remaining Government /Non-Profit	0	1	0.00	-$896,309
Totals	**3**	**62**	**0.01**	**-$2,301,953**

The participant counts, energy savings and demand savings contained in the Met-Ed project database are each very close to the reported figures. The difference in demand savings is likely due to rounding error. Large discrepancies were observed between the incentive amounts in the PY3 Q1 Met-Ed report and the database. The SWE requests additional clarification especially regarding incentive differences.

7.2.3.4.2 Review of Project Files

FirstEnergy provided supporting documents to the SWE team on a sample of projects conducted in the Met-Ed service territory for review. These project files were provided by FirstEnergy's implementation CSP. Savings recorded in the databases were checked against a sample of the actual project files to verify consistency in the reporting process and to identify potential opportunities for improvement.

Project NSLB26019 is a lighting retrofit project which received $17,797 in incentives. The savings database showed an annual gross energy savings of 106,006 kWh and a demand savings of 23.42 kW. A scanned copy of the customer application was included in the project files. This application estimated the incentive correctly, but estimated the annual energy savings to be lower than what was eventually reported. The estimated demand savings on the application was higher than what was eventually reported. No savings calculation sheet was included, so the SWE team was unable to review the savings calculation details. An onsite inspection form and photos were also included in the project files.

CI29956, CI29976, MD29968, MD29978 and MD29990 were projects which involved installing new ECM evaporator fan motors on the refrigeration equipment in a grocery store setting. The project files submitted to the SWE team included scanned application forms, savings calculation worksheets and two different reports. The first report was from the CSP and contained savings estimates slightly larger than the figures reported in the savings database. The savings calculation worksheets were compiled by the CSP and were consistent with the estimates included in the CSP report. The second report included for each project was compiled by SAIC. The savings calculations contained in the SAIC report were consistent with the figures contained in the savings databases. The SAIC savings calculations differed from the CSP calculations because specific refrigeration efficiencies were used for each piece of equipment and the daily hours of operation for the fan motors were assumed to be fewer than 24. The

SWE team feels sufficient insight was provided into the savings calculation and the reported savings estimates are valid.

NSLB30212, NSLB30499 and NSLB32533 were lighting retrofit projects approved during PY3 Q1. Project files included equipment specifications, equipment purchase orders, cut sheets and customer applications. No savings calculation worksheets were included in the project files so the SWE team was unable to verify the methodology behind the reported the reported savings figures. NSLB13923 was a Met-Ed lighting retrofit project for which the savings calculation worksheet was included. All energy and demand savings calculation were performed using the Lighting Audit and Design Tool called for in Appendix C of the TRM.

7.2.3.4.3 Review of Sample Design

FirstEnergy described the sample design for each program in the Met Ed quarterly report, but stated in an attachment to the general data request that the sample designs were still in progress, and would be modified based on the PY2 evaluations. The SWE expects that the samples will be provided in the PY3 Q2 report.

7.2.3.4.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the Met-Ed PY3 Q1 to those in previous quarterly reports and found several inconsistencies. The C/I Performance Contracting/Equipment program showed a larger CPITD participant count, gross energy impact and gross demand impact in the PY2 Q4 report than in the PY3 Q1 report. The SWE team understands that the timing of the two reports creates a logistic challenge, but suggests that inclusion in program quarters be handled consistently for program tracking purposes.

7.2.3.5 Penn Power

Penn Power lists seven programs under its non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Four of these programs reported savings during PY3 Q1. The reported number of participants, energy savings, demand savings and incentive amounts are presented for these four programs in Table 7-23. The gross reported energy savings of these programs was 1,955 MWh and the gross reported demand savings was 0.33 MW.

Table 7-23: Penn Power Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Small C&I Audit, Assessment and Equipment	11	1207	0.21	$25,802.00
C&I Performance Contracting/Equipment	2	286	0.04	-$53,522.00
Industrial Motors and VSD	1	162	0.02	$17,770.00
Remaining Government/Non-Profit	9	300	0.06	$5,576.00
Totals	**23**	**1955**	**0.33**	**-$4,374.00**

7.2.3.5.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies. Table 7-24 contains the total participant counts, energy savings, demand savings and incentive amounts, by program, from Penn Power non-residential projects in the FirstEnergy savings database.

Table 7-24: Penn Power Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Small C&I Audit, Assessment and Equipment	11	1209	0.02	$63,734.26
C&I Performance Contracting/Equipment	2	286	0.04	$35,031.02
Industrial Motors and VSD	1	161	0.02	$16,139.30
Remaining Government/Non-Profit	9	300	0.06	$21,898.43
Totals	**23**	**1956**	**0.141**	**$136,803.01**

In Table 7-25, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-25: Penn Power Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Small C&I Audit, Assessment and Equipment	0	-2	0.189	-$37,932.26
C&I Performance Contracting/Equipment	0	0	0	-$88,553.02
Industrial Motors and VSD	0	1	0	$1,630.70
Remaining Government/Non-Profit	0	0	0	-$16,322.43
Totals	**0**	**-1**	**0.189**	**-$141,177.01**

The participant counts, energy savings and demand savings contained in the Penn Power project database are each very close to the reported figures. There are significant differences in the EDC incentives paid to participants for each program. The SWE requests additional clarification especially regarding incentive differences.

7.2.3.5.2 Review of Project Files

FirstEnergy provided supporting documents to the SWE team on a sample of projects conducted in the Penn Power service territory for review. These project files were provided by FirstEnergy's implementation CSP. Savings recorded in the databases were checked against a sample of the actual project files to verify consistency in the reporting process and to identify potential opportunities for improvement.

The FirstEnergy savings database reported annual energy savings of 161,393 kWh and demand savings of 18.4 kW for Project MD27357. These figures are consistent with the calculations presented in the VFD savings calculator spreadsheet. Equipment specification sheets, customer applications and a project review memorandum included in the project files supported the reported savings calculations.

Project NSLB3543 was a lighting retrofit project where 245 linear fluorescent fixtures were converted from T12s to T8s. The project files submitted to the SWE team included a scanned application, several equipment invoices, a cut sheet and a savings calculation worksheet. The savings calculations were performed using the Lighting Audit and Design Tool called for in Appendix C of the TRM and the figures in the savings worksheet were consistent with the FirstEnergy savings database.

The SWE team was unable to verify the savings database figures for Project NSLB20202. The FirstEnergy savings database reported an annual gross energy savings of 633,625 kWh and a demand savings of 94.17 kW for this large lighting retrofit project. Equipment specifications, scanned applications and cut sheets were included in the project files along with four savings calculation worksheets. Summing the estimates contained in the four worksheets produced an annual gross energy savings of 417,629 kWh and a demand savings of 89.57 kW. These savings worksheets were dated November 2010, so presumably the final measures implemented were different from those contained in the worksheets. The SWE recommends that the implementation CSP update the savings calculation details for each project upon completion to establish a transparent audit trail and avoid this type of discrepancy.

7.2.3.5.3 Review of Sample Design

FirstEnergy described the sample design for each program in the Penn Power quarterly, but stated in an attachment to the general data request that the sample designs were still in progress, and would be modified based on the PY2 evaluations. The SWE expects that the samples will be provided in the PY3 Q2 report.

7.2.3.5.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the Penn Power PY3 Q1 to those in previous quarterly reports and found several inconsistencies. In the Penn Power PY2 Q4 report, the reported CPITD participant count for the Remaining Government/Non-Profit program was 543 and the reported CPITD gross energy impact was 8,758 MWh. In the Penn Power's PY3 Q1 report, this program showed 9 participants in the quarter and CPITD participant count of 59. In the PY2Q3 report, a CPITD participant count was 28. The SWE team feels that the participant count reported in the PY2 Q4 report was an error that should be corrected.

The PY3 Q1 CPITD gross energy impact for this program was larger than the sum of the PY2 Q4 CPITD energy impact and the PY3 Q1 gross energy impact by 371 MWh.

The SWE team was also unable to align the reported CPITD participant counts, gross energy impacts and gross demand impacts reported in PY3 Q1 with the figures from previous quarters for the Energy Audit, Assessment and Equipment Rebate Program and the C/I Performance Contracting/Equipment Program.

7.2.3.6 Penelec

Penelec lists seven programs under its non-residential umbrella. The only program without any reported activity in PY3 Q1 was PJM Demand Response. Table 7-26 contains the reported participant counts, energy savings, demand savings and EDC incentives of each the six active programs. A total of 396 non-residential customers participated in Penelec program offerings in PY3 Q1. The reported gross energy savings is 21,674 MWh and the reported gross demand savings is 5.12 MW.

Table 7-26: Penelec Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Small C&I Audit Assessment and Equipment Rebate	233	9790	1.71	$95,603
C&I Performance Contracting/Equipment	20	5806	2.06	-$80,216
Industrial Motors and VSD	3	705	0.07	$12,966
Street Lighting	9	29	0.00	$18,012
Non-Profit	9	225	0.05	$675
Remaining Government/Non-Profit	122	5119	1.23	-$348,774
Totals	**396**	**21674**	**5.12**	**-$301,734**

7.2.3.6.1 Review of Savings Database

FirstEnergy provided the SWE team a database of project activity for each of its operating companies. Table 7-27 contains the total participant counts, energy savings, demand savings and incentive amounts, by program, from Penelec non-residential projects in the FirstEnergy savings database.

Table 7-27: Penelec Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Small C&I Audit Assessment and Equipment Rebate	218	9736	1.70	$1,083,470
C&I Performance Contracting/Equipment	19	5709	2.04	$384,178
Industrial Motors and VSD	4	705	0.07	$51,956
Street Lighting	9	30	0.00	$26,680
Non-Profit	10	233	0.05	$21,903
Remaining Government/Non-Profit	135	5150	1.24	$705,943
Totals	**395**	**21563**	**5.104**	**$2,274,130**

In Table 7-28, the discrepancies between the reported figures and the information contained in the database are presented. All discrepancies are reported as:

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

Table 7-28: Penelec Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Small C&I Audit Assessment and Equipment Rebate	15	54	0.01	-$1,163,686
C&I Performance Contracting/Equipment	1	97	0.02	-$371,212
Industrial Motors and VSD	-1	0	-0.004	-$33,944
Street Lighting	0	-1	0	-$26,005
Non-Profit	-1	-8	0	-$370,677
Remaining Government/Non-Profit	-13	-31	-0.01	-$1,007,677
Totals	**1**	**111**	**0.016**	**-$2,973,201**

Table 7-28 shows discrepancies in the number of participants for five of the six active programs. However, there is only a difference of one customer in the total participant counts. The SWE team will discuss the assignment of customers to specific programs with Penelec in an effort to eliminate these discrepancies. The SWE requests additional clarification especially regarding incentive differences.

7.2.3.6.2 Review of Project Files

FirstEnergy provided a series of spreadsheets that contained key information for Penelec projects completed during PY3 Q1. The savings recorded in these spreadsheets were compared to values recorded in the quarterly report to verify accuracy in the reporting process and to ensure that savings were actually achieved by the programs.

The SWE team discovered an inconsistency in the reported demand savings of project NSLB4548. In the PY3 Q1 savings database, a demand savings of 1543.43 kW was attributed to this project. This was the largest demand savings reported for any project during PY3 Q1. FirstEnergy provided cut sheets, site inspection reports, CSP invoices, equipment specification sheets and a lighting savings calculation worksheet. The energy savings calculated in the savings worksheet matched the reported energy savings, but the demand savings calculation was 154.43 kW. This meant that the savings database and quarterly report over-reported demand savings by 1.389 MW. It is unclear whether this was a clerical error or indicative of a systemic reporting issue. The SWE team recommends that a quality assurance/quality control (QA/QC) process be established to avoid this type of discrepancy and ensure that reporting procedures are as consistent and accurate as possible.

The SWE team examined the project files submitted for Penelec Project MD11030 and found them to be thorough with the exception of the inclusion of a detailed savings calculation sheet. The equipment specification sheet verified the reported incentive (60 HP*$30 = $1800). The SWE team requests that

the TRM-ESF-DSF Worksheet be included with the project files for future VFD improvement projects so the reported savings calculations are more transparent to the SWE auditors.

The supporting files for projects NSLB27759, NSLB30229, NSLB20328 and SLB23529 included scanned applications, cut sheets, equipment specifications and equipment invoices. However, the project files provided did not explicitly state how savings were achieved. It is assumed that FirstEnergy's implementation CSP uses calculations internal to the database to determine savings estimates. The SWE recommends that the implementation CSP provide savings calculation details for each project to establish a transparent audit trail. This will also ensure that ex-ante savings are consistently calculated and that savings are not inappropriately adjusted after the reporting period.

7.2.3.6.3 Review of Sample Design

FirstEnergy described the sample design for each program in the Penelec quarterly report, but stated in an attachment to the general data request that the sample designs were still in progress, and would be modified based on the PY2 evaluations. The SWE expects that the samples will be provided in the PY3 Q2 report.

7.2.3.6.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the Penelec PY3 Q1 to those in previous quarterly reports and found several inconsistencies. In the Penelec PY2 Q4 report, the CPITD gross energy impact for the Energy Audit, Assessment and Equipment Rebate program was 34,949 MWh. The PY3 Q1 reported gross energy impact for this program was 9,790 MWh. Based on this information, the expected value of the CPITD gross energy impact in the PY3 Q1 report is 44,739 MWh. However, the reported CPITD gross energy impact in the Penelec PY3 Q1 report is 46,535 MWh.

A similar discrepancy was noted for the C/I Performance Contracting/Equipment program. In this case the CPITD gross energy impact figure in the PY2 Q4 report was 34,291 MWh and the PY3 Q1 figure was 5,806 MWh. Based on this information, the expected CPITD value for the PY3 Q1 report would be 40,097 MWh. The reported CPITD gross energy impact was 38,700 MWh. Similar gross energy impact discrepancies were observed in other non-residential programs. The SWE team also noted inconsistencies in the CPITD gross demand impacts and participant counts for these programs between PY2 Q4 and PY3 Q1.

7.2.3.7 West Penn

West Penn listed 11 programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Of these eleven programs, four programs achieved energy and demand savings during PY3 Q1. The programs achieved a reported gross energy savings of 12,885 MWh and reported gross demand savings of 2.90 MW during PY3 Q1. Key figures for PY3 Q1 for each individual program are shown in Table 7-29.

Table 7-29: West Penn Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW	Incentives
Custom Applications	13	6583	1.40	$678,041
Custom Technology	6	1288	0.30	$174,881
Commercial Products Efficiency	53	3077	0.60	$131,462
Government/Non-Profit Lighting Efficiency	54	1937	0.60	$209,593
Totals	**126**	**12885**	**2.9**	**$1,193,977**

7.2.3.7.1 Review of Savings Database

West Penn Power provided a series of databases to the SWE team detailing project activity during PY3 Q1. Table 7-30 shows the participant counts, energy savings, demand savings and EDC incentives contained in each program database.

Table 7-30: West Penn Non-Residential Programs Savings Database Summary

Program	Participants	MWh	MW	Incentives
Custom Applications	13	6583	1.40	$678,041
Custom Technology	6	1288	0.30	$174,881
Commercial Products Efficiency	53	3077	0.60	$131,462
Government/Non-Profit Lighting Efficiency	54	1937	0.60	$209,593
Totals	**126**	**12885**	**2.9**	**$1,193,977**

In Table 7-31, the discrepancies between the reported figures and the information contained in the program databases are presented. All discrepancies are reported as:

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

Table 7-31: Non-Residential Program Discrepancies

Program	Participants	MWh	MW	Incentives
Custom Applications	0	0	-0.03	$20,761
Custom Technology	0	0	-0.02	$0
Commercial Products Efficiency	11	458	0.03	$32,655
Government/Non-Profit Lighting Efficiency	-8	-843	-0.21	$20,232
Totals	**3**	**-385**	**-0.23**	**$73,648**

In the Notes and Reconciliation tab of the *3.a CommGovtNonprof-Lighting thru 2011-08-31* spreadsheet provided to the SWE team, several participants in the Government/Non-Profit Lighting Efficiency program are reclassified as members of the Commercial Products Efficiency program. This reclassification of participants is likely a portion of source of the discrepancy between the PY3 Q1 EDC report and the project databases. There is also a discrepancy in the energy savings, demand savings and

EDC incentives for these two programs. The total discrepancies between the reported figures and the contents of the savings databases are all less than 8% of the reported figures.

7.2.3.7.2 Review of Project Files

West Penn did not provide project files for PY3 Q1 projects in time for this quarterly report. A sample of projects will be desk audited and reviewed during the next quarterly report.

7.2.3.7.3 Review of Sample Design

West Penn Power stated in their quarterly report that program evaluations methodologies would be determined in PY3. The SWE expects that the samples will be provided in the PY3 Q2 report.

7.2.3.7.4 Review of Report Consistency

The SWE team compared the CPITD participant counts, gross energy impact and gross demand impact figures in the West Penn PY3 Q1 to those in previous quarterly reports and found them to be consistent. For each non-residential program, the CPITD figures increased according to the activity reported for PY3 Q1.

8 Summary and Recommendations

The SWE team, the PA PUC BTUS 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 PY3 Q1, the SWE team makes the following recommendations to the PA PUC relating to the Act 129 energy efficiency and demand response programs:

- The SWE team recommends that research, including end-use metering, on the actual kWh usage of old refrigerators and freezers that are removed be conducted. This research should occur during 2012 and the study should be designed according to the final version of the research memo prepared by the SWE team and distributed to the EDCs for their review and comment.
- The SWE recommends that research on the commercial lighting hours of use should be conducted during 2012 and based upon the research memo prepared by the SWE team and distributed to the EDCs for review and comment.
- The SWE team recommends working with the EDCs to streamline the data provided in response to the quarterly data requests so that the information provided meets the needs of the SWE team while minimizing the burden on preparing the responses on the EDCs and their evaluators.
- The SWE team will continue to work with the EDCs to ensure that issues identified during the audit process are addressed and corrected going-forward.