

Act 129 Statewide Evaluator Quarterly Report

3nd Quarter, Program Year 2

Presented to:

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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) Plan¹:

- 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 (PennPower), and
- West Penn Power Company² (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 third quarter of Program Year 2 (PY2Q3) 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, 2010 and February 28, 2011. Impacts reported as Cumulative Program Inception to Date (CPITD) include savings since the implementation of Act 129 programs (June 1, 2009) through November 30, 2010.

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 verified³, PYTD reported gross MWh and MW impacts.

Reporting of program benefits and costs have been waived for this report until resolution of key issues pertaining to the Total Resource Cost (TRC) Test are decided through the issuance of a Commission Final Order updating the TRC test. During the third quarter, the SWE team worked with the Commission staff to draft a tentative TRC Update Order for comment to be released during the fourth quarter of PY2. Interim or preliminary verified savings reported in this report reflect verified savings for measures that did not yet have approved savings protocols in PY2 or for additional evaluation, measurement and verification (EM&V) activities that have occurred during this current program year. Table 1 below presents available data on PYTD gross, verified and net MWh and MW savings and reductions in CO₂ emissions through the end of the third quarter for PY2 (PY2Q3). This quarter ended on February 28, 2010.

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 2, 3rd Quarter

	PYTD Reported Gross Impact	Interim PYTD Verified Impact ^[a]	Interim PYTD Net Impact ^[b]
Total Energy Savings (MWh)	1,167,483	727,875	727,875
Total Demand Reduction (MW)	117.71	45.12	45.12
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)	945,661	589,579	589,579

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 2.

[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 PY2Q3 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 PY2Q3 quarterly report.

[f] 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).

2.2 Statewide Evaluator Summary

Below is a summary of the activities undertaken by the SWE team during the third quarter of PY2.

The SWE has reviewed the EDC Quarterly Reports for PY2Q3 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:

- Currently⁴ 86 programs have been implemented and are generating savings across the state; of the 86, 44 programs have evaluated and reported preliminary verified savings by the EDCs.

⁴ Currently as of November 2010.

- Approximately 13 additional programs are expected to be implemented and generate savings after PY2Q3.
- Progress towards 2011 MWh savings targets ranges from 22.4%-148.5%.
- Progress towards 2013 MWh savings targets ranges from 7.5%-49.5%.
- Progress towards 2013 MW reduction targets ranges from 2.3%-8.8%.

Key SWE team activities during the PY2Q3 included the following:

- Completion of desk audits for the residential lighting and residential efficient products programs.
- Held two Technical Working Group (TWG) meeting in February 2011 to discuss issues relating to the calculation of the Total Resource Cost Test, baseline studies, Technical Reference Manual (TRM) protocols, and sampling issues.
- Conducted 46 ride-along and 25 independent site inspections for a total of 71 site inspections during PY2: 8 for West Penn, 9 for Duquesne, 13 for FirstEnergy (Penelec, Penn Power, Met-Ed), 26 for PECO, and 15 for PPL.
- Issued 5 Guidance Memos to clarify various evaluation processes and provide direction.
 - GM-002: Custom Measure Process
 - GM-003: Sampling Resolutions
 - GM-004: Calculating Coincident Peak Demand Savings for Non-Weather Dependent Custom Measures
 - GM-006: Reporting Timing Issues (under review)
 - GM-008: Interim Protocol Process (under review)

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 2011 total EDC savings target during PY2Q3.⁵

Program benefits and costs have been waived for this report until resolution of TRC issues are decided through the issuance of a Commission Final Order updating the TRC test. A tentative TRC Order was released for public comment during April 2011.

3.1 Statewide Summary

The following table contains a summary of the energy and demand savings impacts of each EDC during PY2.

Table 3-1: Summary of EDC Energy and Demand Savings

	Statewide	Duquesne	PECO	PPL	Met-Ed	Penelec	PennPower	West Penn
PYTD Reported Gross ⁶ Energy Savings (MWh)	1,167,483	53,210	541,009	313,373	82,257	100,007	27,651	49,976
PYTD Interim Verified ⁷ Energy Savings (MWh)	727,875	28,023	384,863	175,694	43,337	39,903	15,810	40,245
CPITD Reported Gross ⁸ Energy Savings (MWh)	1,489,953	56,852	738,461	394,830	96,487	113,733	33,708	55,882
CPITD Interim Verified ⁹ Energy Savings (MWh)	1,048,955	31,576	584,918	259,497	55,597	52,767	21,403	43,197
% of 2011 Energy Savings Target Achieved	N/A	22.4%	148.5%	67.9%	37.4%	36.6%	44.8%	26.7%
% of 2013 Energy Savings Target Achieved	N/A	7.5%	49.5%	22.6%	12.5%	12.2%	14.9%	8.9%
PYTD Reported Gross Demand Reduction (MW)	117.71	4.63	35.3	44.24	9.59	12.5	3.05	8.4
PYTD Interim Verified Demand Reduction (MW)	45.12	2.46	7.6	18.75	4.69	3.72	1.3	6.6
CPITD Reported Gross Demand Reduction (MW)	139.69	4.8	47	50.4	10.88	13.81	3.4	9.4
CPITD Interim Verified Demand Reduction (MW)	67.47	2.62	19.1	26.07	5.91	4.96	1.71	7.1
% of 2013 Demand Reduction Target	N/A	2.3%	5.4%	8.8%	5.0%	4.6%	3.9%	6.0%

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.

Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 1,489,953 MWh.
- The CPITD interim verified energy savings is 1,048,955 MWh.

Portfolio Demand Reduction¹⁰

- The CPITD reported gross demand reduction is 139.7 MW.
- The CPITD interim verified demand reduction is 67.47 MW.

Low Income Sector

- There number of measures offered to the Low-Income Sector comprises 16.3% of the total number of measures offered through all programs.
- The CPITD reported gross energy savings for low-income sector programs is 122,230 MWh.
- The CPITD interim verified energy savings for low-income sector programs is 78,903 MWh.

Government and Non-Profit Sector

- The CPITD reported gross energy savings for government and non-profit sector programs is 115,146 MWh.
- The CPITD interim verified energy savings for government and non-profit sector programs is 47,601 MWh.

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

- The PYTD reported gross energy savings is 1,167,483 MWh.
- The PYTD interim verified energy savings is 727,857 MWh.
- The PYTD reported gross demand reduction is 117.71 MW.
- The PYTD interim verified demand reduction is 45.12 MW.
- The PYTD reported participation is 819,041 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 2011 Targets^[f]
Total Energy Savings (MWh)	53,210	28,023	28,023	22.4%
Total Demand Reduction (MW)	4.63	2.46	2.46	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)	43,100	22,699	22,699	N/A
NOTES				
<p>[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.</p> <p>[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 2.</p> <p>[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 PY2Q3 quarterly report.</p> <p>[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.</p> <p>[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY2Q3 quarterly report.</p> <p>[f] MWh targets for 2011. MW targets for 2013. Savings based on CPITD.</p> <p>[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).</p>				

Duquesne has reported PY2 gross energy savings for 14 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
Residential: EE Program (Upstream Lighting)	62%
Residential: Refrigerator Recycling	10%
Office Buildings – Large – EE	7%
Public Agency/Non-Profit	6%
Residential: EE Program (REEP): Rebate Program	2%
Mixed Industrial EE	2%
Retails Stores – Small – EE	2%
Residential: Low Income EE	1%
Residential: School Energy Pledge	1%
Primary Metals EE	1%
Office Buildings – Small – EE	1%
Commercial Sector Umbrella EE	1%
Retail Store – Large – EE	1%
Industrial Sector Umbrella EE	1%

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 2011 Targets^[f]
Total Energy Savings (MWh)	541,009	384,863	384,863	148.5%
Total Demand Reduction (MW)	35.3	7.6	7.6	5.4%
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)	438,217	311,739	311,739	N/A
NOTES:				
<p>[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.</p> <p>[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 2.</p> <p>[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 PY2Q3 quarterly report.</p> <p>[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.</p> <p>[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY2Q3 quarterly report</p> <p>[f] MWh targets for 2011. MW targets for 2013. Savings based on CPITD.</p> <p>[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).</p>				

PECO has reported PY2 gross energy savings for 7 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
Conservation Voltage Reduction	46%
Smart Lighting Discounts Program	25%
Smart Equipment Incentives – C&I	12%
Smart Equipment Incentives – Government/Non-Profit	5%
Smart Appliance Recycling Program	5%
Smart Homes Rebate Program	5%
Low-Income Energy Efficiency Program	3%

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 2011 Targets^[f]
Total Energy Savings (MWh)	313,373	175,694	175,694	67.9%
Total Demand Reduction (MW)	44.24	18.75	18.75	8.8%
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)	253,832	142,312	142,312	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 2.

[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 PY2Q3 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 PY2Q3 quarterly report.

[f] MWh targets for 2011. MW targets for 2013. 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 PY2 gross energy savings for 10 programs. The following table provides a breakdown of the contribution of each program's gross energy savings towards the PY2 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 and Industrial Lighting	44%
Compact Fluorescent Lighting Campaign	37%
Efficient Equipment Incentive Program	8%
Appliance Recycling	5%
Renewable Energy Program	2%
Custom Incentive Program	2%
Low-Income WRAP	1%
E-Power Wise	0%
Residential Energy Assessment and Weatherization Program	0%
HVAC Tune-Up Program	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 2011 Targets ^[f]
Total Energy Savings (MWh)	82,257	43,337	43,337	37.4%
Total Demand Reduction (MW)	9.59	4.69	4.69	5.0%
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)	66,628	35,103	35,103	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 2.

[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 PY2Q3 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 PY2Q3 quarterly report.

[f] MWh targets for 2011. MW targets for 2013. 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 PY2 gross energy savings for 13 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
C/I Performance Contracting/Equipment	22%
EE Products	22%
Home Energy Audits	15%
Energy Audit, Assessment and Equipment Rebate	14%
Appliance Turn-In	13%
EE HVAC	4%
WARM Programs	4%
Remaining Government/Non-Profit	4%
Multiple Family	2%
Streetlighting	1%
New Construction	0%
Non-Profit	0%
Whole Building	0%

3.6 Pennsylvania Power Company

Table 3-7: Summary of PennPower Quarterly Report Impacts

	PYTD Reported Gross Impact	Interim PYTD Verified Impact^[a]	Interim PYTD Net Impact^[b]	Savings Achieved as % of 2011 Targets^[f]
Total Energy Savings (MWh)	27,651	15,810	15,810	44.8%
Total Demand Reduction (MW)	3.0	1.3	1.3	3.9%
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)	22,397	12,806	12,806	N/A
NOTES:				
<p>[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.</p> <p>[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 2.</p> <p>[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 PY2Q3 quarterly report.</p> <p>[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.</p> <p>[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY2Q3 quarterly report.</p> <p>[f] MWh targets for 2011. MW targets for 2013. Savings based on CPITD.</p> <p>[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).</p>				

PennPower has reported PY2 gross energy savings for 14 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
EE Products	37%
C/I Performance Contracting/Equipment	14%
Energy Audit, Assessment and Equipment Rebate	14%
Appliance Turn-In	10%
Home Energy Audits	9%
WARM Programs	7%
Remaining Government/Non-Profit	4%
Multiple Family	2%
EE HVAC	2%
Industrial Motors and VSD	1%
Non-Profit	0%
Streetlighting	0%
New Construction	0%
Whole Building	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 2011 Targets^[f]
Total Energy Savings (MWh)	100,007	39,903	39,903	36.6%
Total Demand Reduction (MW)	12.5	3.7	3.7	4.6%
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)	81,006	32,321	32,321	NA
NOTES:				
<p>[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.</p> <p>[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 2.</p> <p>[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 PY2Q3 quarterly report.</p> <p>[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.</p> <p>[e] Subject to TRC Order. TRC Benefit-Cost Ratio reporting requirement is waived for the PY2Q3 quarterly report.</p> <p>[f] MWh targets for 2011. MW targets for 2013. Savings based on CPITD.</p> <p>[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).</p>				

Penelec has reported PY2 gross energy savings for 14 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
C/I Performance Contracting/Equipment	23%
EE Products	19%
Energy Audit, Assessment and Equipment Rebate	19%
Home Energy Audits	11%
Appliance Turn-In	10%
Remaining Government/Non-Profit	8%
WARM Programs	4%
Multiple Family	3%
Industrial Motors and VSD	2%
EE HVAC	1%
Streetlighting	1%
Non-Profit	0%
New Construction	0%
Whole Building	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 2011 Targets^[f]
Total Energy Savings (MWh)	49,976	40,245	40,245	26.7%
Total Demand Reduction (MW)	8.4	6.6	6.6	6.0%
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)	40,481	32,598	32,598	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 2.

[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 PY2Q3 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 PY2Q3 quarterly report.

[f] MWh targets for 2011. MW targets for 2013. 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 PY2 gross energy savings for 12 programs. The following table provides a breakdown of the contribution of each program’s gross energy savings towards the PY2 portfolio savings.

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

Program:	Percent of PYTD Gross MWh Savings Portfolio
Compact Fluorescent Lighting (CFL) Rewards Program	38%
Residential Energy Star and High Efficiency Appliance Program	17%
Governmental/Non-Profit Lighting Efficiency Program	17%
Commercial Products Efficiency Program	9%
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	8%
Residential Whole Home Appliance Efficiency Program	4%
Custom Technology Applications Program	3%
Custom Applications Program	2%
Residential Home Performance Program	2%
Commercial and Industrial Drives Program	2%
Residential Low Income Joint Utility Usage Management Program	0%
Commercial HBAV Efficiency Program	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 PY2, 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
<i>Programs Implemented and Reporting Savings:</i>
<ul style="list-style-type: none"> • Residential: EE Program (REEP): Rebate Program • Residential: EE Program (Upstream Lighting) • Residential: School Energy Pledge • Residential: Refrigerator Recycling • Residential: Low Income EE • Commercial Sector Umbrella EE • Chemical Products EE • Mixed Industrial EE • Office Buildings – Large – EE • Office Buildings – Small – EE • Primary Metals EE • Public Agency/Non-Profit • Retail Stores – Small – EE • Retail Store – Large – EE
<i>Programs Reporting Preliminary Verified Savings:</i>
<ul style="list-style-type: none"> • Residential: EE Program (REEP): Rebate Program • Residential: EE Program (Upstream Lighting) • Residential: School Energy Pledge • Residential: Refrigerator Recycling • Residential: Low Income EE • Commercial Sector Umbrella EE • Mixed Industrial EE • Office Buildings – Large – EE • Office Buildings – Small – EE • Primary Metals EE • Public Agency/Non-Profit • Retail Stores – Small – EE • Retail Store – Large – EE
<i>Programs to be Implemented or with No Reported Savings:</i>
<ul style="list-style-type: none"> • <i>None reported.</i>
PECO
<i>Programs Implemented and Reporting Savings:</i>
<ul style="list-style-type: none"> • Low-Income Energy Efficiency Program • Smart Lighting Discounts Program • Smart Appliance Recycling Program

- Smart Home Rebates Program
- Smart Equipment Incentives – C&I
- Smart Equipment Incentives – Government/Non-Profit
- Conservation Voltage Reduction
- Residential Direct Load Control
- Commercial Direct Load Control

Programs Reporting Preliminary Verified Savings:

- Smart Lighting Discounts Program
- Conservation Voltage Reduction

Programs to be Implemented or with No Reported Savings:

- *None Reported.*

PPL

Programs Implemented and Reporting Savings:

- Appliance Recycling
- Compact Fluorescent Lighting Campaign
- Custom Incentive Program
- Efficient Equipment Incentive Program
- Efficient Equipment Incentive Program – Commercial and Industrial Lighting
- E-Power Wise
- Low-Income WRAP
- Renewable Energy Program
- HVAC Tune-Up Program
- Residential Energy Assessment and Weatherization Program

Programs Reporting Preliminary Verified Savings:

- Appliance Recycling
- Compact Fluorescent Lighting Campaign
- Custom Incentive Program
- Efficient Equipment Incentive Program
- Efficient Equipment Incentive Program – Commercial and Industrial Lighting
- E-Power Wise
- Low-Income WRAP
- Renewable Energy Program
- HVAC Tune-Up Program
- Residential Energy Assessment and Weatherization Program

Programs to be Implemented or with No Reported Savings:

- Energy Efficiency Behavior & Education
- 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
- Streetlighting
- Non-Profit
- Remaining Government/Non-Profit

Programs Reporting Preliminary Verified Savings:

- Home Energy Audits
- Appliance Turn-In
- EE HVAC
- EE Products

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- Industrial Motors and VSD
- 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

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- PJM Demand Response

PennPower

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

Programs to be Implemented or with No Reported Savings:

- Demand Reduction
- PJM Demand Response

West Penn

Programs Implemented and Reporting Savings:

- Compact Fluorescent Lighting 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:

- Compact Fluorescent Lighting Rewards Program
- Residential Energy Star and High Efficiency Appliance Program: Dishwashers, Clothes Washers, Clothes Dryers, RAC Rebate, RAC Recycling, Refrigerator Recycling and Freezer Recycling
- Residential Energy Star and High Efficiency Appliance Program: Refrigerator Rebate with Recycling and Freezer Replacement with Recycling
- Residential Whole Home Appliance Efficiency Program
- Government/Non-Profit Lighting Efficiency Program
- Commercial HVAC Efficiency Program
- Commercial Products Efficiency Program

Programs to be Implemented or with No Reported Savings:

- Critical Peak (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) Ratios¹²;
- 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 PY2Q3.

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 first two quarters of PY2 are underway. 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	40	65	0.90	0.98
Residential: School Energy Pledge	0	55	0.97	0.97
Residential: Refrigerator Recycling	29	55	1.00	1.00
Residential: Low Income EE	30	55	1.00	1.00
Commercial Program	38	64	0.86	0.74
Industrial Program: Deemed	7	9	1.00	1.00
Industrial Program: Custom	2	17	0.90	0.90

Process Evaluation

A process evaluation has not been conducted at this time.

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

5.2.2 PECO

Impact Evaluation

Impact evaluations for the first three quarters of PY2 are underway. 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	51	N/A	N/A
Smart Lighting Discount Program	2,871,371	2,000,000	1.00	1.00
Smart Appliance Recycling Program	100	200	N/A	N/A
Smart Home Rebates Program	35	140	N/A	N/A
Smart Equipment Incentives – C&I	13	48	N/A	N/A
Smart Equipment Incentives – Government/Nonprofit	7	16	N/A	N/A
Conservation Voltage Reduction	83	83	1.00	1.00
Residential Direct Load Control Installation Verification	13	13	N/A	N/A
Commercial Direct Load Control Installation Verification	13	13	N/A	N/A

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 Q3 consisted of reviewing the Q3 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.
- Smart Appliance Recycling Program: Phone surveys are being conducted 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.
- Commercial and Industrial Smart Equipment Incentives Program: Currently, the PY2 impact evaluation is focused on field M&V and data analysis of Q1 and Q2 sample participants. Tracking data analysis for sampling Q3 participants is underway. A review of the current tracking system and quality control and savings verification procedures has been ongoing, following up on changes triggered by TRM updates, SWE audit findings, and new procedures implemented by the program implementer.
- Government and Nonprofit Smart Equipment Incentives Program: Currently, the PY2 evaluation is proceeding with site-visits and Q3 tracking data analysis.

- Conservation Voltage Reduction: PECO's CVR program was fully implemented and operational through the Q3 reporting period. PECO received full approval of the custom EM&V plan for CVR by the SWE during Q3.

Process Evaluation

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

- Smart Lighting Discounts: For PY2, data collection methods used in the process evaluation will include the following elements: in-store intercept surveys conducted in March and April 2011, 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 2011.
- Low-Income Energy Efficiency Program: A program logic model was completed in Q2.
- 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 100 Q1 and Q2 participants was conducted in February 2011 and will be repeated in late July 2011 for the remaining 100 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: A comprehensive audit of the program database as part of the Verification and Due Diligences will be completed during PY2Q4.
- Commercial and Industrial Smart Equipment Incentive: Process evaluations for PY2 are underway, completing in-depth interviews with program staff in January and February 2011. A phone survey instrument and sample list for trade ally interviews was developed in Q3, and phone interviews will be conducted in Q4.
- Government and Nonprofit Smart Equipment Incentives Program: Trade ally interviews have been developed and the list prepared. Nonparticipating trade ally interviews are also planned.
- Conservation Voltage Reduction Program: The process evaluation 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 the telephone surveys will be conducted in October and November 2011.
- Direct Load Control: Process evaluation for both the residential and commercial programs was completed in Q3 based on telephone interviews conducted with a sample of participants and in-depth interviews with implementers.

5.2.3 PPL

Impact Evaluation

PPL noted in their Q3 report that evaluation efforts are underway for PY2 and a summary of realization rates and confidence intervals for the PY2 participant sample will be updated in the PY2 Annual Report. The following table provides a summary of the verification status of PPL's programs at the end of PY2Q3.

Table 5-3: Summary of Evaluation Activities - PPL

Program	<i>Ex Ante</i>		
	Reported in EEMIS	Adjusted TRM or Approved Savings Method	Post Evaluation (Verified)
Appliance Recycling Program	C	C	C
Compact Fluorescent Lighting Campaign	C	C	C
Custom Incentive Program	C	C	P
Efficient Equipment Incentive Program (non-lighting measures)	C	P	P
Efficient Equipment Incentive Program – C& Lighting in Non-Residential Sector	C	P	P
Efficient Equipment Incentive Program – C&I in Residential Sector	C	P	P
E-Power Wise Program	C	P	P
Low-Income WRAP	C	C	P
Renewable Energy Program	C	P	P
HVAC Tune-Up Program	C		
Residential Energy Assessment & Weatherization	C		

Notes:

- C: Signifies that the program meets the following criteria: (1) a TRM or custom measure protocol (CMP) was approved for the measure and (2) *ex post* verification activities are complete.
- P: Signifies that (1) savings were verified for some, but not all, measures or projects in the program; or (2) a TRM or CMP was not approved for one or more measures and savings were not verified for that measure.
- A blank space indicates that these steps have not been completed for the program (typically because the program claimed savings for the first time in Q3 or batch-wise sampling will include activity from more than one quarter).

Process Evaluation

PPL provided process evaluation findings for PY1; the process evaluation will be updated at the end of PY2.

5.2.4 **Met-Ed**

Impact Evaluation

Impact evaluations for the first three quarters of PY2 are underway. Sample sizes and realization rates for each program are presented in the following table.

Table 5-4: Summary of Evaluation Activities - Met-Ed

Program	PYTD Sample Participants	PY Sample Participant Target	Preliminary Realization Rate for kWh	Preliminary Realization Rate for kW
Demand Reduction	N/A	75	N/A	N/A
Home Energy Audits	172	320	97.8%	71.5%
Appliance Turn-In	40	70	99.7%	99.9%
EE HVAC	10	23	99.9%	100.0%
EE Products	CFL: Census Appliance: 10	CFL: Census Appliance: 100	95.7%	96.2%
New Construction	0	23	N/A	N/A
Whole Building	0	23	N/A	N/A
Multiple Family	0	23	N/A	N/A
WARM Programs <i>Sample varies by measure type and evaluation activity.</i>	8	77	N/A	N/A
Energy Audit, Assessment and Equipment Rebate	2	22	N/A	N/A
C/I Performance Contracting/Equipment	4	19	N/A	N/A
Industrial Motors and VSD	0	1	N/A	N/A
PJM Demand Response	Census	Census	N/A	N/A
Streetlighting	0	23	N/A	N/A
Non-Profit	0	14	N/A	N/A
Remaining Government/Nonprofit	0	10	N/A	N/A

Process Evaluation

The process evaluation effort includes the following initiatives:

- Review of the measures and program delivery mechanisms in the Companies’ plan portfolios;
- Interviews with the Companies’ internal staff and 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 has also 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 Met-Ed and 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.

As of Q3, most programs in Met-Ed’s portfolio are online and actively adding participants. ADM is prepared to begin interviews with program participants and nonparticipants to evaluate the process.

5.2.5 Penelec
Impact Evaluation

Impact evaluations for the first three quarters of PY2 are underway. Sample sizes and realization rates for each program are presented in the following table.

Table 5-5: Summary of Evaluation Activities - Penelec

Program	PYTD Sample Participants	PY Sample Participant Target	Preliminary Realization Rate for kWh	Preliminary Realization Rate for kW
Demand Reduction	N/A	75	N/A	N/A
Home Energy Audits	181	320	99.6%	69.7%
Appliance Turn-In	32	70	99.8%	99.9%
EE HVAC	10	23	99.5%	99.8%
EE Products	CFL: Census Appliance: 10	CFL: Census Appliance: 100	99.1%	99.1%
New Construction	0	23	N/A	N/A
Whole Building	0	23	N/A	N/A
Multiple Family	0	23	N/A	N/A
WARM Programs <i>Sample varies by measure type and evaluation activity.</i>	8	77	N/A	N/A
Energy Audit, Assessment and Equipment Rebate	15	22	N/A	N/A
C/I Performance Contracting/Equipment	9	20	N/A	N/A
Industrial Motors and VSD	0	1	N/A	N/A
PJM Demand Response	Census	Census	N/A	N/A
Streetlighting	0	23	N/A	N/A
Non-Profit	5	13	N/A	N/A
Remaining Government/Nonprofit	8	12	N/A	N/A

Process Evaluation

The process evaluation effort includes the following initiatives:

- Review of the measures and program delivery mechanisms in the Companies’ plan portfolios;
- Interviews with the Companies’ internal staff and 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 has also 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 Met-Ed and 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.

As of Q3, most programs in Penelec's portfolio are online and actively adding participants. ADM is prepared to begin interviews with program participants and nonparticipants to evaluate the process.

5.2.6 PennPower

Impact Evaluation

Impact evaluations for the first three quarters of PY2 are underway. Sample sizes and realization rates for each program are presented in the following table.

Table 5-6: Summary of Evaluation Activities - PennPower

Program	PYTD Sample Participants	PY Sample Participant Target	Preliminary Realization Rate for kWh	Preliminary Realization Rate for kW
Demand Reduction	N/A	75	N/A	N/A
Home Energy Audits	95	320	94.1%	68.0%
Appliance Turn-In	32	70	100.0%	99.8%
EE HVAC	10	23	98.4%	99.4%
EE Products	CFL: Census Appliances: 10	CFL: Census Appliance: 100	100.0%	100.0%
New Construction	0	23	N/A	N/A
Whole Building	0	23	N/A	N/A
Multiple Family	0	23	N/A	N/A
WARM Programs <i>Sample varies by measure type and evaluation activity.</i>	8	77	N/A	N/A
Energy Audit, Assessment and Equipment Rebate	10	19	N/A	N/A
C/I Performance Contracting/Equipment	2	12	N/A	N/A
Industrial Motors and VSD	0	3	N/A	N/A
PJM Demand Response	Census	Census	N/A	N/A
Streetlighting	0	23	N/A	N/A
Non-Profit	1	1	N/A	N/A
Remaining Government/Nonprofit	3	5	N/A	N/A

Process Evaluation

The process evaluation effort includes the following initiatives:

- Review of the measures and program delivery mechanisms in the Companies' plan portfolios;
- Interviews with the Companies' internal staff and 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 has also 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 Met-Ed and 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.

As of Q3, most programs in PennPower's portfolio are online and actively adding participants. ADM is prepared to begin interviews with program participants and nonparticipants to evaluate the process.

5.2.7 West Penn Power

As reported in West Penn's PY2Q3 Report, the following evaluation activities were undertaken:

Impact Evaluation:

- Pulled participant site-visit sample for the programs requiring on-site verification for PY1 and for the first and second quarters of PY2. On-site data collection was completed for 31 projects for the commercial/industrial (C/I) sector programs.
- Completed Commercial baseline survey effort. The primary objective of the 2010 Commercial End Use Building Saturation survey was to determine what types of energy using equipment are being used in different types of commercial buildings in Pennsylvania. The results of the research will be used to: help West Penn Power forecast energy usage, support baseline estimation in Pennsylvania, and develop energy efficiency programs.
- Developed C&I EM&V process flow maps detailing information flows and responsibilities among West Penn Power, the third-party implementation M&V contractor, the EM&V contractor, the SWE, and the customer.
- Completed Surveys with Residential Program participants in the Residential ENERGY STAR and High Efficiency Appliance program, the CFL Rewards program, and the Residential Whole Home Appliance Efficiency program.

- Designed and initiated participant surveys for the C&I and low income programs; results will be available in the PY2 Annual Report.
- Reviewed West Penn Power Energy Savings Calculator (ESC). The review compared to the input assumptions to the TRM and related supporting documentation, including white papers to help ensure calculations were done correctly. Correction and adjustments to energy savings and demand reduction include:
 - Government/Non-Profit Lighting Efficiency Program LED Exit Sign measure correction for PY2Q2 CPITD: the additions of 591.2 MWh and 0.045 MW to correct full load hours (FLHs) and coincidence factor (CF) based on building type to FLHs of 8760 and CF = 1.0 to reflect 24/7 operation.
 - Commercial Products Efficiency Program LED Exit Sign measure correction for PY2Q2 CPITD: the additions of 4.34 MWh and 0.054 MW to correct FLHs and CF based on building type to FLHs of 8760 and CF = 1.0 to reflect 24/7 operation.
 - Low Income Home Performance Check-up Audit and Appliance Replacement Program Showerhead and Faucet Aerator measures adjustment for PY2Q2 CPITD: the reductions of 1401 MWh and 6.46 MW to reflect 2011 TRM; per unit energy and demand savings for faucet aerators and showerheads had been based on white papers as this was the best known source of information for prior reports.
 - Low Income Joint Utility Management Program energy and demand savings calculation methodology change for PY2Q2 CPITD: the reductions of 16 MWh and 0.002 MW to reflect installed measures only; the additional savings as a result of additional measures installed jointly with the gas utilities will be assessed through measurement and verification efforts and reflected in the realization rate for this program in the PY2 Annual Report.
- Determine Realization Rates and Verified Savings for PY1 for:
 - Residential Home Performance Program – Online Energy Audit Measures for PY1; and,
 - Government/School/Non-Profit Portfolio Program.
- Determine Preliminary Realization Rates and Verified Savings for PY2 for:
 - CFL Rewards;
 - Residential ENERGY STAR and High Efficiency Appliances;
 - Residential HVAC Efficiency;
 - Commercial Lighting;
 - Commercial HVAC; and
 - Government/Schools/Non-Profit Portfolio.

Process Evaluation

- Evaluators conducted a second round of program manager (PM) interviews in October and November 2010 for the following programs:

- CFL Rewards Program: Updated the program logic model first developed in PY1 to reflect the addition of point-of-sale (POS) CFL instant rebates and are actively addressing participation barriers found in PY1.
- Residential ENERGY STAR and High Efficiency Appliance Program: Updated the program logic model first developed in PY2. A key finding from the interviews is the addition of promotional partnerships with retailers to promote appliances eligible for the Program through POS marketing efforts. Another notable change is the addition of program qualified recyclers to provide customers with more convenient retailer recycling options.
- Residential On-line Audit Home Performance Program: Updated the program logic model first developed in PY2.
- Residential Whole Home Appliance Efficiency Program: Updated the program logic model first developed in PY1. Key findings include revisions to simplify the HVAC rebate application form and the implementation of an aggressive outreach and involvement of contractors that allows them to help complete the rebate applications for program participants. Feedback from the PM indicates that the program is building momentum in PY2.
- Residential Low Income Home Performance Check-up and Appliance Replacement Program: Updated the program logic model first developed in PY2. Key findings include: the Low Income Home Performance Check-up Program is meeting or even exceeding program staff expectations; the Low Income Home Performance Check-up Program is increasingly serving multi-family buildings; and outreach and marketing needs for this program are minimized by the synergies between this and other low-income programs offered by West Penn Power (e.g., Low Income Usage Reduction Program).
- Residential Low Income Joint Utility Usage Management Program (JUUMP): Updated the program logic model first developed in PY2. A key finding is that the JUUMP Program is experiencing institutional barriers to delivery – in large part inhibited by requirements Columbia Gas must adhere to in their program delivery; however, the program is slowly gaining momentum. As with the Low-income Home Performance Check-up Audit and Appliance Recycling program, evaluators found that audit documentation may provide non-tracked savings that, in time (and if added to the TRM) may be able to be claimed by the program based on auditor information and recommendations. Interviews to be completed with program auditors next quarter will provide more insight into the type of information that is being shared with the participants and its impact.
- Evaluators conducted initial interviews with program managers for the following programs in October and November 2010:
 - Government/Non-profit Lighting Efficiency Program,
 - Commercial HVAC Program,
 - Commercial Products Program,
 - Custom Technology Applications Program, and
 - C&I Custom Applications Program.

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 PY2. 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 February 15, 2011 in Harrisburg, PA.

- Remarks from the CEEP Staff:
 - Key Act 129 priorities from Wayne's perspective;
 - Flexibility for EDC Plan Modifications;
 - Purpose of the Technical Working Group;
- Technical issues relating to energy efficiency measures that still need to be vetted with the TWG;
- Regular meetings of the TWG and meeting format and agendas;
- Status of EDC baseline study research;
- Results and recommendations from PY2 SWE site-visits;
- Discussion of future improvements to the CMP review process;
- Priority Level 2 Interim TRM Protocol development;
- Discussion of sampling issues;
- Discussion of schedule for PY2 EDC Annual Reports and reporting timelines in other states; and
- Discussion of the next draft of the SWE Audit Plan.

The followings topics were addressed at the TWG workshop held February 28, 2011 in Harrisburg, PA.

- Discussion of the costs and benefits to be included in the TRC test calculation for demand response programs;
- Discussion of TRC calculation issues provided to the SWE and CEEP Bureau staff by the EDCs; and
- Discussion of the proposed schedule for the development of a 2011 tentative TRC Order.

6.2 Status of TRM Update

The SWE team worked with the CEEP staff to prepare the tentative and final orders of the 2011 TRM. The final 2011 TRM Order was adopted February 24, 2011 under Docket Number M-000551865. As summarized in the final TRM Annual Update Order¹³, the major goals of the adopted changes were:

- To add additional measures that were not in the 2010 TRM to cover additional EE&C measures being implemented by the EDCs and to broaden the scope of the TRM;
- To appropriately balance the integrity and accuracy of claimed energy savings estimates with costs incurred to measure and verify the claimed energy savings;
- To clarify existing calculation methods;
- To minimize the number of EE&C measures that must be evaluated through custom protocols;
- To improve the functionality and scope of the TRM Appendix C (Lighting Inventory Tool) and Appendix D (Motor and Variable Frequency Drive Inventory Tool); and
- To provide additional reasonable methods for measurement and verification of incremental energy savings associated with EE&C measures without unduly burdening EDC EE&C program and evaluation staff.

The 2011 TRM Updates included the inclusion of 18 new residential measures and 9 new commercial and industrial measures; these protocols were developed in conjunction with the EDCs and the Technical Working Group.

The SWE team is currently working with the EDCs and the CEEP staff to compile a list of errata to address errors in the TRM that have been identified since the Final 2011 TRM Order was approved in February.

6.3 Interim protocols

The SWE team, in conjunction with the EDCs and the CEEP staff, worked on a Guidance Memo (CM) 008 to outline and clarify the Interim TRM Protocol Approval Process. The following issues were addressed in GM-008:

- Interim TRM protocol approval process and
- Effective date of interim TRM protocols.

Currently, this memo is still undergoing review of the SWE team, the CEEP staff, and the EDCs.

Currently, the SWE team has received 37 measures for consideration during this round of interim TRM protocol development; the SWE team expects to receive a few additional protocols in the next few weeks. The following measures have been proposed for interim TRM protocol development:

- Proposed Residential Measures

¹³ Pennsylvania Public Utility Commission Docket No. M-000551865: Implementation of the Alternative Energy Portfolio Standards Act of 2004: Standards for the Participation of Demand Side Management Resources – Technical Reference Manual 2011 Updates. Approved February 24, 2011.

- ENERGY STAR LEDs
- High Efficiency Pool Pump and Motor
- Occupancy Sensors
- A/C Maintenance
- Clean & Tune
- Duct Sealing
- Holiday Lights
- HVAC Replacement – Early Retirement
- Low-Income Lighting
- Low-Income WARM through Act 129
- Pool Pump Load Shifting
- Variable Speed Pool Pump with Load Shifting
- Water Heater Tank Insulation
- Proposed Commercial Measures
 - Door Infiltration Barriers – Coolers and Freezers
 - Ductless Heat Pumps
 - Electric Steam Cooker
 - Ground Source Heat Pump
 - Night Covers
 - Office Equipment – Network Power Management Enabling
 - Programmable Thermostats
 - Refrigeration – Auto-Closer
 - Refrigeration – Door Gaskets
 - Refrigeration – Insulate Bare Suction Pipes
 - Refrigeration – Evaporative Fans
 - Clothes Washer
 - Commercial Freezer
 - Commercial Refrigerator
 - Electric Resistance Water Heater
 - Heat Pump Water Heater
 - Lighting – LED Sign
 - Lighting – Photocell
 - Lighting - Time Clock
 - Lodging – Guest Room Energy Management System
 - Low-Flow Pre-Rinse Sprayers
 - Network Power Management Enabling
 - Refrigerant Charging Correction
 - Variable Speed Drives on Process Motors

6.4 Demand Response Measures

In the EDCs' PY2Q3 Quarterly Reports, no demand savings were reported. This is to be expected because demand savings would need to occur during the peak 100 hours to be reported according to current Act 129 regulations. However, many EDCs have programs in place or programs that are under development. The Conservation Voltage Reduction (CVR) Program sponsored by PECO is an example of a program that is up and running and generating energy savings. Other EDCs have programs in place for this summer or programs which are being developed as pilots this summer to be ready for the summer of 2012. The DR programs discussed in the EDCs' PY2Q3 reports are shown in the following table.

Table 6-1: DR Program Summaries

EDC	EDC Definition	Program Type	M&V	Sector	Results in PY2, Q3	Performance Evaluation in 2011
AP/WP	Critical Peak Rebate Rate	Peak Rebate	M&V TBD	Res	No	Unknown
	Programable Control Tstat	Direct Load Control	M&V PJM Manual 19 B, M&V Study TBD	Res	No	Unknown
	TOU w/Critical Peak Rate	Peak Tariff Rate	M&V TBD	Res	No	Unknown
	Hourly Pricing Option	LMP Tariff Rate	M&V TBD	Res	No	Unknown
	Cust Load Response	CSP or AP Load Curtailment	M&V PJM Economic/ Business Rules	Small C&I	No	Pilot/Test Only
	Cust Resources Response	Distributed Generation	PJM Manual 11, OATT	Small C&I	No	Pilot/Test Only
	Critical Peak Rebate Rate	Peak Rebate	M&V TBD	Small C&I	No	Unknown
	Programable Control Tstat	Direct Load Control	M&V PJM Manual 19 B, M&V Study TBD	Small C&I	No	Unknown
	TOU w/Critical Peak Rate	Peak Tariff Rate	M&V TBD	Small C&I	No	Unknown
	Hourly Pricing Option	LMP Tariff Rate	M&V TBD	Small C&I	No	Unknown
	Cust Load Response	CSP or AP Load Curtailment	M&V PJM Economic/ Business Rules	Large C&I	No	Pilot/Test Only
	Cust Resources DR	Distributed Generation	PJM Manual 11, OATT	Large C&I	No	Pilot/Test Only
DL	Direct Load Control	DLC, AC Water Heaters	M&V PJM Manual 19 B, M&V Study TBD	RES	No	Pilot/Test Only
	Direct Load Control	Direct Load Control, AC	M&V PJM Manual 19 B, M&V Study TBD	Small C&I	No	Pilot/Test Only
	Large CSP	Load Curtailment	M&V PJM Economic / Business Rules	Large C&I	No	Pilot/Test Only
ME	Res Demand Reduction	DLC, CAC Two Way Com	M&V PJM Manual 19 B, M&V Study TBD	Res	No	Pilot/Test Only
	C&I Demand Reduction	DLC, CAC Two Way Com	M&V PJM Manual 19 B, M&V Study TBD	C&I	No	Pilot/Test Only
	Mandatory Program,	Load Curtailment	M&V PJM Economic/Rules, 50 Peak Hours	C&I	No	Unknown
	Voluntary Program	Load Curtailment	M&V PJM Economic/Rules, 100 Peak Hours	C&I	No	Unknown
PE	Res Demand Reduction	DLC, CAC Two Way Com	M&V PJM Manual 19 B, M&V Study TBD	Res	No	Pilot/Test Only
	Mandatory Program,	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	Unknown
	Voluntary Program	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	Unknown
PP	Direct Load Control	Direct Load Control	M&V PJM Manual 19 B, M&V Study TBD	Res	No	Pilot/Test Only
	Mandatory Program,	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	Unknown
	Voluntary Program	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	Unknown
PPL	Direct Load Control	Direct Load Control		Res, C&I	No	Pilot/Test Only
	Load Curtailment (PJM DR)	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	No
PECo	Res Direct Load Control	Direct Load Control	M&V PJM Manual 19 B, M&V Study TBD	Res	No	Yes
	C&I Direct Load Control	Direct Load Control	M&V PJM Manual 19 B, M&V Study TBD	C&I	No	Yes
	DR Aggregation (PJM DR)	Load Curtailment	M&V PJM Economic/ Business Rules	C&I	No	Unknown
	Distributed Resources	Distributed Generation	PJM Manual 11, OATT	C&I	No	No
	CVR Energy/Demand	Custom, Voltage Reduction	Approved Custom Protocol	Res and C&I	Yes	Yes
1. Based on EDC Quarterly Reports, PY2 Q3 and March 15, 2011 TWG Meeting						

Uncertainties regarding the methods that would be acceptable under Act 129 for quantifying savings resulted in delays in finalizing contracts between vendors and the EDCs. With the issuance of the

Commission's Secretarial Letter¹⁴ (Secretarial Letter) dated January 12, 2011, which addressed demand response issues, much of this uncertainty has been removed. PJM economic protocols will be utilized to quantify demand impacts during the Act 129 peak 100 hours for Load Curtailment programs and methods specified in PJM Manual 19 will be used for Direct Load Control (DLC) programs.

However there are remaining EM&V issues that require additional elaboration so that savings can be validated. Some of these issues are under discussion and are related to the interpretation of the Secretarial Letter and the determination of the peak 100 hours for the purpose of establishing the peak DR impacts. Among the issues to be resolved prior to the validation by the SWE of the EDC reported savings are:

1. M&V and EM&V processes to quantify the impact of Rate or Tariff based programs currently are not available. In addition, these types of programs are not approved by PJM for either economic DR or capacity DR. Therefore these seem to be outside the scope of PJM and the Secretarial Letter. A policy may need to be crafted to facilitate these programs.
2. Many DLC programs have not completed "Research Studies" that are specified by PJM in Manual 19¹⁵ to determine the savings for each air conditioner or electric water heater unit controlled. These need to be reviewed by the SWE and approved by PJM. Assumptions as to the control sequence, switch reliability and the distribution of equipment types and sizes are part of these "Research Studies" many of which are being conducted during the summer of 2011.
3. Load Curtailment programs must utilize PJM Economic Protocols and follow PJM business rules, according to the Secretarial Letter. However, the Secretarial Letter only references PJM Manual 19 which does not deal with economic program rules and protocols. Therefore EDCs may have different interpretations as to what the Secretarial Letter means. Is the Secretarial Letter to be taken literally or can protocols "consistent with" PJM economic protocols and business rules be used? What if a Load Curtailment participant does not settle in the PJM economic program and therefore does not follow PJM business rules? Is there a class of Act 129 participants outside of PJM quality control processes that can still participate in Load Curtailment?
4. Several EDCs have proposed programs using distributed generation resources. The PJM rules for generation resources used as DR are described in PJM Manual 11.¹⁶ Is this the controlling document for these resources?
5. During the CVR Demand protocol review process the SWE made some observation as to how the protocol might be improved. The protocol itself states that additional study may be undertaken to address improvements that may make the protocol more accurate during the peak 100 hour period. What is the research design anticipated for these studies, and will they be completed during the summer of 2011?

¹⁴ Secretarial Letter; re: Energy Efficiency and Conservation Program, Docket No. M-2008-2069887, January 12, 2011

¹⁵ PJM Manual 19:Load Forecasting and Analysis, Revision 16, Effective Date: April 1, 2011, Resource Adequacy Planning, Copyright PJM 2011

¹⁶ PJM Manual 11:Energy & Ancillary Services Market Operations, Revision 45, Effective Date: June 23, 2010, Resource Adequacy Planning, Copyright PJM 2010

6.5 Total Resource Cost Test Issues

The SWE team worked in conjunction with the CEEP staff to develop the 2011 Total Resource Cost (TRC) Test Tentative Order which was introduced during the May 5, 2011 Public Meeting and entered May 6, 2011 under Docket Number M-2009-2108601. On May 17, 2011, the Commission granted, via a Secretarial Letter, a request for extension to file comments. The new comments and reply comments deadlines are as follows: June 3, 2011 and June 15, 2011.¹⁷

6.6 Net to Gross Issues

The SWE team, in conjunction with the CEEP staff, developed a proposed resolution to determine whether or not net savings should be calculated and/or used to assess an EDC's goal attainment. This proposed resolution was included in the 2011 TRC Test Tentative Order entered May 6, 2011. The proposal is as follows¹⁸:

The Commission proposes to direct the EDCs to develop and conduct NTG [net to gross] studies and that the NTG studies be funded out of the EDCs' Act 129 2% program budgets. Pursuant to the RFP contract, the SWE would coordinate the development and approval of common methodologies for EDCs' NTG studies. The results of the studies should be reported to the SWE and utilized by the EDCs to determine when a measure or program should be removed from the EE&C portfolio because it is no longer cost-effective to offer incentives. We do not propose, for the period June 1, 2009, through May 31, 2013, that the NTG research be used to adjust the gross verified energy savings that are used for compliance purposes to determine whether an EDC has met its mandated Act 129 reduction targets.

Currently the proposal is out for comment.

6.7 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;
- 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;

¹⁷ Pennsylvania Public Utility Commission Docket Number M-2009-2180601: Implementation of Act 129 of 2008 – Total Resource Cost (TRC) Test 2011 Revisions. Entered May 6, 2011.

¹⁸ Pennsylvania Public Utility Commission Docket Number M-2009-2180601: Implementation of Act 129 of 2008 – Total Resource Cost (TRC) Test 2011 Revisions. Entered May 6, 2011.

- Technical Working Group agendas; and
- Interim measure protocols.

6.8 Site-visits to Customer Facilities

The following sections provide an update on activities related to SWE team visits to customer facilities in PY2Q3.

6.8.1 Residential Programs

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

6.8.2 Low-Income Programs

No site-visits were conducted during PY2Q3. The SWE is planning site-visits for PY2 during the month of June 2011. Inspections will be conducted as part of the SWE team's responsibilities to audit the EDC low-income portfolios.

The SWE team will conduct site-visit inspections of the currently active Low-Income Energy Efficiency programs. These site-visits are being planned to take place during June of 2011. The purpose of these site-visits will be to verify that the number and type of energy efficiency measures listed in each EDC's database for their low-income program participants (the ones selected at random for the site-visits) are installed and operational. Another purpose of these site-visits is to verify that the energy efficiency measure information in each utility's data base is accurate.

The site-visits will be coordinated between the SWE representative and either an EDC representative or the EDC evaluation implementation contractor. Ten site-visits per EDC are planned for PY2.

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. Some EDCs (PPL, PECO, FirstEnergy) 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, the West Penn Power Low Income Program distributed 'energy efficiency kits' to program participants rather than directly installing the devices.

Where possible, the SWE team compared the site inspection observations and each EDC's set of invoices with the EDC's "Program Tracking" database. Each EDC provided database extracts or remote access to their data tracking and reporting systems (e.g. PPL's EEMIS system).

6.8.3 Non-Residential Programs

The SWE team completed 59 site-visits during the three month period from March to May, 2011. Both ride-along and independent site-visits were conducted, as shown in the table below.

Table 6-2: Summary of Commercial and Industrial Site-Visits

EDC	Ride-Along Visits	Independent Visits
Duquesne	0	3
PECO	11	15
PPL	14	0
First Energy	9	4
West Penn	0	3
Total	34	25

Several examples of SWE findings and recommendations from the site-visits and subsequent reviews are listed in the table below:

Table 6-3: Summary of Commercial and Industrial Site-Visit Findings

Finding:	Recommendation:
A lighting project had not been fully installed although the documentation indicated otherwise.	The implementation contractor and evaluator should inspect the project again when completed. The EDC process for certification of project completion should be reviewed.
An industrial project was originally identified as including only prescriptive measures, but the site-visit revealed that custom measures were installed.	Site-specific measurement and verification plans should be prepared and executed.
Lighting inventories for several projects were not broken down by area, making verification difficult.	EDC should ensure the applicants and/or implementers break down lighting inventories by area.
Verification of lighting ballasts was inadequate.	EDC should insure that implementers are instructed to verify ballasts during inspections.
Interim measure protocols (IMPs) were not submitted for refrigeration measures.	EDC should submit an IMP for refrigeration measures.
Insufficient documentation of baseline and new lighting fixtures were provided.	EDC should insure that applicants and/or implementers provide adequate documentation.

As a result of particular site-visits, the SWE also identified areas of improvement for the TRM, as listed below:

Table 6-4: Commercial and Industrial Site-Visit Findings Related to the TRM

Finding	Recommendation
TRM Table 6-6 does not contain daycare facilities, 24/7 grocery stores, and specialty retail stores.	EDCs should propose that additional building types be added to TRM Table 6-6. Measured EFLH data should be provided if possible.
The TRM Table of Standard Wattages does not contain lighting fixtures with 25 watt T8 lamps.	EDCs should propose additions to the TRM Table of Standard Wattages. Measured wattages or specification sheets should be provided for the proposed fixtures.

Reports for all site-visits will be prepared and distributed to the EDCs for discussion. In late May, 11 reports from earlier West Penn and Duquesne ride-along visits were distributed and discussed with the appropriate EDCs. Reports for other EDCs are currently being completed, pending receipt and review of EDC evaluator site reports.

The SWE will concentrate the majority of the remaining PY2 site-visits on independent site inspections. Several EDCs have requested that preliminary findings be made available shortly after the visits, and the SWE will establish a procedure for this purpose. Inspections are currently in progress for each EDC except for PPL. Independent inspections for PPL will occur after the close of fourth quarter and will target mainly large custom projects.

6.9 Desktop Audits

The desktop audit of PY2Q3 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 PY2Q3 reports. An update on these audits, by customer sector, is provided in the following sections.

6.9.1 Residential Programs

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

6.9.1.1 Efficient Equipment Programs

6.9.1.1.1 Duquesne

For PY2Q3, the SWE team requested a sample of 10 rebate applications and the efficient products database subset from Duquesne's tracking system. In this sample check, the SWE found no QC errors between the rebate applications submitted and the Duquesne database.

6.9.1.1.2 PECO

For PY2Q3, the SWE team requested a sample of 10 rebate applications and the efficient products database subset from PECO. In this sample check, the SWE team found that for two customers no rebate application was submitted, only a vendor installation receipt for the approved measure. One of

these customers submitted a vendor invoice for the installation of a modulating gas furnace and received a rebate for a Central Air Conditioner. No additional QC errors were found in the SWE sample check.

6.9.1.1.3 PPL

For PY2Q3, the SWE team requested a sample of 10 rebate applications and the efficient products database subset from PPL. In the sample from PPL there were 10 measures submitted from 8 customers (2 customers had more than one appliance rebated). In the sample check, the SWE team found one application that was submitted with a vendor installation receipt for a gas furnace, AC system and humidifier. The same customer submitted an attached rebate application for installation of the central AC unit and an air source heat pump. The entry in the PPL database for this customer is for a heat pump water heater. No additional QC errors were found in this SWE sample check.

6.9.1.1.4 West Penn

For PY2Q3, the SWE team requested a sample of 10 rebate applications and the efficient products database subset from West Penn. In this sample check the SWE team found no quality control (QC) errors. In the sample, customers with a rebated refrigerator and freezer recycled their old appliance through JACO and Lowes respectively.

6.9.1.1.5 FirstEnergy – Met-Ed, Penelec, PennPower

For PY2Q3, the SWE team requested a sample of 10 rebate applications and the efficient products database subset from each of the FirstEnergy EDCs (Penn Power, Penelec and Met-Ed). In this sample check, the SWE found no QC errors between the rebate applications submitted and the FirstEnergy database. As noted by FirstEnergy, this is the first time that FE used their recently developed 'Vision' tracking system for reporting for this residential program. Prior reports were all based on exports from Honeywell 'BBCS' tracking system.

6.9.1.2 Appliance Recycling Programs

The SWE team reviewed a sample of 10 JACO work orders and the corresponding database entries for each of the seven EDCs. In addition to the SWE quality review, the team documented the stipulated savings values being used by each EDC to estimate savings. The following table provides a summary of the annual kWh savings values used by each EDC. None of the EDCs are applying a partial use adjustment factor to adjust annual kWh savings for units that are not used year-round or for units that are not in use at all.

EDC	Duquesne	PECO	PPL	Met-Ed	Penelec	PennPower	West Penn
Refrigerator Recycling kWh Savings	1,728	1,728	1,728	1,728	1,728	1,728	1,728

6.9.1.2.1 Duquesne

For PY2Q3, the SWE requested a sample of 10 JACO work orders and the corresponding JACO invoices from Duquesne. In this sample check, only five out of the ten JACO invoices submitted fell in the time frame of Quarter 3. Those appliances recycled outside of Quarter 3 therefore were not entered in the

submitted database. The SWE has requested an additional five JACO work orders to complete the sample check. The five JACO invoices submitted that were a part of Q3 had no QC issues. Duquesne is currently using 1,728 kWh for recycled refrigerators.

6.9.1.2.2 PECO

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from PECO. In this sample check, the SWE found no QA/QC errors between the work orders and the database. One work order was missing information only on whether the appliance was primary/secondary or not in use. PECO is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers.

6.9.1.2.3 PPL

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from PPL. In this sample check, the SWE found no QA/QC errors between the work orders and the database. However, one JACO work order was missing almost all the information usually collected by the contractor (for example, the location of the appliance prior to recycling, if the appliance was primary/secondary or not in use, and whether the appliance would be replaced). This particular work order was also missing a customer signature. A different work order was missing information only on whether the appliance was primary/secondary or not in use. PPL is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers.

6.9.1.2.4 West Penn

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from West Penn. In this sample check, the SWE found no quality assurance (QA) or QC errors between the work orders and the database. West Penn is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers.

6.9.1.2.5 Met-Ed

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from Metropolitan Edison. In this sample check, the SWE found no QA/QC errors. In this sample, one Met-Ed customer had 2 Room Air Conditioning units recycled by JACO but did not have a refrigerator nor a freezer recycled. In the sample checked, all work orders were signed by the customer and correctly entered into the database. Met-Ed is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers and 318 kWh for recycled room air conditioners.

6.9.1.2.6 Penelec

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from Penelec. In this sample check, the SWE found no QA/QC errors between the work orders and the database. However, one Penelec customer indicated that the recycled refrigerator was their primary refrigerator and they did not plan to replace it. The SWE feels this might be a miscommunication with the customer. Penelec is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers.

6.9.1.2.7 PennPower

For PY2Q3, the SWE team requested a sample of 10 JACO work orders and the corresponding JACO invoices from PennPower. In this sample check, the SWE found no QA/QC errors between the work orders and the database. PennPower is currently using 1,728 kWh as the savings value for all recycled refrigerators and freezers.

6.9.1.3 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 6-5: PYTD Gross and Verified MWh and MW Savings

EDC	Program	PYTD Reported Gross Impacts (MWh)	% of PY2 Gross MWh Savings Portfolio	PYTD Reported Gross Impacts (MW)	% of PY2 Gross MW Savings Portfolio
Duquesne	Residential: EE Program (Upstream Lighting)	32,916	62%	1.79	39%
PECO	Smart Lighting Discounts Program	137,932	25%	7.58	21%
PPL	CFL Campaign	114,923	44%	6.85	15%
Met-Ed	EE Product Program ¹⁹	18,287	22%	1.20	13%
Penelec	EE Product Program ²⁰	19,009	19%	1.13	9%
PennPower	EE Product Program ²¹	10,182	37%	0.62	20%
West Penn	CFL Rewards Program	18,749	38%	1.00	12%

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.

¹⁹ 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.

²⁰ *Ibid.*

²¹ *Ibid.*

6.9.1.3.1 Duquesne

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

Table 6-6: Summary of CFL Program Audit - Duquesne

Category:	PY2Q3 Report:	Database:	Notes:
Participants	Bulb-Count (IQ) <ul style="list-style-type: none"> • 339,673 	Bulb-Count (IQ) <ul style="list-style-type: none"> • 345,676 	<ul style="list-style-type: none"> • The bulb count reported in the PY2Q3 report does not match the quantity tracked in Duquesne’s database. As the count differs by 2%, the SWE team requests that Duquesne resolves this issue and adjust savings as appropriate. (See Note re: Invoice Review below.)
Gross Energy Savings	MWh (IQ) <ul style="list-style-type: none"> • 16,038 	MWh (IQ) <ul style="list-style-type: none"> • 16,511 	<ul style="list-style-type: none"> • The IQ MWh savings reported in the PY2Q3 report does not match the energy savings tracked in Duquesne’s database. As the count differs by 3%, the SWE team requests that Duquesne resolves this issue and adjust savings as appropriate. (See Note re: Invoice Review below.)
Gross Demand Reduction	MW (IQ) <ul style="list-style-type: none"> • 0.882 	MW (IQ) <ul style="list-style-type: none"> • 0.907 	<ul style="list-style-type: none"> • The IQ MW savings reported in the PY2Q3 report does not match the demand reduction tracked in Duquesne’s database. As the count differs by 3%, the SWE team requests that Duquesne resolves this issue and adjust savings as appropriate. (See Note re: Invoice Review below.)
Use of 2010 TRM Protocols	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • All savings calculated in accordance with the TRM protocols. 	<ul style="list-style-type: none"> • No issue identified.
Baseline Assumptions	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • All assumptions are valid. 	<ul style="list-style-type: none"> • No issues identified.
Invoice Review	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Issues were identified. Please see notes for SWE recommendation. 	<ul style="list-style-type: none"> • Duquesne provided 5 invoices for POS purchases. The SWE identified issues with 1 of the 5 invoices. • Invoice 6560: It appears that the database provided for Invoice No. 6560 was in fact the database for Invoice No. 6550. The SWE team is working with Duquesne to obtain the proper file.

6.9.1.3.2 PECO

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

Table 6-7: Summary of CLF Program Audit - PECO

Category:	PY2Q3 Report:	Database:	Notes:
Participants	Bulb-Count (IQ) • 1,153,412	Bulb-Count (IQ) • 1,153,412	<ul style="list-style-type: none"> Bulb counts reported matched the bulb counts in the PY2Q3 database except for POS purchases. All invoices were processed in Q3; transaction dates ranged from August 2010 to February 2011.
Gross Energy Savings	MWh (IQ) • 55,717	MWh (IQ) • 55,717	<ul style="list-style-type: none"> Gross energy savings reported matched the actual energy savings in the PY2Q3 database except for POS purchases. All invoices were processed in Q3; transaction dates ranged from August 2010 to February 2011.
Gross Demand Reduction	MW (IQ) • 3.06	MW (IQ) • 3.06	<ul style="list-style-type: none"> Gross demand reduction reported matched the actual demand reduction in the PY2Q3 database except for POS purchases. All invoices were processed in Q3; transaction dates ranged from August 2010 to February 2011.
Use of 2010 TRM Protocols	• N/A	• All savings calculated in accordance with the TRM protocols.	<ul style="list-style-type: none"> 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	• All assumptions are valid.	• No issues identified.
Invoice Review	• N/A	• No issues were identified.	• PECO provided a sample of invoices; the SWE team reviewed a sample of 5. No issues were identified.

6.9.1.3.3 PPL

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

Table 6-8: Summary of CLF Program Audit - PPL

Category:	PY2Q3 Report:	Database:	Notes:
Participants	Bulb-Count (IQ) • 889,668	Bulb-Count (IQ) • 889,668	• No issues identified.
Gross Energy Savings	MWh (IQ) • 43,116	MWh (IQ) • 43,116	• No issues identified.
Gross Demand Reduction	MW (IQ) • 2.57	MW (IQ) • 2.09	• The reported demand reduction is 23% higher than that tracked in the database. The SWE team recommends that PPL review this discrepancy and correct as necessary.
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 Q3 CFL invoices; the SWE team reviewed a sample of 6. No issues were identified.

6.9.1.3.4 FirstEnergy – Met-Ed, Penelec, PennPower

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

Table 6-9: Summary of CLF Program Audit – FirstEnergy – Met-Ed, Penelec, PennPower

Category:	PY2Q3 Report:	Database:	Notes:
Participants	Participants (IQ) <ul style="list-style-type: none"> Met-Ed: 24,656 Penelec: 38,676 PennPower: 20,331 Total: 83,663 	Bulb-Count (IQ) <ul style="list-style-type: none"> Met-Ed: 106,971 Penelec: 101,825 PennPower: 47,253 	<ul style="list-style-type: none"> The SWE team was unable to verify the IQ participant counts reported in the EDCs' respective PY2Q3 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. <i>Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.</i>
Gross Energy Savings	MWh (IQ) <ul style="list-style-type: none"> N/A 	MWh (IQ) <ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> <i>Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.</i>
Gross Demand Reduction	MW (IQ) <ul style="list-style-type: none"> N/A 	MW (IQ) <ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> <i>Note: FirstEnergy reports CFL savings as part of their larger Efficient Equipment Program.</i>
Use of 2010 TRM Protocols	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> All savings calculated in accordance with the TRM protocols. 	<ul style="list-style-type: none"> No issues identified.
Baseline Assumptions	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> All assumptions are valid. 	<ul style="list-style-type: none"> No issues identified.
Invoice Review	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Issues were identified. Please see notes for SWE recommendation. 	<ul style="list-style-type: none"> FirstEnergy provided a sample of 36 invoices. The SWE team reviewed 7. The SWE team identified an issue with EFI Invoice No. 0577259-IN – the bulb sales were not represented in the database provided. The SWE team requests that FirstEnergy resolve this issue.

6.9.1.3.5 West Penn

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

Table 6-10: Summary of CFL Program Audit – West Penn

Category:	PY2Q3 Report:	Energy Savings Calculator:	Database:	Notes:
Participants	CPITD • 115,854	Bulb-Count (IQ) • 167,090	Bulb-Count (IQ) • 166,994	<ul style="list-style-type: none"> West Penn reports participants in their report instead of bulb-counts; however, the participant count is only an estimate based on the actual number of bulbs distributed. The bulb count, although possibly accurate for the total program, is off by 96 bulbs for Q3. The counts are off for POS bulbs and for 65W equivalent rebated bulbs. No correction required as this accounts for <1% of totals bulbs distributed.
Gross Energy Savings	MWh (IQ) • 8,277	MWh (IQ) • 8,271	MWh (IQ) • 8,273	<ul style="list-style-type: none"> There is a slight discrepancy between the energy savings found in the database and the savings reported in the Q3 report; this is mostly likely a result of rounding and the small discrepancy in bulb counts noted above. No correction required as this accounts for <1% of reported gross energy savings.
Gross Demand Reduction	MW (IQ) • 0.4	MW (IQ) • 0.448	MW (IQ) • 0.450	<ul style="list-style-type: none"> There is a slight discrepancy between the demand savings found in the database and the savings reported in the Q3 report; this is mostly likely a result of rounding and the small discrepancy in bulb counts noted above. No correction required as this accounts for <1% of reported gross energy savings.
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	• N/A	<ul style="list-style-type: none"> POS Entries: 16,159 Rebate Entries: 530 	<ul style="list-style-type: none"> West Penn provided a sample of 20 rebates; the SWE team reviewed 5. No issues were identified. West Penn provided 12 invoices for POS purchases; the SWE team reviewed 5. No issues were identified.

6.9.2 Low-Income Programs

Desktop audits of the low-income programs for PY2Q3 have not yet been completed. The SWE is in the planning process of desktop audits of EDC low-income programs and is planning to conduct the site-visits and desktop audits concurrently. The SWE will conduct site-visits to verify the installation of each line item in contractor invoices or work orders provided to the SWE. The SWE will then verify that the utility data tracking system matches both the work orders and contractor invoices and what was observed on the site- visits.

6.9.3 Non-Residential Programs

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

6.9.3.1 Duquesne

Duquesne listed eleven programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Of these eleven programs, nine programs achieved energy and demand savings during PY2Q3 and two programs did not achieve any savings. The programs achieved a gross reported energy savings of 11,839 MWh during PY2Q3, 13,119 MWh during PY2, and 13,119 MWh cumulative to date. Key figures for PY2Q3 for each individual program are shown in Table 6-11.

Table 6-11: Duquesne Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Commercial Umbrella	14	173	0.168
Healthcare	1	74	0.030
Industrial Umbrella	1	28	0.084
Chemical Products	1	9	0.002
Mixed Industrial	8	849	0.226
Office Building Large	7	141	0.453
Office Building Small	13	367	0.101
Primary Metals	1	232	0.089
Public Agency Non-Profit	16	2,519	0.492
Retail Stores Small	58	687	0.175
Retail Stores Large	0	0	0.066
TOTAL	120	5,079	1.886

6.9.3.1.1 Review of Savings Database

Duquesne typically provides a series of spreadsheets that contained key information for projects completed during PY2Q3. The savings recorded in these spreadsheets are 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 spreadsheet databases condense Duquesne’s programs into two major populations, commercial and industrial. Duquesne’s evaluator began work in PY2Q3 and may adjust the processes used to report savings. The database will be reviewed in detail for the next SWE report.

6.9.3.1.2 Review of Project Files

Project files were not requested for PY2Q3 because evaluator ride-along and independent inspection activities have ramped up. An important component of the inspection activities is a review of the project files. For details on findings from site inspection activities, please see Section 6.8.3.

6.9.3.1.3 Review of Report Consistency

Duquesne’s reported values were found to be consistent with previous quarterly reports. No significant discrepancies were observed between quarterly reports.

6.9.3.2 PECO

PECO listed three programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Of these three programs, two programs achieved energy and demand savings during PY2Q3 and one demand response program did not achieve any savings because it is running as a pilot program during PY2. The programs achieved a gross reported energy savings of 43,779 MWh and reported gross demand savings of 6.32 MW during PY2Q3. Key figures for PY2Q3 for each individual program are shown in Table 6-12.

In addition to these three programs, the CVR program also achieved savings in the non-residential sector. However, due to the nature of the program, segmentation between sectors was not possible. The CVR program achieved 83,150 MWh of savings across all sectors during PY2Q3.

Table 6-12: PECO Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Smart Equipment C&I	1,103	30,945	4.10
Smart Equipment GNP	160	12,834	2.22
Commercial Direct Load Control	Pilot	Pilot	Pilot
TOTAL	1,263	43,779	6.32

6.9.3.2.1 Review of Savings Database

PECO provided a spreadsheet database extract that contained information for each measure, project, and customer participating in PECO programs during PY2Q3. The savings recorded in this spreadsheet 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. Projects claiming savings for PY2Q3 were determined by using the invoice date. Projects for which the invoice was sent by KEMA to PECO during PY2Q3 were included in PY2Q3 population.

The spreadsheet databases indicate slightly lower numbers than what was stated in the report, at 30,582 MWh for the C&I program and 12,810 MWh for the GNP program. This discrepancy roughly amounts to 1% error. PECO also noted that the incremental quarterly values also include projects inadvertently omitted from the PY2Q2 report, from multi-tenant projects. A review of the multi-tenant database revealed that the discrepancy was alleviated.

6.9.3.2.2 Review of Project Files

Project files were not requested for PY2Q3 because evaluator ride-along and independent inspection activities have ramped up. An important component of the inspection activities is a review of the project files. For details on findings from site inspection activities, please see Section 6.8.3.

6.9.3.2.3 Review of Report Consistency

PECO's reported values were found to be consistent with previous quarterly reports. No significant discrepancies were observed between quarterly reports.

6.9.3.2.4 Review of Conservation Voltage Reduction Program

The Conservation Voltage Reduction program sponsored by PECO instituted reductions in the system voltage at substations. The reduction in voltage was designed to lower power consumption. Conservation Voltage Reduction (CVR) provides a significant portion of the energy savings reported by PECO in their current Quarterly Report. Of the total Reported Gross Impact to date (CPITD) of 738,461 MWh, CVR represents 39% or 287,223 MWh of the energy saved. This is particularly dramatic given that voltage was reduced during the period from February to May 2010 and, therefore, the program has not been running for the entire Act 129 program period.

In addition, demand savings will accrue during the peak 100 hours from voltage reductions which were undertaken as part of the program. The savings for energy and demand are calculated according to separate, SWE reviewed protocols.

For the current period, no evaluation of CVR has been presented to the SWE by the EDC evaluators nor has the SWE independently conducted such an evaluation of the savings. The evaluation, measurement and verification process requires validating open variables used in the protocol to derive savings and determining if the original voltage reductions have been maintained. For the demand calculations for the peak 100 hours, an evaluation also requires additional analysis incorporating weather data and may require a review of extraneous effects (such as load) on voltage and energy use not anticipated in the original demand protocol.

Generally, the validation of energy savings from Conservation Voltage Reduction program performance will require confirming that:

- The energy metered at each substation for the evaluation period is correct;
- The allocation of substation savings to market sectors in the Quarterly Report has been properly performed;
- The voltage has remained at the reduced levels during the evaluation period; and
- Any industrial users or feeders excluded from the CVR Factor derivation are not counted in the saving, that is their energy use is backed out before using the CVR Factor to calculate savings.

The validation process will require reviewing data documenting substation energy use and voltage set points. All substations should report meter readings at the start and end of the evaluation period. A record of the voltage maintained should be current, noting the original voltage values, the lowered voltage values and set points used as the basis of the protocol derivation and the current voltage values and set points.

Samples of the substation population should be physically inspected to confirm metered data and recorded voltage. Current trend data for voltage should be available for one week on sampled substations to confirm and validate voltage levels.

In the development of the CVR Energy Protocol, one week of data on either side of the switch over dates (February to May 2010) was used for each substation to determine voltage drop and then this substation load drop was load weighted to estimate an average voltage drop. Therefore, to the extent any substation has different set points from the voltage upon which the calculation of average voltage drop was derived, it may be necessary to adjust the average voltage drop in the CVR Energy Protocol, or modify the savings for the affected substation. Care should be taken to obtain voltage data during average load periods (such as those at the time of the initial measurement) to avoid capturing additional voltage drops caused by high system load which would not be the result of the CVR program.

6.9.3.3 PPL

PPL listed six programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Five of the six programs achieved energy and demand savings, while the HVAC Tune-Up program did not achieve any savings during PY2Q3. 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 55,532 MWh and gross demand savings of 11.54 MW during PY2Q3. Key figures for PY2Q3 for each individual program are shown in Table 6-13.

PPL noted that one project in the residential energy assessment and weatherization program was incorrectly classified as a non-residential project and was corrected after the close of the third quarter. This project accounted for a minimal amount of savings and is not considered as a non-residential project for this report.

Table 6-13: PPL Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Appliance Recycling	81	160	0.03
Custom Incentive	27	5377	1.76
Efficient Equipment	560	319	0.04
Efficient Equipment C&I Lighting	642	48,795	9.6
Renewable Energy	0	0	0.00
HVAC Tune-Up	23	881	0.11
TOTAL	1,333	55,532	11.54

6.9.3.3.1 Review of Savings Database

PPL provided a spreadsheet database extract that contained information for each measure, project, and customer participating in PPL programs during PY2Q3. The savings recorded in this spreadsheet 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. Projects for which the work package approval occurred during PY2Q2 were included in PY2Q2 population.

There were no major discrepancies observed between savings values stated in the quarterly reports and the savings values recorded in the databases.

6.9.3.3.2 Review of Project Files

Project files were not requested for PY2Q3 because evaluator ride-along and independent inspection activities have ramped up. An important component of the inspection activities is a review of the project files. For details on findings from site inspection activities, please see Section 6.8.3.

6.9.3.3.3 Review of Report Consistency

PPL's reported values were found to be consistent with previous quarterly reports. No significant discrepancies were observed between quarterly reports.

6.9.3.4 FirstEnergy

FirstEnergy listed seven programs under the non-residential umbrella, which includes the SCI, LCI, and GNP sectors. Of these seven programs, six programs achieved energy and demand savings during PY2Q3 and one demand response program had not been launched. These six programs achieved reported gross energy savings of 52,489 MWh and reported gross demand savings of 7.19 MW during PY2Q3 across the three operating companies. Key figures for PY2Q3 for each individual program are shown in Table 6-14, Table 6-15, and Table 6-16.

Table 6-14: Penn Power Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Energy Audit, Assessment and Equip Rebate	29	1,529	0.31
C/I Performance Contracting/Equipment	6	1,909	0.23
Industrial Motors and VSD	1	194	0.02
PJM Demand Response	Inactive	Inactive	Inactive
Streetlighting	40	26	0.00
Non-Profit	0	0	0.00
Remaining Government/Non-Profit	10	771	0.00
TOTAL	86	4,429	0.56

Table 6-15: Penelec Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Energy Audit, Assessment and Equip Rebate	219	11,263	2.13
C/I Performance Contracting/Equipment	42	10,581	1.35
Industrial Motors and VSD	0	0	0.00
PJM Demand Response	Inactive	Inactive	Inactive
Streetlighting	69	386	0.00
Non-Profit	8	56	0.02
Remaining Government/Non-Profit	119	5,420	0.70
TOTAL	457	27,706	4.20

Table 6-16: Met-Ed Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Energy Audit, Assessment and Equip Rebate	126	5,539	1.00
C/I Performance Contracting/Equipment	26	11,969	1.27
Industrial Motors and VSD	0	0	0.00
PJM Demand Response	Inactive	Inactive	Inactive
Streetlighting	42	421	0.00
Non-Profit	9	35	0.01
Remaining Government/Non-Profit	42	2,390	0.15
TOTAL	245	20,354	2.43

6.9.3.4.1 Review of Savings Database

FirstEnergy typically provides a series of spreadsheets that contained key information for projects completed during PY2Q3. The savings recorded in these spreadsheets are 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. Projects claiming savings for PY2Q3 are determined by the evaluator and noted in their sample design.

FirstEnergy did not provide the savings database for this quarter.

6.9.3.4.2 Review of Project Files

Project files were not requested for PY2Q3 because evaluator ride-along and independent inspection activities have ramped up. An important component of the inspection activities is a review of the project files. For details on findings from site inspection activities, please see Section 6.8.3.

6.9.3.4.3 Review of Report Consistency

FirstEnergy’s reported values were found to be consistent with previous quarterly reports. No significant discrepancies were observed between quarterly reports.

6.9.3.5 West Penn

West Penn listed eleven programs under the non-residential umbrella, which includes the small commercial and industrial (SCI), large commercial and industrial (LCI), and government & non-profit (GNP) sectors. Of these eleven programs, six programs achieved energy and demand savings during PY2Q3 and five demand response programs that had not been launched to date did not achieve any savings. The programs achieved a reported gross energy savings of 7,641 MWh and reported gross demand savings of 2.60 MW during PY2Q3. Key figures for PY2Q3 for each individual program are shown in Table 6-17.

Several changes were identified from the previous quarterly report. First, the Hourly Pricing Option program was removed from the plan but is still listed as a program in the quarterly report. Second, the Commercial Lighting Efficiency Program was renamed to the Commercial Products Efficiency Program. This most likely indicates plan changes expanding the commercial lighting program. Third, the

Commercial and Industrial Drive was merged into the Custom programs, even though it is reported as a separate line item under the quarterly report.

Table 6-17: West Penn Non-Residential Programs Quarterly Summary

Program	Participants	MWh	MW
Government & Non-Profit Lighting Efficiency	137	4,496	1.20
Commercial HVAC Efficiency	1	1	0.00
Commercial Products Efficiency	39	1,251	0.80
Custom Technology Applications	6	1,054	0.30
Custom Applications	3	501	0.20
Commercial Drives	2	338	0.10
Customer Resources Demand Response	Inactive	Inactive	Inactive
Distributed Generation	Inactive	Inactive	Inactive
Time of Use with Critical Peak Pricing Rate	Inactive	Inactive	Inactive
Hourly Pricing Option	Removed	Removed	Removed
Customer Load Response	Inactive	Inactive	Inactive
TOTAL	188	7,641	2.60

6.9.3.5.1 Review of Savings Database

West Penn provided a series of spreadsheet databases that list the projects that achieved savings under each program during PY2Q3. The savings recorded in this spreadsheet were compared to the values recorded in the quarterly report to verify accuracy in the reporting process and to ensure that savings were actually achieved by the programs. Projects claiming savings for PY2Q3 were determined by using the rebate lockdown date.

As noted in the PY2Q2 report, there is some discrepancy between incremental quarterly savings values stated in the report and incremental quarterly savings values shown in the savings database. For example, the reported gross savings for the Custom Applications program during PY2Q3 is 501 MWh whereas the database shows savings of 902 MWh. The reported gross savings for PY2 is consistent at 1,175 MWh each. West Penn has stated in prior reports that they are most concerned with consistency between the database numbers and the report numbers for the program year. However, this inconsistency found in the incremental quarterly values makes it difficult to reconcile differences in the report and the database. Although this error does not affect the cumulative values, errors in quarterly reporting cause concern for inadequate reporting procedures. Specifically, it may indicate that ex-ante savings are being changed for projects already completed and reported in previous reports. The SWE recommends that West Penn ensure consistency in the quarterly figures as well as the cumulative figures.

6.9.3.5.2 Review of Project Files

Project files were not requested for PY2Q3 because evaluator ride-along and independent inspection activities have ramped up. An important component of the inspection activities is a review of the project files. For details on findings from site inspection activities, please see Section 6.8.3.

6.9.3.5.3 Review of Report Consistency

West Penn's reported values were found to be consistent with previous quarterly reports. No significant discrepancies were observed between quarterly reports.

7 Summary and Recommendations

The SWE team, the PA PUC CEEP Bureau 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 PY2Q3, the SWE team makes the following recommendations to the PA PUC relating to the Act 129 energy efficiency and demand response programs:

- Follow-up is required by several of the EDCs related to discrepancies identified through the SWE team's desktop audit.
- The SWE team will continue to verify that the correct savings protocols used by the EDCs are implemented for those measures that were installed on or after the effective date of the various new and amended TRM and interim TRM protocols.
- The SWE team will continue to conduct site visits for the C&I project installations in PY2Q4 so that the SWE team will meet their quota of PY2 site audits.
- The methods for determining the peak 100 hours for the purpose of quantifying demand response impacts need to be resolved as soon as possible. This has been the subject of an EDC "White Paper" and is the subject of discussion among CEEP staff, EDC representatives, and the SWE. The issues are complex and require a clear method for evaluating demand impacts of multiple types of measures and the ability to "add back" savings to the resultant EDC load curve in order to determine what the peak hours would have been without the demand measures' effect.
- The EDC evaluator for PECO's Conservation Voltage Reduction (Energy) Program should provide an evaluation addressing the issues raised in this report for the SWE's review prior to the next quarterly report.
- Any additional research impacting the demand savings calculation for Conservation Voltage Reduction (Demand) needs to be defined and implemented within the next several weeks if data from July and August is to be obtained.