

Annual Report to the Pennsylvania Public Utility Commission

**For the period
June 2009 to May 2010
Program Year 1**

For Act 129 of 2008
Energy Efficiency and Conservation Program
of Pennsylvania Electric Company
Docket No. 2009-2112952

Prepared by the Pennsylvania Electric Company
September 15, 2010

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Abbreviations (see Glossary for definitions)

CPITD	Cumulative Program/Portfolio Inception to Date
EM&V	Evaluation Measurement and Verification
IQ	Incremental Quarter
kW	Kilowatt
kWh	Kilowatt-hour
M&V	Measurement and Verification
MW	Megawatt
MWh	Megawatt-hour
NTG	Net-to-Gross
PYTD	Program/Portfolio Year to Date
TRC	Total Resource Cost
VEPS	Verified Ex-Post Savings
UEPS	Unverified Ex-Post Savings

1 Overview of Portfolio

Act 129, signed October 15th, 2008, mandated energy savings and demand reduction goals for the largest electric distribution companies (EDC) in Pennsylvania. Pursuant to their goals, energy efficiency and conservation (EE&C) plans were submitted by each EDC and approved by the Pennsylvania Public Utility Commission (PUC). This annual report documents the progress and effectiveness of the EE&C accomplishments for the Pennsylvania Electric Company (Penelec) through the end of Program Year 1, Quarter 4.

Compliance goal progress as of the end of the reporting period¹:

Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 13,577 MWh².
- The CPITD preliminary verified energy savings is 12,275 MWh.
- Achieved 8.5% of the 143,993 MWh May 31st, 2011 energy savings compliance target.
- Achieved 2.8% of the 431,979 MWh May 31st, 2013 energy savings compliance target.

Portfolio Demand Reduction³

- The CPITD reported gross demand reduction is 1.44 MW.
- The CPITD preliminary verified demand reduction is 1.35 MW.
- Achieved 1.2% of the 108 MW May 31st, 2013 demand reduction compliance target.

Low Income Sector⁴

- There are 10,113 measures offered to the Low-Income Sector, comprising 33% of the total measures offered.
- The CPITD reported gross energy savings for low-income sector programs is 3,163 MWh.
- The CPITD preliminary verified energy savings for low-income sector programs is 2,631 MWh.

Government and Non-Profit Sector

- The CPITD reported gross energy savings for government and non-profit sector programs is 243 MWh.
- The CPITD preliminary verified energy savings for government and non-profit sector programs is 211 MWh.
- Achieved 0% of the 108 MW May 31st, 2013 demand reduction compliance target.

¹ Percentage of compliance target achieved calculated using verified Cumulative Program/Portfolio Inception to Date values (or Preliminary verified value, if not available) divided by compliance target value.

² For purposes of this report, gross energy savings and demand reduction are considered achieved at the point at which a project is considered complete, having met the following criteria, (1) the Energy Conservation Measure (ECM) has been installed, (2) the ECM is commercially operable and (3) the EDC has accrued a liability for rebate payment or other financial incentives.

³ Demand reduction to include both the demand savings from the installation of energy efficiency measures and the demand reduction associated with demand response programs.

⁴ Results reported here are the sum of the impacts of the dedicated low-income programs and the impacts of low-income customers' participation in the general residential programs.

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

- The PYTD reported gross energy savings is 13,577 MWh.
- The PYTD preliminary verified energy savings is 12,275 MWh.
- The PYTD reported gross demand reduction is 1.44 MW.
- The PYTD preliminary verified demand reduction is 1.35 MW.
- The PYTD reported participation is 30,524 participants.⁵

Consistent with the PUC's Opinions and Orders in Docket Nos. M-2009-2092222, M-2009-2112952 and M-2009-2112956, FirstEnergy's Pennsylvania EDCs, Pennsylvania Electric Company, Metropolitan Edison Company and Pennsylvania Power Company (collectively, the Companies) launched nearly all of the programs and anticipate launching any remaining programs (e.g., Commercial/Industrial Demand Response) no later than end of Program Year 2. CSPs selected by the Companies have been approved by the PUC and placed on its CSP Registry, and the Companies' contracts with the selected CSPs have been approved or are pending approval by the PUC's staff. Penelec's current timeline for program implementation is shown in Section 5 of this report.

The Companies have selected SAIC, Inc. (SAIC) to serve as program manager for commercial/industrial/government programs. The Companies' contract with SAIC to manage the following programs was approved by the PUC's staff on December 18, 2009:

1. lighting;
2. equipment rebates;
3. custom programs;
4. motors and VSD; and,
5. energy audit/technology assessment

The Companies have selected Honeywell International, Inc. (Honeywell) to serve as program manager for residential programs. The Companies' contract with Honeywell to manage the following programs was approved by the PUC's staff on January 7, 2010:

1. on-site home energy audits;
2. energy efficient HVAC;
3. energy efficient products; and,
4. whole building comprehensive.

The Companies have selected JACO Environmental, Inc. (JACO) to manage the residential appliance turn-in program. The PUC's staff approved the Companies' contract with JACO on December 18, 2009.

The Companies have selected Aclara Software, Inc. (Aclara) as the vendor to support the on-line energy audits for both residential and small commercial/industrial/government customers. The PUC's staff approved the Companies' contract with Aclara on February 12, 2010.

The Companies have selected Performance Systems Development to manage the Residential New Home Construction program. The contract with this vendor awaits PUC staff approval.

⁵ CFL participants comprise 20,716 of the listed participant numbers. CFL participants are defined to have a one-to-one correspondence to rebated CFL packages.

Penelec has selected BPL Global LTD (BPL) to manage the residential direct load control program. The PUC's staff approved Penelec's contract with BPL on August 30, 2010.

In addition, the Companies are using the services of Building Performance Institute (BPI) certified contractors to perform measure installation for the low income WARM programs (i.e., WARM Plus, WARM extra measures). Program services are delivered by existing Low Income Usage Reduction Program non-profit agencies, private contractors and subcontractors. Additional private contractors were hired to increase capacity to meet Penelec's EE&C Plan. Internal staff manages the program. Agencies and private contractors perform comprehensive whole house energy audits and direct installation of all cost-effective electricity-saving measures. In addition, low income customers are eligible to participate in other residential programs.

Other Observations and Risks That May Affect Portfolio Success

On February 25, 2010, Penelec received final approval to implement its portfolio of programs and measures that were designed to achieve the 2011 and 2013 Act 129 energy efficiency and peak demand reduction targets, and Penelec began fully implementing its portfolio of programs and measures immediately thereafter, a later-than-anticipated start date. This shortened implementation period, as well as uncertainty relative to TRM protocols pending approval, and measurement and evaluation processes supporting program impacts, could impact Penelec's ability to achieve the Act 129 savings targets.

However, Penelec is diligently working with its implementation and evaluation CSPs to identify the best opportunities to achieve the aggressive targets of Act 129 so that its internal staff can make prompt and empirically-based decisions regarding portfolio management and modification. The results from the ongoing impact and process evaluations with internal staff will be critical to providing a basis for such decisions with the goal of improving the delivery of energy efficiency and conservation measures.

Indeed, the first six months of implementation have already resulted in useful information regarding opportunities for improvement and risks of achieving the Companies' energy efficiency goals. One particular issue that internal staff is currently researching relates to the impact of the current economic downturn to the Companies' energy efficiency campaigns. The current economic environment may negatively impact the Companies' EE&C campaigns because some customers appear to be reluctant to invest in capital cost measures and have reduced the operating capacities of their facilities. While it is difficult to quantify the impact of the current economic environment on the Companies' EE&C campaigns, the reluctance of customers to invest in capital cost measures has already been observed in the Companies' commercial/industrial/government EE programs.

For example, one large industrial customer received a substantial rebate for a lighting project in its warehouse, which was fully completed. However, the Companies' Measurement and Valuation (M&V) contractor discovered that the warehouse is currently vacated, and the owner, though actively searching for a tenant, has been unable to rent the facility, resulting in lower than expected operating hours. The Companies are concerned about the impact of similar situations on custom lighting projects and their effect on M&V savings, because under current "custom" protocols, only minimal energy savings can be attributed to that type of project. The Companies believe that M&V processes for custom sites should demonstrate long-term energy savings and peak load reductions over the next 10 to 15 years, and not by a "snapshot" taken during a period of marked decline in economic activity, and in turn, business operating hours.

Another issue affecting the ability of the Companies to achieve portfolio success is the uncertainty related to the quantification of savings for approved portfolio measures that have neither been incorporated into the TRM nor have an approved M&V protocol.

Portfolio Measurement and Valuation (M&V) Status

The Companies have selected ADM Associates, Inc. (ADM) as the M&V contractor. ADM concluded the impact evaluation for all programs that were implemented by May 31, 2010. ADM's methods of evaluation include physical inspection, on-site data gathering, and monitoring. The M&V efforts for the various measures in Penelec's portfolio are described below.

Deemed Measures:

Deemed Measures (measures that have deemed savings in the PA TRM or interim TRM) are subject to the following verifications in order to be included in Penelec's energy savings and demand reduction calculations:

1. Verification that the energy savings are being claimed correctly, using the appropriate protocols in the TRM; and
2. On-site, physical verification that the measures are actually installed and commercially operable, except for the following acceptable alternatives:
 - a. For upstream CFLs, review of invoices and verification of shipment to participating retailers
 - b. For recycled refrigerators and room ACs, verification of pick-up through customer interviews.
 - c. For the low-income, weatherization program, statistical analysis of customer billing data. The on-site verification is conducted for quality assurance purposes rather than for impact evaluation.

Deemed measures implemented by Penelec in the first program year include refrigerator retirement, low-income weatherization, and upstream rebates on CFLs.

Partially Deemed Measures:

Partially Deemed Measures (measures that have partially deemed savings in the PA TRM or interim TRM) are subject to the following verifications in order to be included in Penelec's energy savings and demand reduction calculations:

1. Verification that the energy savings are being claimed correctly, using the appropriate protocols in the TRM;
2. Verification that the measures are actually installed and commercially operable;
3. Data gathering to support the values of variable parameters, such as "in-service rates" for items that are not directly installed, or nameplate capacities and efficiencies of appliances; and
4. Verification of baseline equipment or conditions, either by a pre-retrofit inspection or by review of documentation of pre-retrofit conditions⁶.

⁶ For example, field technicians will take photographs of supplanted light fixtures, if the opportunity exists.

Partially deemed measures implemented by Penelec in the first program year include rebated dehumidifiers, room air conditioners, clothes washers, and refrigerators; conservation kits sent to participants of online audits; and commercial lighting upgrades.

Custom Measures:

Custom measures are subject to the following verifications in order to be included in Penelec's energy savings and demand reduction calculations:

1. Drafting and receiving the PA Statewide Evaluator's approval on a custom measure protocol used to estimate ex-ante and ex-post energy impacts⁷.
2. Verification that the parameters and data used to design the protocol are accurate and well-founded. Some protocols will require both pre-installation and post-installation monitoring.
3. Verification that the data derived from monitoring or on-site inspections is being used appropriately in the protocols.

Penelec did not provide rebates for any custom measures in the first program year.

1.1 Summary of Portfolio Impacts

A summary of the portfolio reported impacts is presented in the following table:

Table 1-1: EDC Reported Portfolio Impacts through the End of the Reporting Period

Impact Type	Total Energy Savings (MWh)	Total Demand Reduction (MW)
Reported Gross Impact: Incremental Quarterly	13,577	1.44
Reported Gross Impact: Program Year to Date	13,577	1.44
Reported Gross Impact: Cumulative Portfolio Inception to Date	13,577	1.44
Unverified Ex-Post Savings	3,465	0.23
Estimated Impact: Projects in Progress	10,249	1.31
Estimated Impact: PYTD Total Committed	23,826	2.75
Preliminary PYTD Verified Impact ^[a]	12,275	1.35
Preliminary PYTD Net Impact ^[b]	12,275	1.35
NOTES:		
[a] Portfolio Verified Impact calculated by aggregating Program PYTD Verified Impacts. Program PYTD Verified Impacts are calculated by multiplying Program PYTD Reported Gross Impacts by program realization rates.		
[b] Portfolio Net Impact calculated by aggregating Program Net Impacts. Program Net Impacts are calculated by multiplying Program PYTD Verified Impacts by program Net-to-Gross ratios.		

⁷ Appropriate pre-existing protocols may be used if they have already been approved by the Statewide Evaluator.

A summary of total evaluation adjusted impacts for the portfolio is presented in Table 1-2⁸.

Table 1-2: Verified Preliminary Portfolio Total Evaluation Adjusted Impacts through the End of the Reporting Period

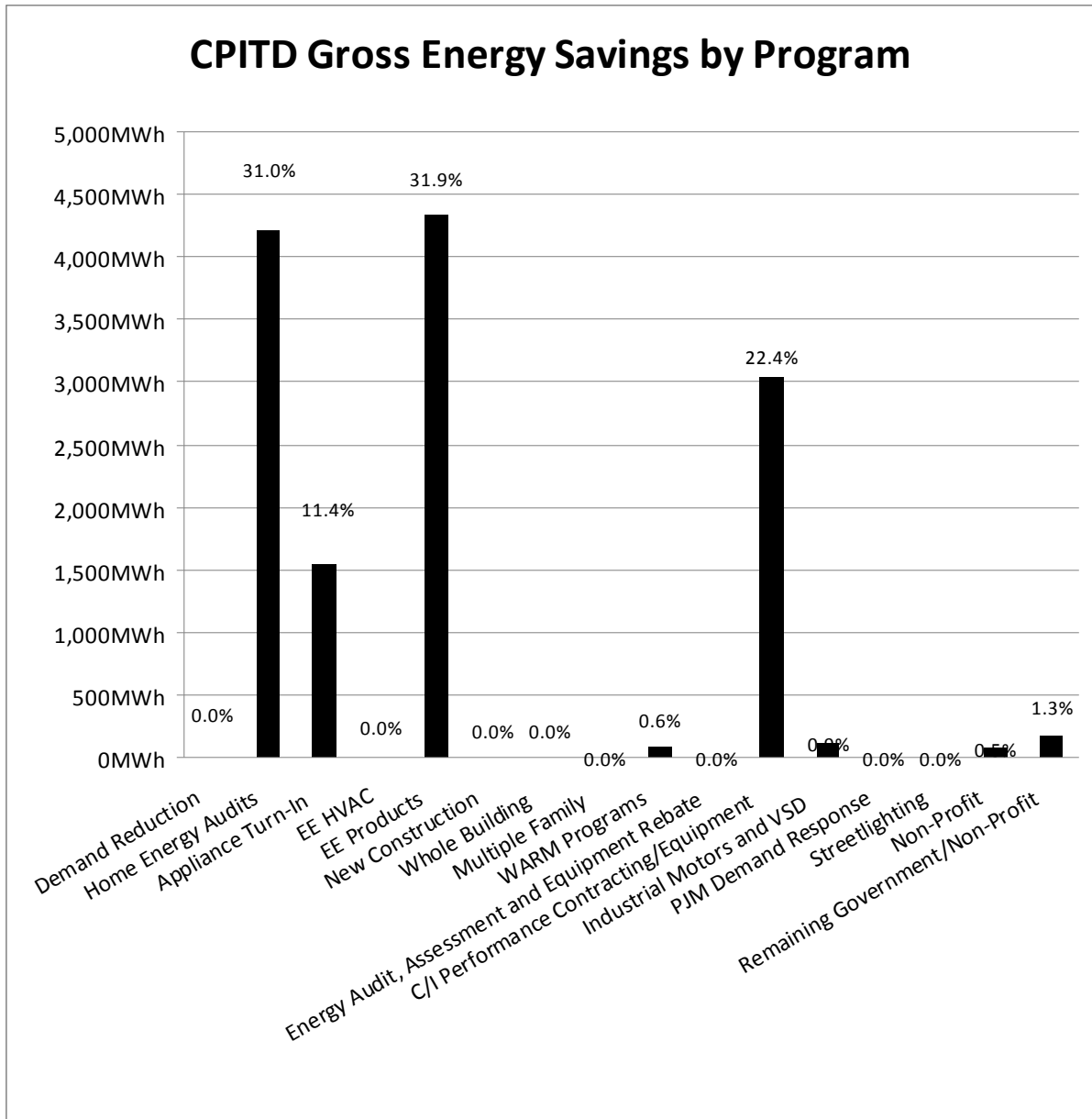
TRC Category	IQ ^[a]	PYTD ^[b]	CPITD
TRC Benefits (\$)	N/A	N/A	N/A
TRC Costs (\$)	N/A	N/A	N/A
TRC Benefit-Cost Ratio			N/A
NOTES:			
[a] Based on reported gross savings.			
[b] Based on reported gross savings.			

⁸ Consistent with the Statewide Evaluator’s September 13, 2010 memorandum to all PA EDCs, Penelec’s Program Year 1 Report will not include information related to TRC Benefit-to-Cost Ratios.

1.2 Summary of Energy Impacts by Program

A summary of the reported energy savings by program is presented in the following figure:

Figure 1-1: CPITD Reported Gross Energy Savings by Program through the End of the Reporting Period



A summary of energy impacts by program through the 4th Quarter, Program Year 1 is presented in the following tables:

Table 1-3: EDC Reported Participation and Gross Energy Savings by Program through the End of the Reporting Period

Program	Participants			Reported Gross Impact (MWh)		
	IQ	PYTD	CPITD	IQ	PYTD	CPITD
Demand Reduction	0	0	0	0	0	0
Home Energy Audits	8,335	8,335	8,335	4,211	4,211	4,211
Appliance Turn-In	808	808	808	1,541	1,541	1,541
EE HVAC	0	0	0	0	0	0
EE Products	20,772	20,772	20,772	4,338	4,338	4,338
New Construction	0	0	0	0	0	0
Whole Building	0	0	0	0	0	0
Multiple Family	0	0	0	0	0	0
WARM Programs	449	539	539	87	87	87
Energy Audit, Assessment and Equipment Rebate	0	0	0	0	0	0
C/I Performance Contracting/Equipment	60	60	60	3,039	3,039	3,039
Industrial Motors and VSD	1	1	1	118	118	118
PJM Demand Response	0	0	0	0	0	0
Streetlighting	0	0	0	0	0	0
Non-Profit	1	1	1	66	66	66
Remaining Government/Non-Profit	8	8	8	177	177	177
TOTAL PORTFOLIO	30,434	30,524	30,524	13,577	13,577	13,577
NOTES:						
(a) Participation in the EE Products Program attributable to CFL Participation is 20,716 for IQ, PYTD, and CPITD periods						

Table 1-4: EDC Reported Gross Energy Savings by Program through the End of the Reporting Period

Program	Unverified Ex Post Savings (MWh)	Projects In Progress (MWh)	PYTD Total Committed (MWh)	EE&C Plan Estimate for Program Year (MWh)	Percent of Estimate Committed (%)
Demand Reduction	0	0	0	47	0%
Home Energy Audits	2,779	0	4,211	3,598	117%
Appliance Turn-In	0	0	1,541	2,985	52%
EE HVAC	0	0	0	321	0%
EE Products	0	0	4,338	5,841	74%
New Construction	0	0	0	860	0%
Whole Building	0	0	0	879	0%
Multiple Family	0	60	60	88	68%
WARM Programs	0	271	357	543	66%
Energy Audit, Assessment and Equipment Rebate	0	2,013	2,013	8,304	24%
C/I Performance Contracting/Equipment	0	7,503	10,542	1,736	607%
Industrial Motors and VSD	686	0	118	688	17%
PJM Demand Response	0	0	0	0	0%
Streetlighting	0	0	0	329	0%
Non-Profit	0	29	95	185	51%
Remaining Government/Non-Profit	0	373	550	3,317	17%
TOTAL PORTFOLIO	3,465	10,249	23,826	29,722	80%
NOTES:					
Unverified Ex Post Savings" are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission					

A summary of evaluation verified energy impacts by program is presented in the following table:

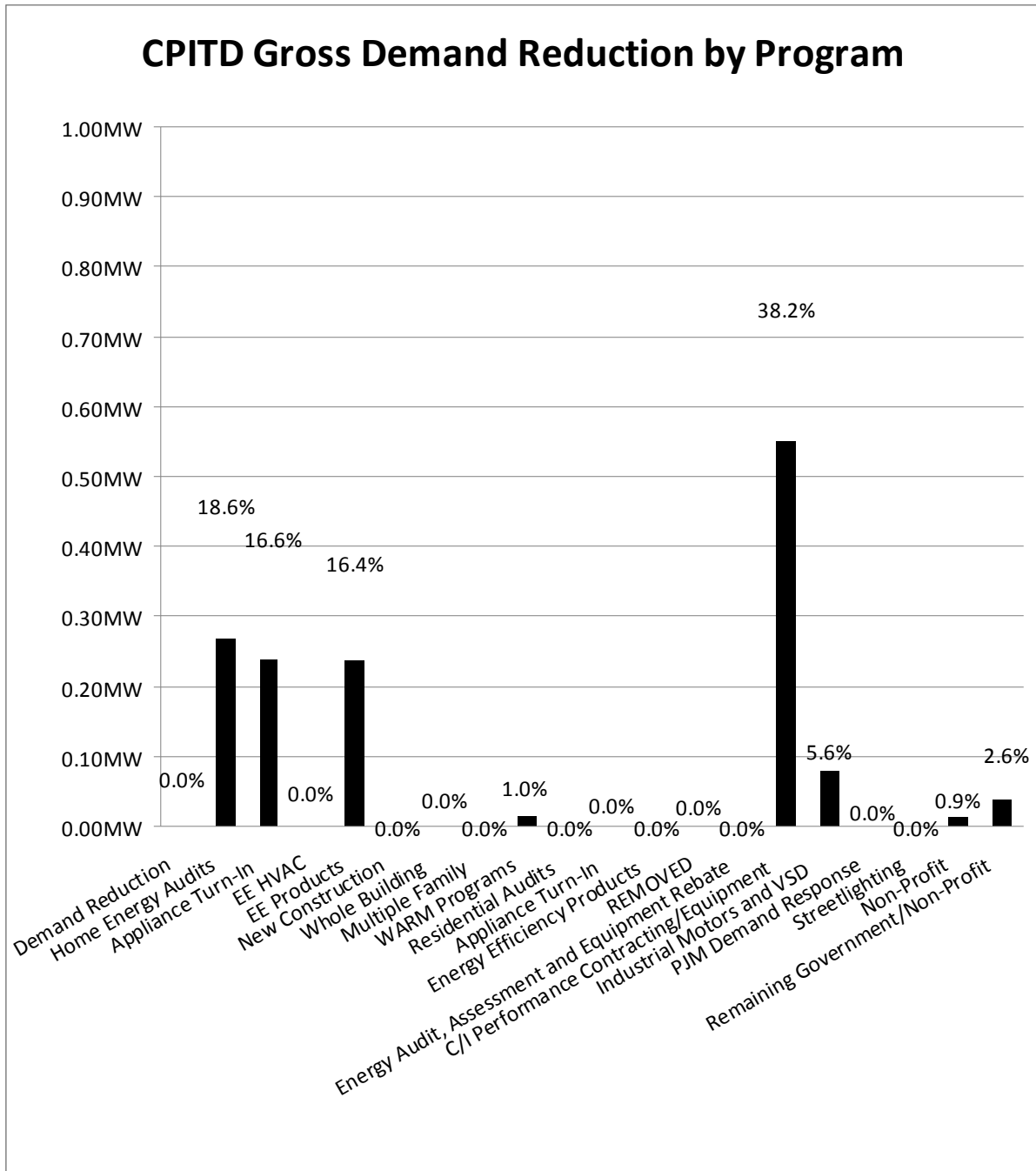
Table 1-5: Preliminary Energy Savings by Program through the End of the Reporting Period

Program	PYTD Reported Gross Impact (MWh)	Preliminary Realization Rate	Preliminary PYTD Verified Impact (MWh)	Net-to-Gross Ratio	PYTD Net Impact (MWh)
Demand Reduction	0	N/A	0	100.0%	0
Home Energy Audits	4,211	66.0%	2,779	100.0%	2,779
Appliance Turn-In	1,541	100.0%	1,541	100.0%	1,541
EE HVAC	0	N/A	0	100.0%	0
EE Products	4,338	100.0%	4,337	100.0%	4,337
New Construction	0	N/A	0	100.0%	0
Whole Building	0	N/A	0	100.0%	0
Multiple Family	0	N/A	0	100.0%	0
WARM Programs	87	88.6%	77	100.0%	77
Energy Audit, Assessment and Equipment Rebate	0	N/A	0	100.0%	0
C/I Performance Contracting/Equipment	3,039	87.0%	2,644	100.0%	2,644
Industrial Motors and VSD	118	579.2%	686	100.0%	686
PJM Demand Response	0	N/A	0	100.0%	0
Streetlighting	0	N/A	0	100.0%	0
Non-Profit	66	87.0%	57	100.0%	57
Remaining Government/Non-Profit	177	87.0%	154	100.0%	154
TOTAL PORTFOLIO	13,577	90.4%	12,275	100.0%	12,275
NOTES:					

1.3 Summary of Demand Impacts by Program

A summary of the reported demand reduction by program is presented in the following figure:

Figure 1-2: Reported Demand Reduction by Program through the End of the Reporting Period



A summary of demand reduction impacts by program through the 4th Quarter, Program Year 1 is presented in the following tables:

Table 1-6: Participation and Reported Gross Demand Reduction by Program through the End of the Reporting Period

Program	Participants			Reported Gross Impact (MW)		
	IQ	PYTD	CPITD	IQ	PYTD	CPITD
Demand Reduction	0	0	0	0.00	0.00	0.00
Home Energy Audits	8,335	8,335	8,335	0.27	0.27	0.27
Appliance Turn-In	808	808	808	0.24	0.24	0.24
EE HVAC	0	0	0	0.00	0.00	0.00
EE Products	20,772	20,772	20,772	0.24	0.24	0.24
New Construction	0	0	0	0.00	0.00	0.00
Whole Building	0	0	0	0.00	0.00	0.00
Multiple Family	0	0	0	0.00	0.00	0.00
WARM Programs	449	539	539	0.01	0.01	0.01
Energy Audit, Assessment and Equipment Rebate	0	0	0	0.00	0.00	0.00
C/I Performance Contracting/Equipment	60	60	60	0.55	0.55	0.55
Industrial Motors and VSD	1	1	1	0.08	0.08	0.08
PJM Demand Response	0	0	0	0.00	0.00	0.00
Streetlighting	0	0	0	0.00	0.00	0.00
Non-Profit	1	1	1	0.01	0.01	0.01
Remaining Government/Non-Profit	8	8	8	0.04	0.04	0.04
TOTAL PORTFOLIO	30,434	30,524	30,524	1.44	1.44	1.44
NOTES:						
(a) Participation in the EE Products Program attributable to CFL Participation is 20,716 for IQ, PYTD, and CPITD periods						

Table 1-7: Reported Gross Demand Reduction by Program through the End of the Reporting Period

Program	Unverified Ex-Post Savings (MW)	Projects In Progress (MW)	PYTD Total Committed (MW)	EE&C Plan Estimate for Program Year (MW)	Percent of Estimate Committed (%)
Demand Reduction	0.00	0.00	0.00	0.98	0%
Home Energy Audits	0.16	0.00	0.27	0.34	79%
Appliance Turn-In	0.00	0.00	0.24	0.43	55%
EE HVAC	0.00	0.00	0.00	0.30	0%
EE Products	0.00	0.00	0.24	0.67	35%
New Construction	0.00	0.00	0.00	0.65	0%
Whole Building	0.00	0.00	0.00	0.22	0%
Multiple Family	0.00	0.01	0.01	0.01	90%
WARM Programs	0.00	0.01	0.03	0.06	47%
Energy Audit, Assessment and Equipment Rebate	0.00	0.42	0.42	2.79	15%
C/I Performance Contracting/Equipment	0.00	0.80	1.35	0.59	231%
Industrial Motors and VSD	0.07	0.00	0.08	0.02	392%
PJM Demand Response	0.00	0.00	0.00	0.00	0%
Streetlighting	0.00	0.00	0.00	0.00	0%
Non-Profit	0.00	0.00	0.01	0.05	32%
Remaining Government/Non-Profit	0.00	0.02	0.06	0.81	7%
TOTAL PORTFOLIO	0.23	1.31	2.75	7.92	35%
NOTES:					
Unverified Ex Post Savings" are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission					

A summary of evaluation adjusted demand impacts by program is presented in the following table:
Table 1-8: Verified Demand Reduction by Program through the End of the Reporting Period

Program	PYTD Reported Gross Impact (MW)	Preliminary Realization Rate	Preliminary PYTD Verified Impact (MW)	Net-to-Gross Ratio	PYTD Net Impact (MW)
Demand Reduction	0.00	N/A	0.00	100.0%	0.00
Home Energy Audits	0.27	58.3%	0.16	100.0%	0.16
Appliance Turn-In	0.24	100.0%	0.24	100.0%	0.24
EE HVAC	0.00	N/A	0.00	100.0%	0.00
EE Products	0.24	100.0%	0.24	100.0%	0.24
New Construction	0.00	N/A	0.00	100.0%	0.00
Whole Building	0.00	N/A	0.00	100.0%	0.00
Multiple Family	0.00	N/A	0.00	100.0%	0.00
WARM Programs	0.01	100.6%	0.01	100.0%	0.01
Energy Audit, Assessment and Equipment Rebate	0.00	N/A	0.00	100.0%	0.00
C/I Performance Contracting/Equipment	0.55	104.6%	0.57	100.0%	0.57
Industrial Motors and VSD	0.08	90.6%	0.07	100.0%	0.07
PJM Demand Response	0.00	N/A	0.00	100.0%	0.00
Streetlighting	0.00	N/A	0.00	100.0%	0.00
Non-Profit	0.01	107.7%	0.01	100.0%	0.01
Remaining Government/Non-Profit	0.04	105.3%	0.04	100.0%	0.04
TOTAL PORTFOLIO	1.44	93.7%	1.35	100.0%	1.35
NOTES:					

1.4 Summary of Evaluation

Realization rates are calculated to adjust reported savings based on statistically significant verified savings measured by independent evaluators. The realization rate is defined as the percentage of reported savings that is achieved, as determined through the independent evaluation review. A realization rate of 1 or 100% indicates no difference between the reported and achieved savings. Realization rates are determined by certain attributes relative to one of three protocol types. Fully deemed TRM measure realization rates are driven by differences in the number of installed measures. Partially deemed TRM measure⁹ realization rates are driven by: (1) differences in the number of installed measures; and (2) differences in the variables. Custom measure realization rates are driven by differences in the energy savings determined by approved protocols. The protocol type determines the data type that is sampled.

1.4.1 Impact Evaluation

ADM has concluded the impact evaluation for all programs that were implemented by May 31, 2010. ADM has employed batch-wise stratified sampling for the C/I Equipment and Government/Non-Profit programs, stratified sampling for the residential “Warm Extra Measures” program, and simple random sampling for all other programs. In accordance with the PA Statewide Evaluator’s Audit Plan, the sample sizes were sufficient to report verified savings with $\pm 10\%$ relative precision at the 90% confidence level for all programs that involved custom or partially deemed measures, and with $\pm 30\%$ relative precision at the 90% confidence level for all programs that involved deemed measures.

The impact evaluation effort for Penelec’s first program year included the following initiatives:

- Initial “Kick Off” meeting between internal staff and ADM staff and contractors;
- Assignment of impact and process evaluation responsibilities among ADM staff;
- Review of ex-ante calculations, assumptions and evaluation protocols in the TRM;
- Participation in technical working groups regarding the addition of new evaluation protocols to the TRM;
- Drafting, peer-review, and submittal of evaluation protocols for the interim TRM;
- Review of the Statewide Evaluator’s Audit Plan;
- Drafting of impact evaluation plans for all programs;
- Review of rebate forms and data collection requirements for programs that are nearing launch;
- Review of energy efficiency program tracking protocols and systems;
- Review of ex-ante calculations associated with rebates, and pertinent feedback to the Companies;
- Drawing of samples for impact evaluation;
- Site visits, monitoring, and other data gathering;
- Analysis of data collected on-site;
- Determination of verified energy savings and demand reductions; and
- Determination of the verified energy savings and demand reductions attributable to the low-income residential sector.

⁹ TRM measures with stipulated values and variables.

The current program year (Year 2), beginning June 1, 2010, will be the first year of full-scale portfolio implementation. ADM has drafted revised evaluation plans for Penelec's portfolio for the current program year. The main changes to the evaluation plans include:

1. Consolidation of certain non-residential programs that share the same management, CSP's, and rebated measures.
2. The separation of the categories of rebates into two categories comprised exclusively of custom measures or prescriptive measures respectively.

The realization rates for each program are presented in the following table:

Table 1-9: Summary of Realization Rates and Confidence Intervals (CI) for kWh

Program	PYTD Sample Participants	Program Year Sample Participant Target	Preliminary Realization Rate for kWh	Confidence and Precision for kWh	Preliminary Realization Rate for kW	Confidence and Precision for kW
Demand Reduction	0.0	0.0	N/A	0.0%	N/A	0.0%
Home Energy Audits	74.0	10.0	66.0%	12.4%	58.3%	12.4%
Appliance Turn-In	65.0	62.0	100.0%	2.0%	100.0%	3.0%
EE HVAC	0.0	0.0	N/A	0.0%	N/A	0.0%
EE Products	15.0	12.0	100.0%	22.0%	100.0%	24.0%
New Construction	0.0	0.0	N/A	0.0%	N/A	0.0%
Whole Building	0.0	0.0	N/A	0.0%	N/A	0.0%
Multiple Family	0.0	0.0	N/A	0.0%	N/A	0.0%
WARM Programs	19.0	20.0	88.6%	9.0%	100.6%	0.0%
Energy Audit, Assessment and Equipment Rebate	0.0	0.0	N/A	0.0%	N/A	0.0%
C/I Performance Contracting/Equipment	20.0	20.0	87.0%	13.0%	104.6%	13.0%
Industrial Motors and VSD	1.0	1.0	579.2%	10.0%	90.6%	10.0%
PJM Demand Response	0.0	0.0	N/A	0.0%	N/A	0.0%
Streetlighting	0.0	0.0	N/A	0.0%	N/A	0.0%
Non-Profit	0.0	0.0	87.0%	13.0%	107.7%	13.0%
Remaining Government/Non-Profit	3.0	3.0	87.0%	13.0%	105.3%	13.0%
PORTFOLIO	197.0	128.0	90.4%	8.7%	93.7%	7.2%
NOTES:						

1.4.2 Process Evaluation

ADM has conducted a first set of program staff interviews in May and June, 2010. Following the interviews, ADM, internal staff and contractors drafted, for each program, a process evaluation plan and a program logic model which will serve as a visual representation for the program processes.

The process evaluation effort for the first program year included the following initiatives:

- Initial "Kick Off" meeting between internal staff and ADM staff and contractors;
- Review of the measures and program delivery mechanisms in the Penelec's plan portfolios;
- Interviews with internal staff and CSP staff;

- Drafting of process evaluation plans for all programs;
- Creation of logic models for each program;
- Identification of researchable issues for each program;

The process evaluation has also resulted in immediate feedback to Penelec 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 Penelec that will increase the evaluability of certain programs.

As of this writing, most programs in Penelec's portfolio are online and actively adding participants. The process evaluation effort is ready to begin interviews with program participants and non-participants.

1.5 Summary of Finances

The Total Resource Cost Test (TRC) demonstrates the cost-effectiveness of a program by comparing the total economic benefits to the total costs. Consistent with the Statewide Evaluator's September 13, 2010 Memorandum, Penelec's Program Year 1 Report will not include information related to TRC Benefit-to-Cost Ratios. A breakdown of the portfolio finances is presented in the following table¹⁰:

Table 1-10: Summary of Portfolio Finances: TRC Test¹¹

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$713,299	\$713,299	\$713,299
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$713,299	\$713,299	\$713,299
B.1	Design & Development ¹	\$2,540	\$382,994	\$382,994
B.2	Administration ²	\$1,357,265	\$1,960,116	\$1,960,116
B.3	Management ³	\$186,642	\$265,883	\$265,883
B.4	Marketing ⁴	\$2,103	\$2,103	\$2,103
B.5	Technical Assistance ⁵	\$26,969	\$27,326	\$27,326
B	Subtotal EDC Implementation Costs	\$1,575,520	\$2,638,423	\$2,638,423
C	EDC Evaluation Costs	\$97,010	\$102,485	\$102,485
D	SWE Audit Costs	-\$5,591	\$127,147	\$127,147
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$2,380,238	\$3,581,354	\$3,581,354
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

¹⁰ Consistent with the Statewide Evaluator's September 13, 2010 Memorandum, Penelec's Program Year 1 Report will not include information related to TRC Benefit-to-Cost Ratios

¹¹ Definitions for terms in following table are subject to TRC Order. Various cost and benefit categories are subject to change pending the outcome of TRC Technical Working Group discussions.

2 Portfolio Results by Sector

Page 11 of the EE&C Implementation Order issued on January 15th, 2009 provides requirements for specific sectors. In order to comply with these requirements, each program has been categorized into one of the following sectors:

1. Residential EE (excluding Low-Income)
2. Residential Low-Income EE
3. Small Commercial & Industrial EE
4. Large Commercial & Industrial EE
5. Government & Non-Profit EE

A summary of portfolio gross energy savings and gross demand reduction by sector is presented in the following figures:

Figure 2-1: PYTD Reported Gross Energy Savings by Sector

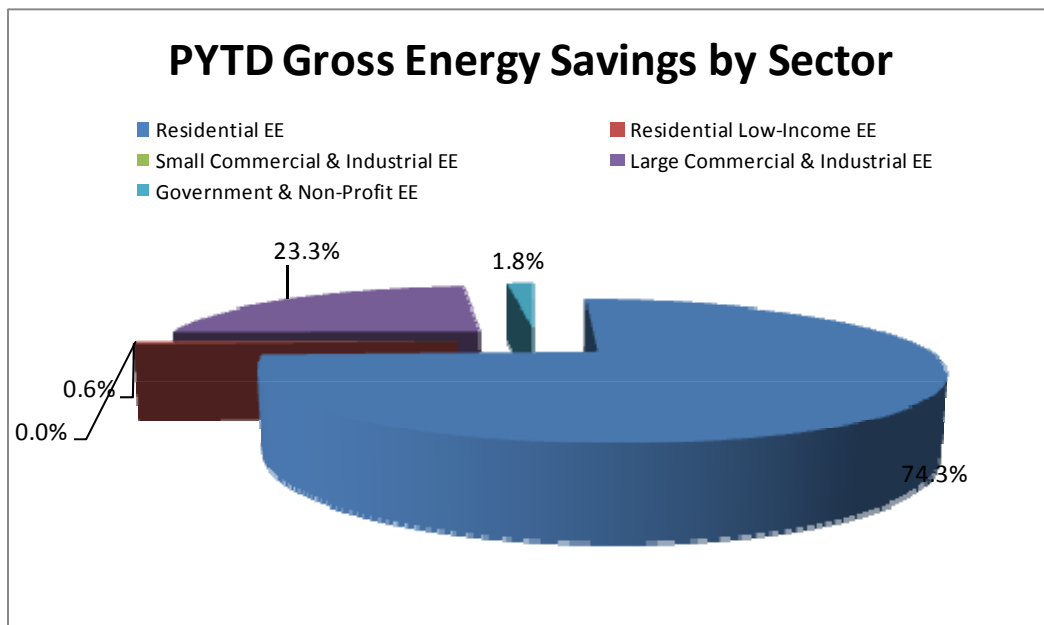


Figure 2-2: PYTD Reported Gross Demand Reduction by Sector

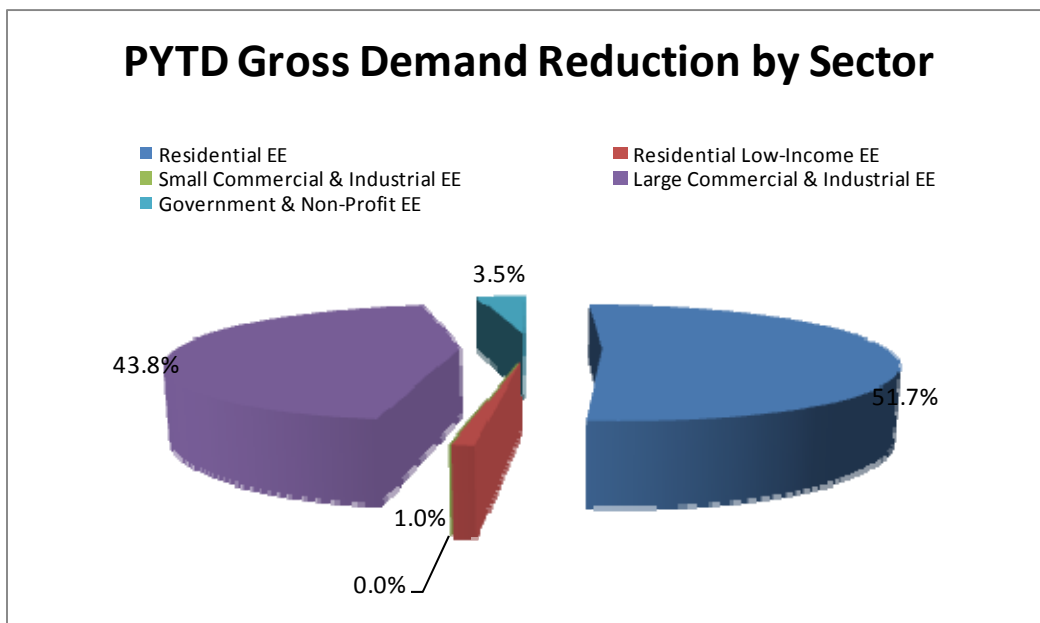


Table 2-1: Reported Gross Energy Savings by Sector through the End of the Reporting Period

Market Sector	Reported Gross Impact (MWh)			Projects in Progress	Total Committed	Unverified Ex Post Savings
	IQ	PYTD	CPITD			
Residential EE	10,090	10,090	10,090	60	10,150	2,779
Residential Low-Income EE	87	87	87	271	357	0
Small Commercial & Industrial EE	0	0	0	2,013	2,013	0
Large Commercial & Industrial EE	3,157	3,157	3,157	7,503	10,660	686
Government & Non-Profit EE	243	243	243	402	645	0
TOTAL PORTFOLIO	13,577	13,577	13,577	10,249	23,826	3,465

Notes:
Unverified Ex Post Savings” are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission

Table 2-2: Reported Gross Demand Reduction by Sector through the End of the Reporting Period

Market Sector	Reported Gross Impact (MW)			Projects in Progress	Total Committed	Unverified Ex Post Savings
	IQ	PYTD	CPITD			
Residential EE	0.74	0.74	0.74	0.05	0.79	0.16
Residential Low-Income EE	0.01	0.01	0.01	0.01	0.03	0
Small Commercial & Industrial EE	0.00	0.00	0.00	0.42	0.42	0
Large Commercial & Industrial EE	0.63	0.63	0.63	0.80	1.43	0
Government & Non-Profit EE	0.05	0.05	0.05	0.02	0.07	0
TOTAL PORTFOLIO	1.44	1.44	1.44	1.31	2.75	0.23

Notes:
Unverified Ex Post Savings” are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission

2.1 Residential EE Sector

The sector target for annual energy savings is 14,619 MWh and the sector target for annual peak demand reduction is 3.60 MW.

A sector summary of results by program is presented in the following tables:

Table 2-3: Summary of Residential EE Sector Incremental Impacts by Program through the End of the Reporting Period

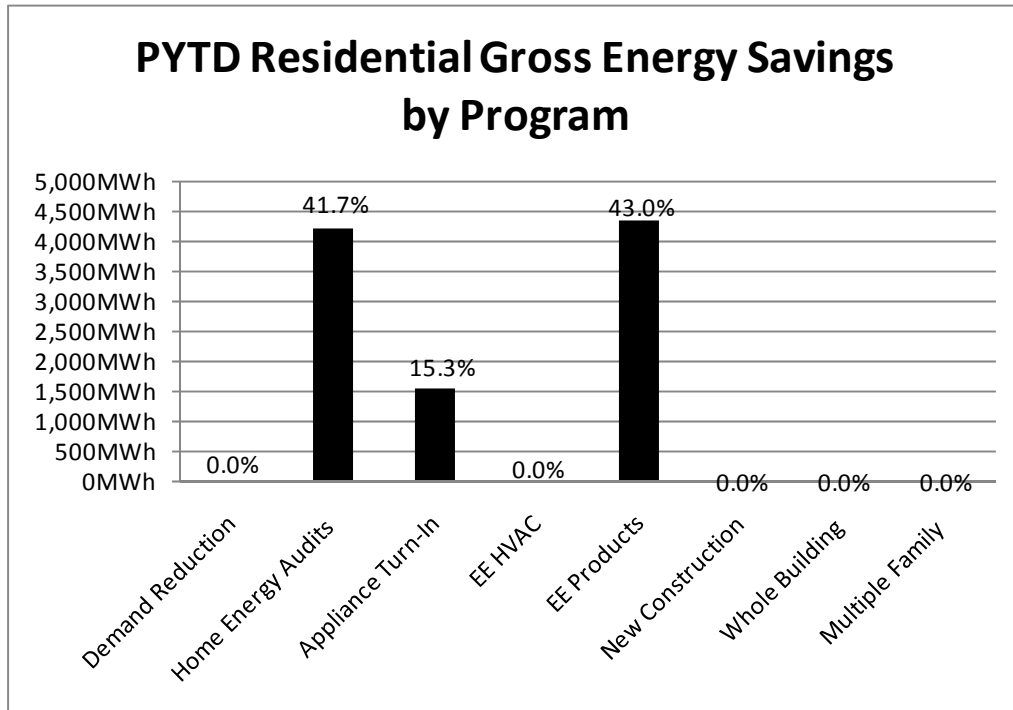
Residential EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWH)	IQ Reported Gross Demand Reduction (MW)
Demand Reduction	0	0	0.00
Home Energy Audits	8,335	4,211	0.27
Appliance Turn-In	808	1,541	0.24
EE HVAC	0	0	0.00
EE Products	20,772	4,338	0.24
New Construction	0	0	0.00
Whole Building	0	0	0.00
Multiple Family	0	0	0.00
Sector Total	29,915	10,090	0.74
NOTES:			
(a) Participation in the EE Products Program attributable to CFL Participation is 20,716 for IQ, PYTD, and CPITD periods			

Table 2-4: Summary of Residential EE Sector PYTD Impacts by Program through the End of the Reporting Period

Residential EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWH)	PYTD Reported Gross Demand Reduction (MW)
Demand Reduction	0	0	0.00
Home Energy Audits	8,335	4,211	0.27
Appliance Turn-In	808	1,541	0.24
EE HVAC	0	0	0.00
EE Products	20,772	4,338	0.24
New Construction	0	0	0.00
Whole Building	0	0	0.00
Multiple Family	0	0	0.00
Sector Total	29,915	10,090	0.74
NOTES:			
(a) Participation in the EE Products Program attributable to CFL Participation is 20,716 for IQ, PYTD, and CPITD periods			

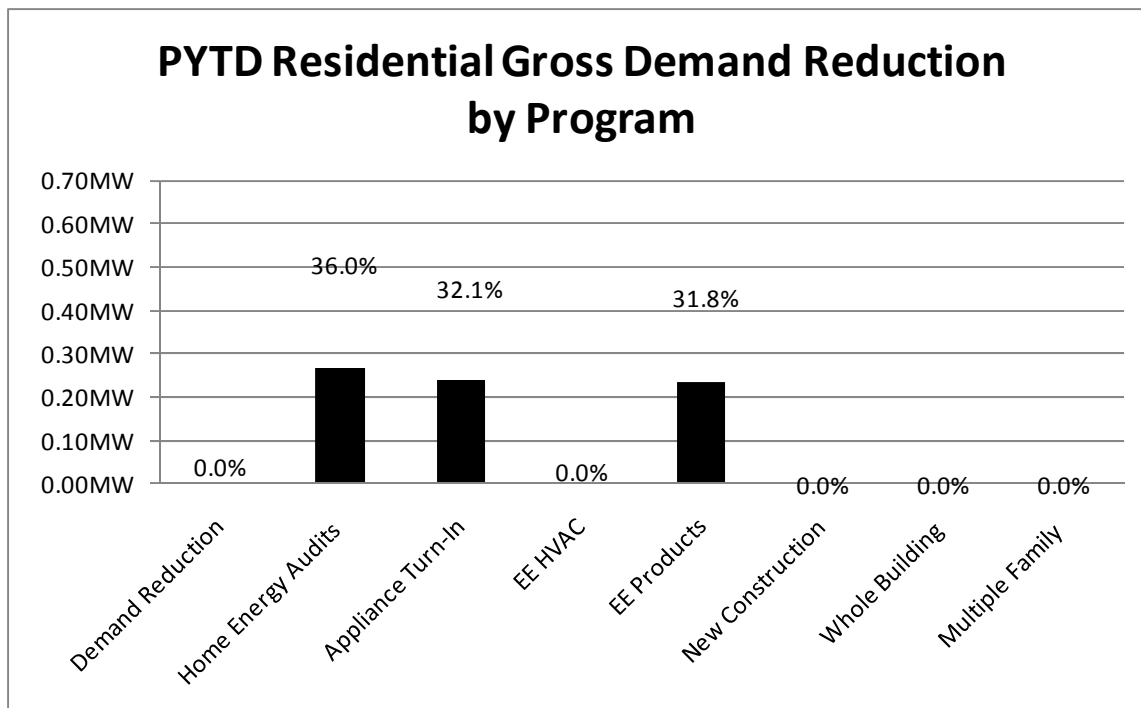
A summary of the sector energy savings by program is presented in the following figure:

Figure 2-3: Summary of Residential EE Sector PYTD Reported Gross Energy Savings by Program



A summary of the sector demand reduction by program is presented in the following figure:

Figure 2-4: Summary of Residential EE Sector PYTD Reported Demand Reduction by Program



2.2 Residential Low-Income EE Sector

Penelec currently has three programs that specifically target low-income customers with no-cost measures, such as the upstream CFL program or home energy audits.¹² In addition to programs that specifically target low-income customers, Penelec also tracks the number of rebates and the total energy impact associated with low-income customers' participation in its residential programs. The procedure for estimating the participation of low-income customers in the general residential programs is estimated through a process that accounts for the correlation between income levels and program participation. The process relies on two key datasets:

1. A list of customers that are identified as "low-income eligible" by Penelec (hereafter referred to as "eligibility data"). This eligibility has been established through recent participation in various low-income assistance programs offered by Penelec. Generally, the low-income eligible customers are marked or "tagged" as such in Penelec's database (hereafter referred to as "tagged" low-income customers). Presumably, there are other customers that are actually low-income qualified, but are not recognized as such by Penelec because the customers have not participated in any income-related program (hereafter referred to as "untagged" low-income customers).
2. The percentage of each county's population that is low-income from the Penn State County Needs Assessment (hereafter referred to as "county needs data").

The procedure for estimating the number of low-income customers in this program is as follows:

1. Using the needs data, the percentage of the population that is low-income is quantified and recorded for each county in the Companies' service territories.
2. Using the Companies' eligibility data, the percentage of the Companies' customers that are tagged as low-income eligible for each county are quantified and recorded.
3. A "scale factor" is defined as the ratio between the percentage of the county population that is low-income as obtained from the needs data, and the percentage of low-income customers as obtained from the eligibility data¹³.

In the program-tracking data, the number of tagged low-income eligible customers is multiplied by the scale factor derived in step 3 above. The resulting number is the estimated number of low-income participants in the program.

Because there are no customer records associated with the upstream CFL program, the low-income participation for this program component is estimated as follows:

¹² The audits can also take place over the telephone. A personal computer is not required for participation.

¹³ The assumption here is that there is little correlation between income and being a customer of Penelec and being a low-income member of a given county's population. This assumption is likely to be valid since about 73% of Penelec's customers are in counties in which Penelec has at least 75% of the county's households as customers.

The percentage of low-income users will be taken as the percentage of low-income residents in the counties that have participating stores in the upstream program, weighted by the sales in each county.

$$FLI = \frac{\sum_{\text{county}} (fli_{\text{county}} \times CFLSavings_{\text{county}})}{\sum_{\text{county}} CFLSavings_{\text{county}}}$$

Where,

FLI = the weighted program level fraction of low-income participants

fli_{county} = the fraction of low-income customers in a given county

CFLSavings_{county} = the total savings attributable to the rebated CFLs in a given county

The sector target for annual energy savings is 543 MWh and the sector target for annual peak demand reduction is 0.06 MW.

A sector summary of results by program is presented in the following tables:

Table 2-5: Summary of Residential Low-Income EE Sector Incremental Impacts by Program through the End of the Reporting Period

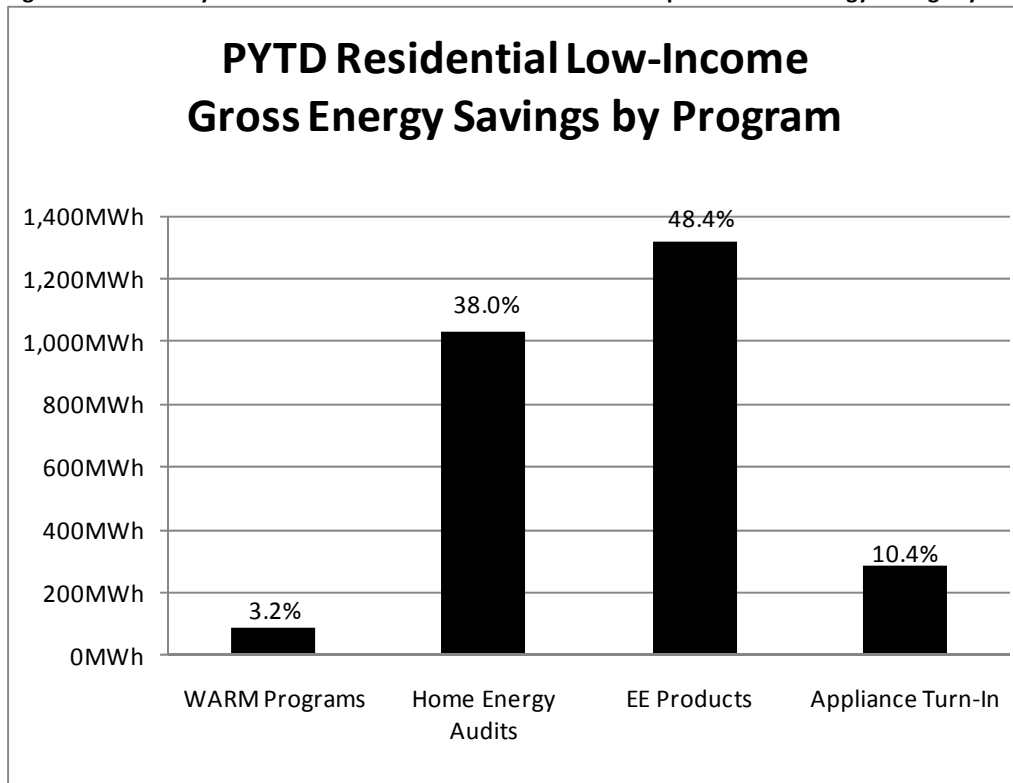
Residential Low-Income EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWH)	IQ Reported Gross Demand Reduction (MW)
WARM Programs	449	87	0.01
Home Energy Audits	3,685	1,032	0.11
EE Products	6,290	1,315	0.07
Appliance Turn-In	138	284	0.04
Sector Total	10,562	2,718	0.23
NOTES:			

Table 2-6: Summary of Residential Low-Income EE Sector PYTD Impacts by Program through the End of the Reporting Period

Residential Low-Income EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWH)	PYTD Reported Gross Demand Reduction (MW)
WARM Programs	539	87	0.01
Home Energy Audits	3,685	1,032	0.11
EE Products	6,290	1,315	0.07
Appliance Turn-In	138	284	0.04
Sector Total	10,652	2,718	0.23
NOTES:			

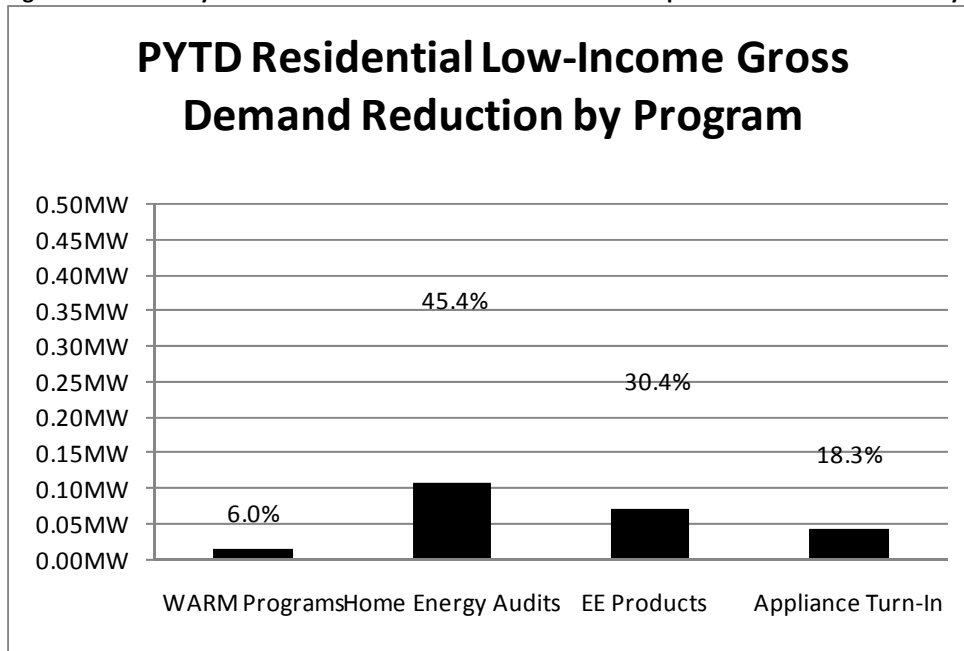
A summary of the sector energy savings by program is presented in the following figure:

Figure 2.5: Summary of Residential Low-Income EE Sector PYTD Reported Gross Energy Savings by Program



A summary of the sector demand reduction by program is presented in the following figure:

Figure 2.6: Summary of Residential Low-Income EE Sector PYTD Reported Demand Reduction by Program



2.3 Small Commercial & Industrial EE Sector

The sector target for annual energy savings is 8,304 MWh and the sector target for annual peak demand reduction is 2.79 MW.

A sector summary of results by program is presented in the following tables. As noted in Section 4.10, energy efficiency and peak demand reduction savings for the Small Commercial and Industrial Sector Energy Audit & Assessment, and Equipment Rebate Programs have been combined for purposes of this report.

Table 2-7: Summary of Small Commercial/Industrial EE Sector Incremental Impacts by Program through the End of the Reporting Period

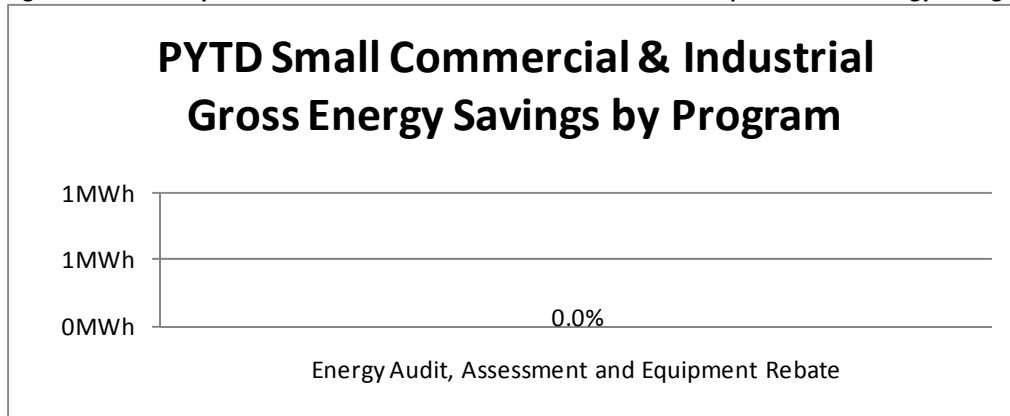
Small Commercial/Industrial EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWH)	IQ Reported Gross Demand Reduction (MW)
Energy Audit, Assessment and Equipment Rebate	0	0	0.00
Sector Total	0	0	0.00
NOTES:			

Table 2-8: Summary of Small Commercial/Industrial EE Sector PYTD Impacts by Program through the End of the Reporting Period

Small Commercial/Industrial EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWH)	PYTD Reported Gross Demand Reduction (MW)
Energy Audit, Assessment and Equipment Rebate	0	0	0.00
Sector Total	0	0	0.00
NOTES:			

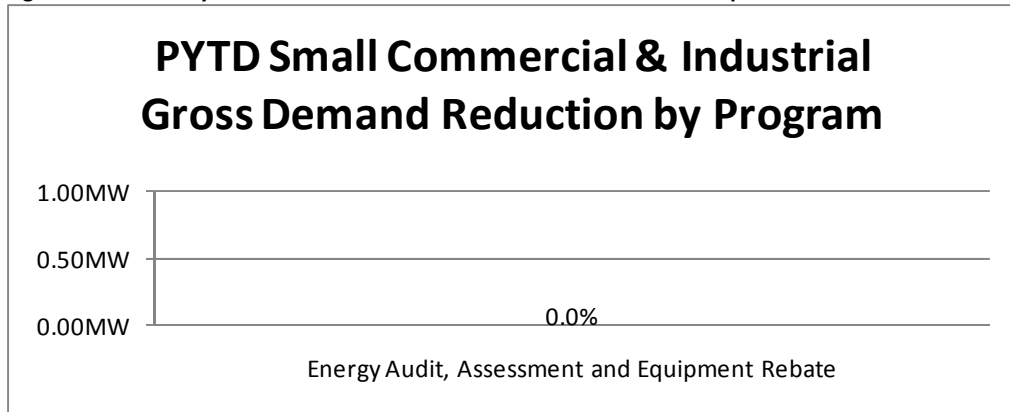
A summary of the sector energy savings by program is presented in the following figure:

Figure 2.7: Summary of Small Commercial & Industrial EE Sector PYTD Reported Gross Energy Savings by Program



A summary of the sector demand reduction by program is presented in the following figure:

Figure 2.8: Summary of Small Commercial & Industrial EE Sector PYTD Reported Demand Reduction by Program



2.4 Large Commercial & Industrial EE Sector

The sector target for annual energy savings is 2,424 MWh and the sector target for annual peak demand reduction is 0.61 MW.

A sector summary of results by program is presented in the following tables:

Table 2-9: Summary of Large Commercial/Industrial EE Sector Incremental Impacts by Program through the End of the Reporting Period

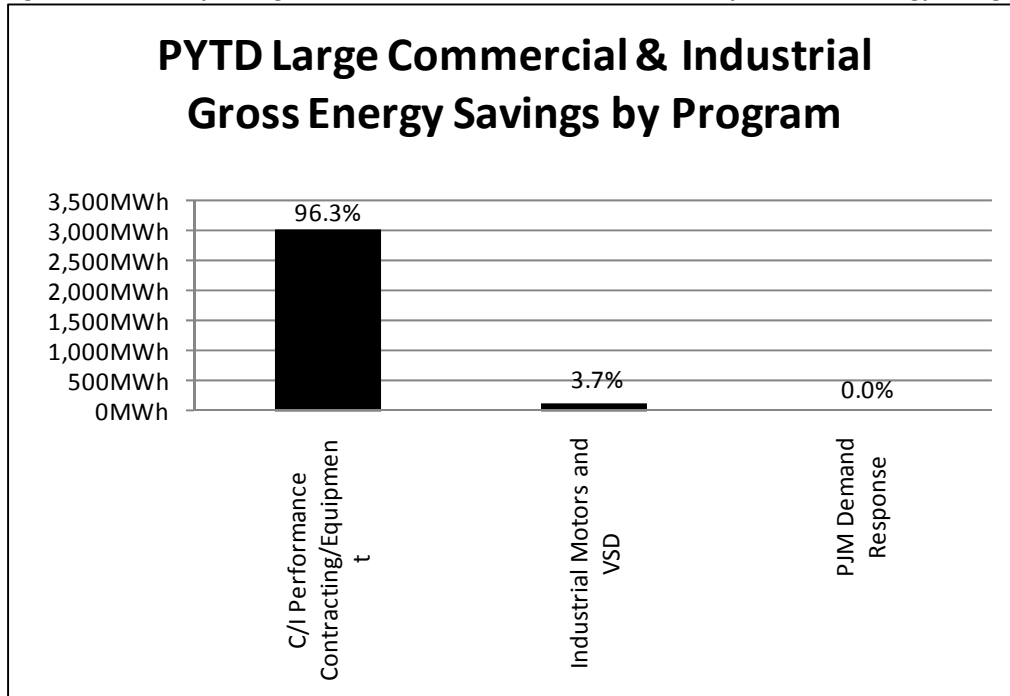
Large Commercial/Industrial EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWH)	IQ Reported Gross Demand Reduction (MW)
C/I Performance Contracting/Equipment	60	3,039	0.55
Industrial Motors and VSD	1	118	0.08
PJM Demand Response	0	0	0.00
Sector Total	61	3,157	0.63
NOTES:			

Table 2-10: Summary of Large Commercial/Industrial EE Sector PYTD Impacts by Program through the End of the Reporting Period

Large Commercial/Industrial EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWH)	PYTD Reported Gross Demand Reduction (MW)
C/I Performance Contracting/Equipment	60	3,039	0.55
Industrial Motors and VSD	1	118	0.08
PJM Demand Response	0	0	0.00
Sector Total	61	3,157	0.63
NOTES:			

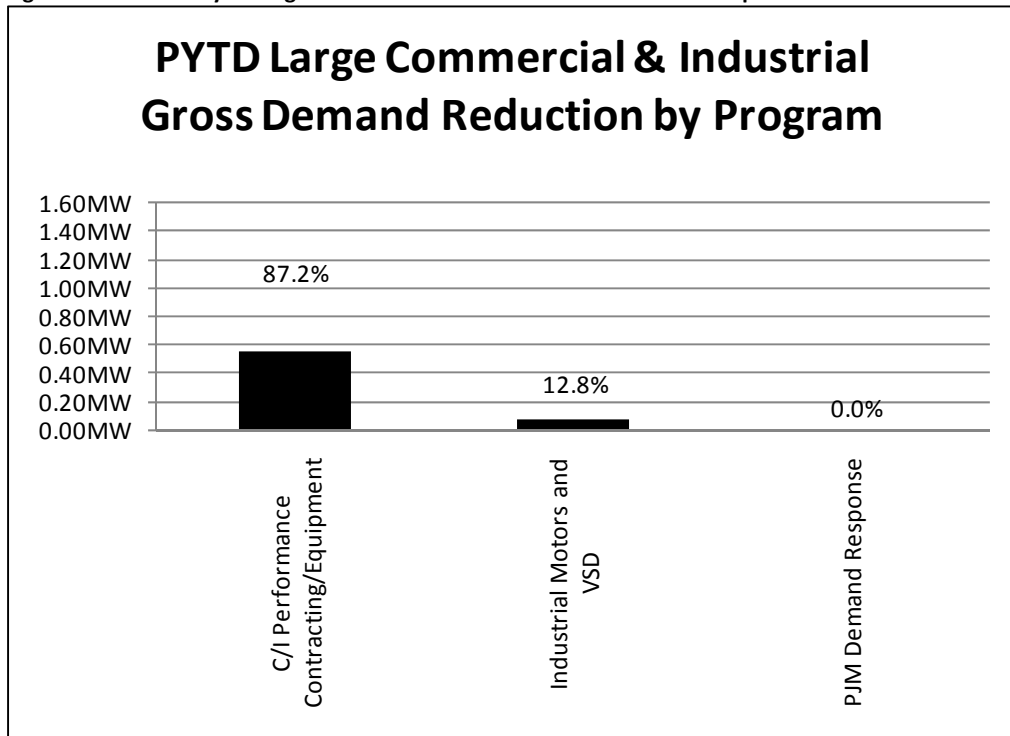
A summary of the sector energy savings by program is presented in the following figure:

Figure 2.9: Summary of Large Commercial & Industrial EE Sector PYTD Reported Gross Energy Savings by Program



A summary of the sector demand reduction by program is presented in the following figure:

Figure 2.10: Summary of Large Commercial & Industrial EE Sector PYTD Reported Demand Reduction by Program



2.5 Government & Non-Profit EE Sector

The sector target for annual energy savings is 3,832 MWh and the sector target for annual peak demand reduction is 0.86 MW.

A sector summary of results by program is presented in the following tables:

Table 2-11: Summary of Governmental EE Sector Incremental Impacts by Program through the End of the Reporting Period

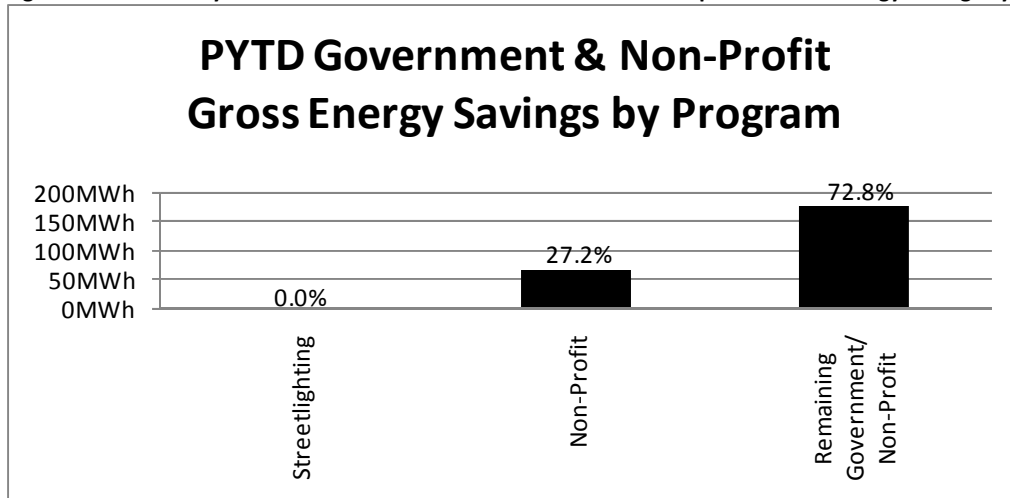
Governmental EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWH)	IQ Reported Gross Demand Reduction (MW)
Streetlighting	0	0	0.00
Non-Profit	1	66	0.01
Remaining Government/Non-Profit	8	177	0.04
Sector Total	9	243	0.05
NOTES:			

Table 2-12: Summary of Governmental EE Sector PYTD Impacts by Program through the End of the Reporting Period

Governmental EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWH)	PYTD Reported Gross Demand Reduction (MW)
Streetlighting	0	0	0.00
Non-Profit	1	66	0.01
Remaining Government/Non-Profit	8	177	0.04
Sector Total	9	243	0.05
NOTES:			

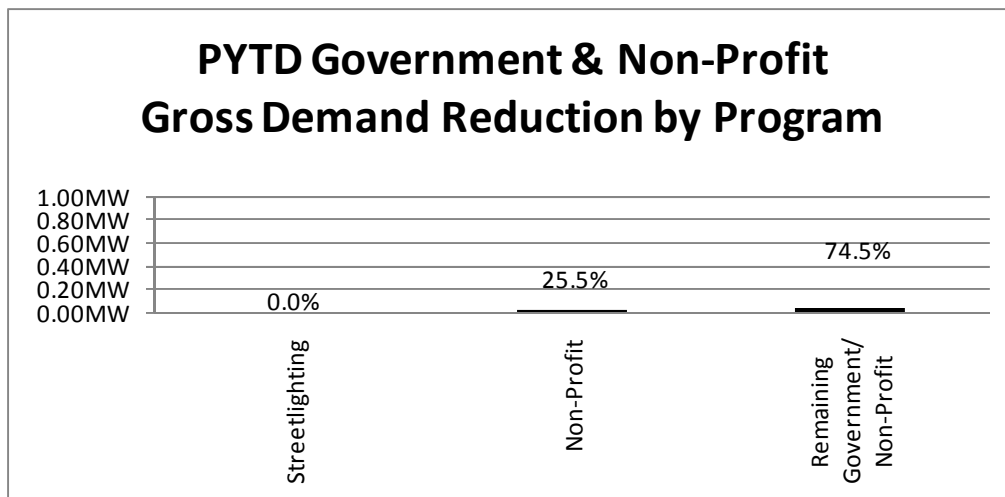
A summary of the sector energy savings by program is presented in the following figure:

Figure 2.11: Summary of Government & Non-Profit EE Sector PYTD Reported Gross Energy Savings by Program



A summary of the sector demand reduction by program is presented in the following figure:

Figure 2.12: Summary of Government & Non-Profit EE Sector PYTD Reported Demand Reduction by Program



3 Demand Response

Demand response programs specifically target the reduction of peak demand through various demand-side management strategies. Penelec currently does not have any Demand Reduction savings to report in its 100 peak hours as interpreted by the PUC under Act 129¹⁴.

¹⁴ The Commission's Implementation Order in Docket No. M-2008-2069887 sets forth that by May 31, 2013, peak demand is to be reduced by a minimum of four-and-a-half percent (4.5%) of the EDC's annual system peak demand in the 100 hours of highest demand, measured against the EDC's peak demand during the period of June 1, 2007 through May 31, 2008. The Commission defined the summer months of June through September 2012 as the appropriate time to reduce annual system peak demand in the 100 hours of highest demand.

4 Portfolio Results by Program

4.1 Residential Demand Reduction Program

This program will pay an incentive to participants who agree to have controls installed on their Central Air Conditioning (CAC) systems that enable Penelec to limit CAC operation during peak load periods. Once such devices are installed, the utility will have the ability to cycle air conditioning compressors or reset temperatures for the duration of the load control event. It is anticipated that this program will be activated over Penelec's top 100 load hours, typically from noon – 7 pm on selected weekdays.

4.1.1 Program Logic

Initially, the program will target customers located in major load areas with higher customer density to minimize risks associated with communications coverage. Customers will receive a one time cash payment of up to \$50 - \$75 in the first year as an enrollment incentive. In each following year, customers will receive up to \$10 - \$15 per summer month for participation (as will be determined in consultation with the CSP).

In order to gain more robust, longer term program participation, direct load control switches will be chosen that will have the capability to utilize multiple communication protocols including ZIGBEE to facilitate the eventual migration of this program and leverage the communication investment from an Advanced Metering Infrastructure (AMI) solution.

Opportunities for expansion will be examined as technology options improve over time. Penelec will bid its Residential Direct Load Control programs into the PJM Reliability Pricing Model (RPM). The revenues received by Penelec, if any, from bidding and clearing residential Direct Load Control programs into the applicable RPM auctions will be netted against the program costs, including but not limited to, administration, contracted services, credits provided to customers, and PJM penalties for underperformance.

4.1.2 Program M&V Methodology

Following the selection of load control technologies, Penelec will verify that demand reduction targets are being achieved consistent with requirements defined in PJM Manual 19, Attachment B, i.e. "either submit a load research study supporting base per-participant impacts ... or utilize the base per-participant impacts contained in the "Deemed Savings Estimates for Legacy Air Conditioning and Water Heating Direct Load Control Programs in PJM Region" report, or other M&V accepted through PJM processes. Baseline conditions will be as determined (at minimum) through load research consistent with PJM standards for Direct Load Control resources, supported by enhanced functionality consistent with two-way load management and metering communications.

4.1.3 Program Sampling

The sampling will be sufficient to determine this program's gross impact with $\pm 10\%$ relative precision at the 90% confidence level. If the CSP installs two-way devices, then ADM will be evaluating a census of

run-time data. Typically, when installing two-way devices, the CSP will take a one-time power reading of the air conditioner and record the ambient temperature observed during the reading. This will allow ADM to correct the power reading to match the weather observed during curtailment events. If the CSP installs one-way devices, a load research sample will be required. To achieve 90/10 confidence/precision, the required sample for this program is approximately 70 units. The specific approach will be determined following technology selection. This program did not have implementation in the first program year.

4.1.4 Process Evaluation

ADM has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the ADM, internal staff and contractors have drafted a program logic model which will serve as a visual representation for the program processes. As the programs near launch, additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Once the program is launched, participant surveys, non-participant surveys, and drop-out surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. If the goals are appropriate, the process evaluation will identify specific best practices that may help Penelec reach the program goals.

4.1.5 Program Partners and Trade Allies

Penelec is currently soliciting bids for the management of the Direct Load Control program with an anticipated launch in the 4th Quarter fiscal year 2010.

4.1.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-1: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$208	\$31,292	\$31,292
B.2	Administration ²	\$0	\$0	\$0
B.3	Management ³	\$14,452	\$19,985	\$19,985
B.4	Marketing ⁴	\$161	\$161	\$161
B.5	Technical Assistance ⁵	\$1,829	\$1,858	\$1,858
B	Subtotal EDC Implementation Costs	\$16,649	\$53,296	\$53,296
C	EDC Evaluation Costs	\$2,734	\$3,181	\$3,181
D	SWE Audit Costs	-\$457	\$10,388	\$10,388
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$18,927	\$66,865	\$66,865
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes				
:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.2 Residential Home Energy Audit Program

Households will be able to identify energy saving opportunities through two levels of home energy audits: 1) a self-administered on-line audit that analyzes historic energy use, and calculates energy savings based on customer responses to a series of questions, and 2) a walk-through on-site audit administered by a trained professional auditor. The purpose of the audits is to identify energy savings

opportunities, to install basic low-cost measures, and to make customers aware of other programs offered by Penelec, such as whole house wellness programs or programs they support, such as the Keystone Home Energy Loan Program, to help customers implement the recommendations. Both audits generate delivery of an energy conservation kit.

4.2.1 Program Logic

This program involves consumer education through generic energy savings tips combined with information customized to a specific dwelling based on either self-reported information or a trained auditor. This program serves as a portal to other program services. Customers are also referred to solutions, including participating retailers in the Energy Efficiency Products program, the E-store and the Keystone Home Energy Loan Program for financing the balance of project costs.

Estimates of low-income participation by county and census are included in Penelec's annual report to the PUC.

There is no additional charge to complete the on-line audit. Customers are eligible to receive an energy conservation kit valued at up to \$104 once the audit is complete and uploaded.

Customers pay a fee of \$50 for the on-site audit and will receive customized energy efficiency recommendations and direct installed energy savings measures of an equal value.

4.2.2 Program M&V Methodology

This program has two components: online audits and walk-through audits. The walk-through component of the program did not have any implementation in the first program year.

Gross Impact Analysis for the Online Audits

The energy conservation kits consist of four CFLs, four faucet aerators (savings claimed only for homes with electric water heating), two LED night lights, and "smart" power strips. In evaluating the gross impact analysis for the energy conservation kits, two items must be determined:

1. The average energy savings and demand reductions for the kit elements that are installed; and
2. The installation rate for the various kit elements

The first item has been determined through participation in technical working groups held by the PA Statewide Evaluator. The expected energy savings and demand reduction for each kit element has been established through a combination of engineering calculations and literature review. The partially deemed savings protocols for the kit contents are expected to be incorporated into the PA Technical Resource Manual.

The second item, installation rates, are determined through a combination of on-site visits and online surveys. For a particular site in a sample, the installation rate for each kit element takes on a binary value of 1, if the element is installed in accordance to the principles that define the element as an energy efficiency measure, and 0 otherwise. In particular, faucet aerators are only counted as "installed" if they are installed in a home that has electric water heating. Smart power strips are counted as "installed" if: (1) there are appliances plugged into the "controlled" sockets that are turned on and off by the smart strip; and (2) an appliance that is not uniformly on is installed in the "master" socket.

Gross Impact Analysis for the Walk-Through Audits

The items that are installed during the walk-through visits include the conservation kit contents, and other low-cost measures to be determined or judged as appropriate by the auditor. Some energy efficiency measures distributed in the walk-through audits have energy savings protocols that are in the PA Technical Reference Manual. The energy savings are determined through on-site and survey-based data collection focusing on the installation rates.

4.2.3 Program Sampling

The walk-through audit program component was not implemented in the first program year. The sampling approach for this program is batch-wise simple random sampling on quarterly basis. The two program components - online and walk-through audits - are treated as separate programs, each with distinct populations, samples, and realization rates. The simple random sample was designed to achieve 90/30 confidence/precision based on on-site observation of the installation rates for conservation kit components. Ten randomly selected sites that participated in the first program year were selected for on-site data collection efforts in early August, 2010. Upon review of the data collected ADM observed a much higher coefficient of variation than expected and elected to perform a follow-up survey using an on-line survey instrument. An additional 74 participants were selected for the online surveys in late August 2010. The combination of on-site visits and online surveys brings the sample selection confidence/precision up to 90/12 with the revised coefficient of variation

4.2.4 Process Evaluation

The evaluation team will conduct interviews with internal program managers and implementation staff across the multi-year evaluation period. The first set of interviews was completed prior to developing the process evaluation plan. The evaluation team will continue to discuss issues with the program staff throughout the evaluation process.

In addition to program staff interviews, surveys of participants and non-participants will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. The first round of surveys has been administered online, and the results presently are being analyzed.

A second aspect of the process evaluation is to determine the relationship between the walk-through and online audit programs and the other energy efficiency programs offered by the Companies. The audits are intended to provide customers with “a customized comprehensive understanding of the opportunities available for saving energy.” In theory, this understanding may induce customers to partake in appropriate energy efficiency programs offered by the Companies. Quantitatively, one can track the number of audit participants that also participated in other programs. Qualitatively, the evaluation effort will attempt to capture whether the appropriate energy savings opportunities are identified and described to the customers. For the walk-through audits, ADM will request the data recorded on-site and the recommendations made by the walk-through auditors. Additionally, ADM will accompany auditors for a small sample of walk-through audits.

4.2.5 Program Partners and Trade Allies

Home Energy Analyzer:

The Aclara Software Company is the owner of the tool customers used to complete the Home Energy Audit. Households can identify energy saving opportunities through an audit completed on-line at www.firstenergycorp.com or over the phone with customer service (for customers without access to a computer). This provides customers with information on how their energy bill is impacted by each of the appliances in the home. After an online audit is completed, an Energy Conservation Kit which includes 4 CFLs, 4 faucet aerators, 2 smart strips and 2 LED nightlights is sent to the customer. The customer has the option to decline receiving an Energy Conservation Kit.

Walk Through Home Energy Audit:

For a fee of \$50, residential customers can receive an in-home energy audit with specific energy efficiency recommendations as well as receiving \$50 worth of installed low-cost electric reduction measures (CFLs, low-flow shower heads, etc.). Honeywell Utility Solutions is Penelec's CSP who will conduct Walk Through Home Energy Audits and complete the installation of energy savings measures. Honeywell may recruit and develop qualified contractors if the participation rate warrants additional auditors.

4.2.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-2: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$339,530	\$339,530	\$339,530
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$339,530	\$339,530	\$339,530
B.1	Design & Development ¹	\$327	\$49,332	\$49,332
B.2	Administration ²	\$760,612	\$906,245	\$906,245
B.3	Management ³	\$25,614	\$45,361	\$45,361
B.4	Marketing ⁴	\$253	\$253	\$253
B.5	Technical Assistance ⁵	\$2,883	\$2,929	\$2,929
B	Subtotal EDC Implementation Costs	\$789,689	\$1,004,121	\$1,004,121
C	EDC Evaluation Costs	\$5,408	\$6,113	\$6,113
D	SWE Audit Costs	-\$720	\$16,377	\$16,377
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$1,133,907	\$1,366,141	\$1,366,141
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.3 Residential Appliance Turn-In Program

Residential customers are eligible for a cash incentive and disposal of up to two large older inefficient appliances (refrigerators or freezers); and two room air conditioners (RAC) per household per calendar year. All units must be working and meet established size requirements.

4.3.1 Program Logic

JACO is the program CSP hired by Penelec to deliver this program. JACO is the CSP chosen across PA utilities to run this program. JACO's selection provides Penelec's residential customers a collaborative approach to appliance collections.

Participation by low-income customers will be tracked or estimated to support assessment of equitable treatment of low-income customers. Direct participation by low-income customers will be included in Penelec's annual report to the PUC.

JACO Environmental tests the appliances at the customer's residence prior to removing them and issuing the incentive. Pre-testing may result in lower participation but better quality control.

Marketing to residential customers is conducted through various media and marketing channels to facilitate a targeted roll-out of the program and efficient collection in targeted areas. The marketing campaign includes a mix of digital media, direct mail, television and newspaper advertising. In addition Penelec uses monthly bill inserts to market this program to encourage residential customers to recycle targeted appliances.

4.3.2 Program M&V Methodology

The M&V values for this program are based on the energy savings resulting from a customer taking a refrigerator, freezer or RAC out of service. The savings from refrigerator recycling are stipulated in the TRM. The savings from RAC recycling are stipulated in an interim TRM protocol. While RAC energy savings are dependent on location and are mapped using the participant's zip code, RAC demand savings are not location dependent.

Verifying the savings from this program requires telephone verification, with the final sample encompassing a range of participants entering the program at various times throughout the year.

4.3.3 Program Sampling

The sampling approach for this program is simple random sampling for the first program year and on a quarterly basis thereafter. Sampling sizes will target 90% confidence level and 10% precision. The first sample of 70 participants was drawn from all appliances recycled through May 31 2010.

4.3.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes. Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?

- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys, non-participant surveys, and drop-out surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.3.5 Program Partners and Trade Allies

JACO is the CSP for Penelec's PA EDC Appliance Turn-In Program supporting residential customers. Subcontractors supporting the CSP are Appliance Distribution, Inc., Runyon Saltzman & Einhorn and ITSoft, Inc.

4.3.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-3: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$22,950	\$22,950	\$22,950
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$22,950	\$22,950	\$22,950
B.1	Design & Development ¹	\$257	\$38,805	\$38,805
B.2	Administration ²	\$69,821	\$69,821	\$69,821
B.3	Management ³	\$18,328	\$25,189	\$25,189
B.4	Marketing ⁴	\$1,193	\$1,193	\$1,193
B.5	Technical Assistance ⁵	\$2,268	\$2,304	\$2,304
B	Subtotal EDC Implementation Costs	\$91,867	\$137,312	\$137,312
C	EDC Evaluation Costs	\$5,700	\$6,255	\$6,255
D	SWE Audit Costs	-\$567	\$12,882	\$12,882
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$119,950	\$179,399	\$179,399
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.4 Residential Energy Efficiency HVAC Program

This program provides incentives supporting implementation of contractor-installed HVAC, or other eligible systems in existing or new residential buildings. The program involves promoting the sale of high-efficiency, ENERGY STAR® compliant equipment through installation contractors selling to residential customers who are replacing existing home HVAC equipment. The program provides

incentives to customers who replace existing or standard HVAC equipment in residential applications with qualifying energy efficient heating and cooling systems.

The program also provides incentives for maintenance (tune-ups) of existing central air conditioners or heat pump equipment, and will offer a \$40 incentive toward replacement of furnace fans meeting ENERGY STAR® efficiency guidelines.

4.4.1 Program Logic

Program services will be delivered to customers by qualified local contractors identified by an implementation vendor or manufacturer of such equipment. Contractors will certify the proper sizing and installation of high efficiency equipment.

Qualifying equipment must meet or exceed ENERGY STAR® standards. Qualified HVAC equipment will include:

- High-efficiency central air conditioning units (CAC)
- High-efficiency air source heat pumps (ASHP)
- High-efficiency ground source heat pumps (GSHP)
- Central air conditioning maintenance and furnace fan motor replacement meeting Energy Star guidelines.

Customers will receive rebates for the high efficiency HVAC equipment that is installed by a participating, qualified contractor.

4.4.2 Program M&V Methodology

Gross Impact Analysis

This program did not have any implementation in the first program year. However, the evaluation effort will be conducted using separate methodologies for rebated major appliances such as heat pumps, CACs and solar water heaters, and for HVAC maintenance. Details of the methodologies are described in the subsections below.

Gross Impact for CACs and Heat Pumps

Savings associated with these HVAC equipment types are estimated using a partially deemed approach, with the kWh reduction determined using deemed hours of operation of the equipment for each EDCs service territory and nameplate information from the equipment regarding unit capacities and efficiencies

For small split HVAC systems, the baseline efficiencies are stipulated in the PA TRM and are in accordance with Federal codes and standards. For any ground source heat pumps, the Federal code for air source heat pumps is used as the baseline.

The 'nameplate' data (e.g. capacity, SEER, EER, COP, HSPF) that provides the basis for deemed savings calculation will be verified through a combination of on-site visits and customer interviews. For units in the sample, enough information will be gathered to cross-check the Air Conditioning, Heating, and Refrigeration Institute (AHRI) certificate.

The expected energy savings and demand reduction attributable to solar water heaters have been developed through technical working groups hosted by the PA Statewide Evaluator. The resulting gross impact evaluation protocol will be incorporated into the PA Technical Resource Manual.

Gross Impact for AC Tune Ups

The verification for AC tune-ups includes two components. First, it must be verified that a tune-up actually occurred as claimed in the DSM tracking system. Secondly, it must be verified that the tune-ups are performed according to a consistent and appropriate protocol to ensure that the assumed 10% efficiency improvement stipulated in the TRM is realized. To this end, evaluation team staff will coordinate concurrent visits with randomly chosen trade allies that conduct AC tune ups.

4.4.3 Program Sampling

The sampling will be sufficient to determine this program's gross impact with $\pm 10\%$ relative precision at the 90% confidence level.

The sampling approach for this program is batch-wise stratified random sampling on a quarterly basis. Due to the relatively small number of anticipated ground source heat pumps, it is expected that two strata – heat pumps and CACs - will suffice. The measures within each stratum can include tune-ups or unit replacements.

Solar water heaters comprise about 1% of the expected energy savings for the program, but the expected energy impact from a solar water heater is comparable to the energy impact expected from a 5-ton heat pump. Therefore, the solar water heaters will be included in the stratum that corresponds to rebates and tune-ups of heat pumps, with the additional goal that, although the program-level energy savings are to be determined with 90/10 confidence/precision, enough solar water heaters will be sampled such that 90/30 confidence/precision will be achieved separately for the impact evaluation of the solar water heater program component. Solar water heaters did not have implementation in the first program year.

4.4.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes. Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys, non-participant surveys, and drop-out surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.4.5 Program Partners and Trade Allies

Residential customers may complete an incentive form for contractor-installed qualified high-efficiency heating, ventilation, and air-conditioning equipment and for solar hot water systems in existing or new residential buildings. HVAC Tune-up incentives are also available for customers through a network of participating trade allies. Honeywell is Penelec's program CSP who will recruit and develop trade allies, provide program marketing support, process customer rebate applications, validate applications meet all program requirements, and approve or deny rebate payment.

4.4.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-4: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$4,695	\$4,695	\$4,695
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$4,695	\$4,695	\$4,695
B.1	Design & Development ¹	\$64	\$9,587	\$9,587
B.2	Administration ²	\$86,766	\$131,369	\$131,369
B.3	Management ³	\$4,428	\$6,123	\$6,123
B.4	Marketing ⁴	\$49	\$49	\$49
B.5	Technical Assistance ⁵	\$560	\$569	\$569
B	Subtotal EDC Implementation Costs	\$91,866	\$147,697	\$147,697
C	EDC Evaluation Costs	\$8,496	\$8,633	\$8,633
D	SWE Audit Costs	-\$140	\$3,183	\$3,183
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$104,917	\$164,208	\$164,208
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes				
:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.5 Residential Energy Efficient Products Program

The Energy Efficient Products Program provides financial incentives to customers and support to retailers that sell energy efficient products, such as ENERGY STAR® qualified appliances or compact fluorescent light bulbs. The program includes promotional support, point-of-sale materials, training, promotional events and “up-stream product buy-down” rebates to retailers, distributors or manufacturers for select appliances. The program also includes existing catalogue sales channel, and support for community-based initiatives, or other distribution channels that can reliably document effective distribution of energy efficient products.

4.5.1 Program Logic

The program will encourage community-based initiatives that support documented distribution of energy efficient products and energy saving results. Such community-based initiatives include outreach through in-school training, college students, faith-based organizations, and municipal initiatives. The CSP will develop educational materials on the proper use and selection of high efficiency light bulbs, along with product discounts, coupons and price buy-downs to incentivize customers to purchase CFLs, LEDs and other qualifying EE products.

Estimates of low-income participation by county and census will be included in Penelec’s annual report to the PUC.

For the program, the minimum qualifying efficiency ratings are based on current ENERGY STAR® qualified appliances published by the US EPA. Customer incentives can be in many forms and all are paid by the utility. Incentives can range from \$1 to the full purchase price of a light bulb plus an administrative fee paid to the manufacturers and retailers in support of the campaign. One incentive will be a mark-down or buy-down program which is a shelf tag, display sticker or end cap sign recognizing the incentive coming through the utility’s program. The discount is paid by the utility based off point of sale purchase data. A second incentive will be coupons through print media or bill inserts. This is a manufacturer coupon offer paid by the utility and redeemed at any participating retailer. Coupons at retail are another method to incent customers which includes providing a coupon at the point of sale such as a shelf coupon pad that is redeemed at the register. A third method can be rebate forms that are mailed to a clearing house with rebate checks sent directly to customers. A fourth method could be discounts prepaid at the utility’s on-line store, which allows customers to shop using the internet.

Dealer incentives and special promotional “events” will be used to encourage sales of high efficiency products, and/or retirement of less efficient equipment (e.g. Torchiere lamps) through “buy down” first cost and/or promotion of eligible equipment to customers. Customer rebates will be available for selected appliances as well as appliance and replacement product pick up and disposal services. Exchange program events for lighting and room air conditioners may also be employed at periodic events.

The message delivered to customers can be accomplished by using a variety of mass marketing tools including utility bill inserts, local newspaper circulars, direct mail, point of sale displays at retailers and the utility web site and on-line store. Retailers and manufacturers will also be involved cross promoting product offers in conjunction with national campaigns like Earth Day and Change a Light, Change the World programs.

4.5.2 Program M&V Methodology

Gross Impact Analysis

The evaluation effort is conducted using separate methodologies for CFLs and for other appliances, with the details of the methodologies described in the subsections below.

Gross Impact for CFLs

Savings associated with the CFL component are estimated using a deemed approach, with the energy savings and demand reductions taken as deemed in accordance with the TRM. The impact evaluation for the CFL program component will include the following components:

- Review of shipment invoices, including types and quantities of CFLs distributed to participating retailers.
- Review of CSP energy savings and demand reduction calculations.
 - A review of the assumptions regarding the wattages of the baseline incandescent bulbs presumed to be supplanted by CFLs is particularly important

Gross Impact for Appliances

Gross kWh savings for appliances sold through the Residential Energy Efficient Products program are estimated using a deemed approach for measures included in the statewide TRM.

The impact evaluation for the appliance program component will include the following components:

- Verification of proper installation through on-site visits; and
- Review of CSP energy savings and demand reduction calculations
 - Calculations are reviewed to ensure that they are done according to the PA TRM or PA Interim TRM.

A realization rate for the appliance program component is calculated based on the results of the field verification and calculation review.

4.5.3 Program Sampling

The M&V of the upstream CFL program component does not require field work or customer surveys. However, a sampling strategy may be applied to the program's documentation review. For the first program year, the census of program invoices was reviewed. For future years, a sample may be created that will result in 90/10 confidence/precision.

The sampling approach for the appliance rebate program component is batch-wise simple random sampling on a quarterly basis. The sample size will be sufficient to determine gross impact with $\pm 30\%$ relative precision at the 90% confidence level. Although the program realization rate reported herein is for the combined Efficient Products program, the realization rate for each program component is reported separately to Penelec. Fifteen randomly selected sites that participated in the 2010 appliance rebate program component were visited in July and August, 2010.

4.5.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes. Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. Penelec

4.5.5 Program Partners and Trade Allies

Residential customers may complete an application form for rebate incentives for purchases of qualified ENERGY STAR® labeled appliances and other energy efficient household products. Honeywell is Penelec's program CSP who will provide marketing support and training to retailers throughout PA service territory, will process customers' rebate applications, validate that applications meet all program requirements, and approve or deny rebate payment.

4.5.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-5: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$94,791	\$94,791	\$94,791
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$94,791	\$94,791	\$94,791
B.1	Design & Development ¹	\$217	\$32,683	\$32,683
B.2	Administration ²	\$130,800	\$216,970	\$216,970
B.3	Management ³	\$15,095	\$20,874	\$20,874
B.4	Marketing ⁴	\$168	\$168	\$168
B.5	Technical Assistance ⁵	\$1,910	\$1,941	\$1,941
B	Subtotal EDC Implementation Costs	\$148,190	\$272,636	\$272,636
C	EDC Evaluation Costs	\$9,350	\$9,817	\$9,817
D	SWE Audit Costs	-\$477	\$10,850	\$10,850
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$251,853	\$388,094	\$388,094
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes				
:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			

⁵Includes costs for Tracking and Reporting System

4.6 Residential New Construction Program

This program provides incentives to builders for achieving ENERGY STAR® Homes status, or the Home Energy Rating System Program (HERS) associated with a highly energy efficient home. The program supports implementation of contractor-installed HVAC, solar, or other eligible systems in existing or new residential buildings, as well as measures addressing building shell, appliances and other energy consuming features. This program involves promoting the sale of high-efficiency, ENERGY STAR® compliant equipment through local builders. Participants can receive a rebate based on calculation of the energy savings related to the home's construction over standard practice, and can participate in the prescriptive rebates offered under the other residential rebate programs.

4.6.1 Program Logic

This program supports the construction of homes exceeding code requirements, and implementation of contractor-installed HVAC, solar, or other eligible systems, as well as high or energy efficient appliances in new or remodeled homes.

To qualify for this program, the home must exceed the PA Energy Code (International Energy Conservation Code IECC 2006) requirements by at least 15% and 30%. Program services will be delivered to customers by qualified local builders and contractors who demonstrate (through HERS, REM/Rate or other rating tool recognized in the TRM) that the house meets minimum performance energy savings criteria consistent with that of a highly energy efficient home. Participating contractors or builders receive rebates for achieving high efficiency standards.

Equipment offered to existing residential customers under the other programs are eligible for installation in new homes under this program. The rebate is determined by a formula, based on savings, estimated at 70% of incremental costs.

4.6.2 Program M&V Methodology

The gross impact analysis for the program has three components:

1. Verify that a sample of "prototype" (unoccupied model) homes are being constructed according to the plans by conducting follow-up HERS Ratings including duct blaster and blower door tests,;
2. Determine the energy savings and demand reduction for each of the builders' plan types using an engineering analysis; and
3. Verify the construction and orientation of a sample of the homes using "drive-by" visits and telephone surveys.

The performance of each prototype home will be determined by obtaining the original electronic data file from the builder's simulation software and updating it to match the as-built conditions observed during the on-site data collection and monitoring visit. To account for natural variation in building orientation and to verify major equipment efficiencies of the homes, a simple random sample from the tracking system data will be taken. A "drive-by" verification of this sample will determine if the home is constructed or not, and if it is occupied or not, the home's actual cardinal orientation and to verify heating fuel type and outside unit air conditioner/heat pump efficiency. The overall realization rate will be determined by summing up the appropriate quantity of each plan type, for the frequency of

orientations found in the drive-by site visit. Follow-up telephone interviews may be required in some cases to verify equipment efficiency if not accessible during the drive-by visit.

The energy savings and demand reductions for any energy efficiency components not incorporated into the comprehensive building simulation model and any measures installed through the other residential rebate programs will be determined based upon the methods outlined in those programs.

4.6.3 Program Sampling

This program did not have implementation in the first program year. The sampling approach for this program is batch-wise stratified random sampling on a quarterly basis. The sample size will be sufficient to determine this program's gross impact with $\pm 10\%$ relative precision at the 90% confidence level. The sample will be updated on a monthly basis and stratified according to the builder. At least three prototype homes for each builder will be selected for on-site data collection, one small, one medium, and one large home. Our efforts can be considered a follow-up evaluation after the HERS Provider has completed its verification of the HERS Rater's work. If any of the homes fail to pass the inspections, then the HERS Provider will be contacted to determine if there is a more widespread issue with quality control in the new home HERS Rater marketplace. The final sample for "drive-by" verification will encompass a range of participants homes constructed under the program at various times throughout the year.

4.6.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.6.5 Program Partners and Trade Allies

Penelec selected Performance Systems Development to manage the New Construction Program. The contract is currently pending PUC approval with program launch anticipated by the 4th Quarter 2010 fiscal year.

4.6.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-6: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$174	\$26,257	\$26,257
B.2	Administration ²	\$0	\$0	\$0
B.3	Management ³	\$12,127	\$16,770	\$16,770
B.4	Marketing ⁴	\$135	\$135	\$135
B.5	Technical Assistance ⁵	\$1,535	\$1,559	\$1,559
B	Subtotal EDC Implementation Costs	\$13,971	\$44,721	\$44,721
C	EDC Evaluation Costs	\$2,871	\$3,246	\$3,246
D	SWE Audit Costs	-\$383	\$8,717	\$8,717
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$16,458	\$56,684	\$56,684
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.7 Residential Whole Building Comprehensive Program

This program provides comprehensive diagnostic assessments followed by direct installation of selected low cost measures plus incentives to households for implementation of measures addressing building shell, appliances and other energy consuming features. Customers can tap into prescriptive rebates as well as the Keystone Home Energy Loan Program.

4.7.1 Program Logic

This program provides comprehensive EE diagnostic assessments followed by direct installation of selected low cost measures plus incentives to households for implementation of associated measures. While final program design is still under development, customers would pay \$100 for the comprehensive audit. Rebates will be based on items installed but limited to \$900. Participating customers will be encouraged to participate in the Keystone Home Energy Loan Program for the balance of project costs as needed.

This is a full service program similar to the EPA's Home Performance with ENERGY STAR program that involves test-in test-out blower door procedures, identification and installation of energy savings opportunities and, at the contractor's discretion, environmental safety measures. It is a combination information and installation program. The same equipment offered to existing residential customers under the other programs are eligible for installation in new homes under this program. However, customers may not take rebates under both programs, but must elect which program to participate in.

4.7.2 Program M&V Methodology

The gross impact analysis for the program has three components:

1. Verify that a sample of participant homes are being appropriately evaluated for program benefits with accurate pre- and post-upgrade diagnostic tests and to verify estimates of savings are performed in accordance with the TRM,
2. Verify the rate of participant homes to install and continue to use the program induced low- and medium-cost upgrades,
3. Determine the savings achieved through the comprehensive residential upgrade program.

Following significant levels of participation in the program (i.e. over approximately 30 participants), additional verification work will be performed. First, the energy savings of the program will be determined through an exploratory billing analysis. For the exploratory billing analysis to occur, monthly billing data will be required for both participants and non-participants.

If the exploratory billing analysis is not possible, the energy impacts will be determined using an engineering analysis. The baseline and as-built performance of each sample participant home will be determined by obtaining the original electronic data file from the energy auditor's simulation software and updating it to match the pre-existing and as-built conditions observed during the on-site data collection and monitoring visit. If necessary, the simulation software can be calibrated to monthly usage data obtained from customer bills.

A combined telephone and field survey of the sample will verify participation rates, if the home is occupied or not, to verify heating fuel type and outside unit air conditioner/heat pump efficiency, and rate of referral to other rebate programs. The energy savings and demand reductions for any energy efficiency components not incorporated into the comprehensive building simulation model and any measures installed through the other residential rebate programs will be determined based upon the methods outlined in those programs.

4.7.3 Program Sampling

The sampling approach for this program is batch-wise stratified random sampling on a quarterly basis. The sample size will be sufficient to determine this program's gross impact with $\pm 10\%$ relative precision at the 90% confidence level. The sample will be stratified according to the auditor. At least three participant homes for each auditor will be selected for on-site data collection, one small, one medium, and one large home energy-savings home. This effort can be considered a follow-up evaluation after the HERS Provider has completed its verification of the HERS Rater's work. If any of the homes fail to pass the inspections, then the HERS Provider will be contacted to determine if there is a more widespread issue with quality control in the new home HERS Rater marketplace. The final sample for telephone verification will encompass a range of participants homes constructed under the program at various times throughout the year. This program did not have implementation in the first program year.

4.7.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.7.5 Program Partners and Trade Allies

Honeywell is Penelec's program CSP who will recruit and develop qualified contractors who will use diagnostic equipment to evaluate and ensure that the home is operating at peak efficiency. Honeywell has subcontracted this program to Performance Systems Development (PSD) to benefit from their established network of BPI contractors and PSD's involvement with the Keystone Home Energy Loan Program (HELP).

4.7.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-7: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$171	\$25,758	\$25,758
B.2	Administration ²	\$38,401	\$52,212	\$52,212
B.3	Management ³	\$11,897	\$16,451	\$16,451
B.4	Marketing ⁴	\$132	\$132	\$132
B.5	Technical Assistance ⁵	\$1,505	\$1,529	\$1,529
B	Subtotal EDC Implementation Costs	\$52,106	\$96,082	\$96,082
C	EDC Evaluation Costs	\$2,301	\$2,669	\$2,669
D	SWE Audit Costs	-\$376	\$8,551	\$8,551
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$54,031	\$107,303	\$107,303
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.8 Residential Multiple Family Program

This program leverages audit services already being provided by the Pennsylvania Housing Finance Agency (PHFA) by marketing the program to property managers and owners who have participated and completed the PHFA audits. By leveraging other resources available through PHFA, the program also target other property managers and owners who have not participated in the PHFA audits. The program also targets tenants in these multifamily buildings by directly providing an energy conservation kit at no cost to tenants. For purposes of this report, and consistent with the Companies' February 5, 2010 EE&C filing, all energy savings and demand reduction results for this program are reported in the Residential sector.

4.8.1 Program Logic

The objective of this program is to capture electric energy savings available in common lighting areas (hallways, exit signs, laundry facilities, exterior lighting, etc.). Building upon the PHFA audit findings, this program provides common area interior and exterior lighting measures for multifamily buildings, plus installation of CFLs and LED Exit Signs in common areas. These retrofit services will be provided by electrical contractors, hired directly by the property owners/managers, as the program is being marketed to these trade allies.

In addition to providing lighting measures for common areas, this program also targets tenant areas. Tenants who pay for utilities as part of their rent in multifamily buildings often have little motivation to save electricity since they do not benefit directly, unless landlords pass on the energy savings through reduced rent. Tenants who pay electricity directly have more motivation since they may experience lower electric bills. Regardless of whether a tenant is master metered or a customer of record, they will be offered a conservation kit consisting of CFLs at no cost to the tenant.

Tenants that qualify as low-income customers receiving energy conservation kits will be estimated and tracked to support assessment of equitable treatment of low-income customers. This estimate will be based on the information provided by the property manager/owner as to what percentage of tenants in a given building qualify as low-income tenants.

4.8.2 Program M&V Methodology

The program effectively has two components: the first targets common areas while the second targets tenant dwellings. The common areas program component has the same list of eligible measures and the same CSP as the general C&I equipment program. Therefore, the impact evaluation of this program component will be subsumed in the C&I equipment evaluation¹⁵. The tenant CFL program component will be treated as a separate program, and will have its own population, sample, and realization rate. The energy savings and demand reductions for the CFLs are deemed in the PA TRM. The gross impact analysis for the energy conservation kits will determine the installation rate for the CFLs through a combination of on-site visits and telephone interviews.

4.8.3 Program Sampling

Sampling procedures to be followed in the present program year are summarized below for each program component.

¹⁵ If this program component has higher than anticipated implementation during the second program year, a separate sample, sufficient in number to achieve 90/10 confidence/precision will be required.

Common Areas Program Component: The program component that targets common areas will be combined with the general C/I equipment program.

Tenants Program Component: The sampling approach for this program is batch-wise stratified random sampling on a quarterly basis. The sample size will be sufficient to determine this program's gross impact with $\pm 10\%$ relative precision at the 90% confidence level. Because substantial variation is expected among the number of units available in participating apartment complexes, the apartment complex will be taken as the sampling unit. A random selection of units will be chosen from each sampled apartment complex such that the realization rate for the particular complex is known with 90/20 confidence/precision.

Neither program component had implementation in the first program year.

4.8.4 Process Evaluation

The contract for the tenant area program component has recently been awarded to Power Direct. The evaluation team has reviewed the scope of work and the program delivery proposal for the tenant area program component. Interviews with key program staff are expected to occur in early October 2010. Following the interviews, the evaluation team will draft a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.8.5 Program Partners and Trade Allies

Penelec has launched the Multifamily Program for Common Areas using SAIC to administer this program. SAIC is responsible for marketing to multifamily buildings property managers/owners by conducting direct contact with these customers, email solicitations and using Penelec account representative leads. SAIC is also marketing this program through trade allies – e.g., electrical contractors – and by targeting different associations of property owners and managers. An RFP is currently being reviewed for a CSP to administer a Multifamily Program for Tenant Areas.

4.8.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-8: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$15	\$2,334	\$2,334
B.2	Administration ²	\$3,072	\$40,363	\$40,363
B.3	Management ³	\$1,078	\$1,491	\$1,491
B.4	Marketing ⁴	\$12	\$12	\$12
B.5	Technical Assistance ⁵	\$136	\$139	\$139
B	Subtotal EDC Implementation Costs	\$4,314	\$44,338	\$44,338
C	EDC Evaluation Costs	\$2,616	\$2,649	\$2,649
D	SWE Audit Costs	-\$34	\$775	\$775
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$6,896	\$47,762	\$47,762
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.9 Residential Low-Income Programs

WARM Extra Measures Program:

This program is an expansion of, and enhancement to the existing comprehensive Low-Income Usage Reduction Program, known as WARM, that will provide additional electric energy savings measures and services to income-eligible customers. Expanded measures include an average of four (4) additional CFLs and smart power strips.

WARM Plus Program:

This program is an expansion of, and enhancement to the existing comprehensive Low-Income Usage Reduction Program, known as WARM, that will provide additional electric energy savings measures and services to income-eligible customers. The WARM Plus program will support a 25 percent increase in the number of income-eligible homes receiving comprehensive treatments for Penelec.

Low-Income, Low-Use Program:

This program is for low-income customers that do not meet the minimum usage qualification of 600 kWh/month to qualify for the WARM program. These customers will receive CFLs and energy education materials.

4.9.1 Program Logic

WARM Extra Measures Program:

This program offers two ways for customers to realize increased electric energy savings. The Act 129 Program opens the door for customers to reduce phantom load from electronics and entertainment equipment in their homes by allowing installation of smart power strips. It also allows for the installation of an average of four (4) CFLs in addition to the WARM / LIURP Program maximum of twelve (12) per home.

Program services would be delivered by existing WARM Community Based Organizations (CBOs) and private contractors, coordinated or augmented by additional private vendors as needed to enhance the capacity of existing agencies and contractors.

The WARM / LIURP program is managed by internal staff with outside agencies and private contractors performing comprehensive whole-house energy audits and direct installation of all cost-effective electricity-saving measures.

WARM Plus Program:

This program provides additional electric energy savings measures and whole-house services to an additional 25 percent of lower income households.

Program services are delivered by existing WARM CBOs and private contractors, coordinated or augmented by additional private vendors as needed to enhance the capacity of existing agencies and contractors.

The program provides whole-house energy conservation services such as those provided by the WARM Program: air sealing, insulation, electric water heat and cooling reduction measures, appliance testing and possible replacement, replacement lighting, smart power strips, energy education, and other cost-effective custom measures. The program will also increase availability of subsidized energy efficiency services to 25 percent more customers. There is no payment required by the customer for the installation of these measures.

Low-Income, Low-Use Program:

Hundreds of applications are received each year from low-income customers who use less electricity than the WARM program usage eligibility threshold of 600 kWh per month. This program will allow Penelec to target this previously unserved group for energy savings by providing them with CFLs and energy education materials.

4.9.2 Program M&V Methodology

WARM Extra Measures Program:

ADM conducted site visits in July and August, 2010, to verify that the Smart Power Strips were installed in accordance with the assumptions used in the ex-ante savings calculation (e.g., the power strips control, on average, 25-30W of quiescent loads), and that the additional CFLs were installed in areas that correspond to hours of usage in the TRM.

WARM Plus Program:

The ex-ante energy savings for the Warm Plus program are based on the impact evaluation of the 2008 WARM program, by job type,¹⁶ which employed a statistical billing analysis.

Low-Income, Low-Use Program:

Customers will receive four CFLs and energy education literature. The gross impact analysis for the energy conservation kits has two components:

1. Determine the installation rate for the CFLs in the conservation kits.
2. Determine the average energy savings and demand reductions for the CFLs in the kits.

The installation rate will be determined through a combination of on-site visits and telephone interviews. The energy savings and demand reductions for the CFLs are stipulated in the PA TRM. The impact evaluation effort will review the tracking data and energy savings calculations to ensure that the energy savings are reported in accordance to the PA TRM.

4.9.3 Program Sampling

WARM Extra Measures Program:

The sampling approach for this program is batch-wise stratified random sampling on a quarterly basis. The sample size will be sufficient to determine gross impact with $\pm 30\%$ relative precision at the 90% confidence level. For the program first program year, a stratified sample of ten sites that participated in the 2010 Extra Measures program were visited in July and August, 2010.

WARM Plus Program:

The sampling approach for this program component is batch-wise simple random sampling on a quarterly basis. The sample size will be approximately eight sites. Nine randomly selected sites were visited in July and August 2010. This field work was conducted mainly to give feedback regarding program implementation to the Companies – the gross energy and demand impacts are determined through billing analysis.

¹⁶ The three job types are as follows: Electric heat jobs are weatherization jobs that direct at least \$250 to reduce space heating energy usage for electrically heated homes; electric water heat jobs direct at least \$25 to reduce water heating energy usage for homes that have electric water heaters, and electric baseload jobs, which may include refrigerator/freezer replacement and lighting retrofits.

Low-Income, Low-Use Program:

The sampling approach for this program component is batch-wise simple random sampling on a quarterly basis. The sample size will be sufficient to determine gross impact with $\pm 30\%$ relative precision at the 90% confidence level. This program was not implemented in the first program year.

4.9.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficiency of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance. The recent field work has also resulted in suggestions that will increase the evaluability of the Warm Extra Measures program. To facilitate future impact evaluations, Penelec has now directed participating contractors to mark all CFLs installed under the Warm Extra Measures program.

4.9.5 Program Partners and Trade Allies

WARM Extra Measures Program:

Program services are delivered by existing Low Income Usage Reduction Program non-profit agencies, private contractors and subcontractors. Three (3) non-profit agencies expanded their production capacity and additional private contractors were hired to increase capacity to meet Penelec's EE&C Plan.

Internal company staff manages the program. Agencies and private contractors perform comprehensive whole house energy audits and direct installation of cost-effective electricity-saving measures.

Following is a list of program partners (Implementation Contractors):

WARM Extra Measures:

- ACTION Housing, Inc. (Quality Assurance Inspectors)
- Bill Busters, Inc.
- Blair County Community Action Program
- Community Action Partnership of Cambria County
- CMC Energy Services
- Center for Community Action
- Central PA Community Action
- Community Action, Inc.
- EIC/Comfort Home Inc.
- Erie County Housing Authority
- Greater Erie Community Action Committee
- Indiana County Community Action Program

Northern Tier Community Action
Northwest PA Weatherization
SEDA – Council of Governments
Solair Energy, Inc.
South Central Community Action Program
Tableland Services
Treatment and Rehabilitation Center
Venango Office of Economic Opportunity
Warren-Forest Counties Economic Opportunity Council
Weatherization, Inc.

WARM Plus Program:

Program services are delivered by existing Low Income Usage Reduction Program non-profit agencies, private contractors and subcontractors. Three (3) non-profit agencies expanded their production capacity and additional private contractors were hired to increase capacity to meet Penelec’s EE&C Plan.

The program is managed internally by Penelec staff with outside agencies and private contractors performing comprehensive whole house energy audits and direct installation of cost-effective electricity-saving measures.

Following is a list of program partners (Implementation Contractors):

WARM Plus:

ACTION Housing, Inc. (Quality Assurance Inspectors)
CMC Energy Services
EIC/Comfort Home, Inc.
Erie County Housing Authority
Solair Energy, Inc.
Tableland Services

Low-Income, Low-Use Program:

There are a large number of WARM applicants who do not meet the minimum usage requirement of 600 kWh per month necessary to benefit from energy savings. In order to meet these customers’ needs, the Low Income Low Use Program will include shipping a kit of four CFLs and an energy education brochure to 20,000 low income customers and will be launched in September, 2010. Internal staff participated in pre-bid meetings with interested vendors. Internal staff also compared vendor samples, reviewed proposals and met with the top three vendors. A contract award was made August 10, 2010.

4.9.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-9: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$224	\$33,722	\$33,722
B.2	Administration ²	\$38,094	\$39,977	\$39,977
B.3	Management ³	\$29,153	\$35,615	\$35,615
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$6,556	\$6,587	\$6,587
B	Subtotal EDC Implementation Costs	\$74,027	\$115,901	\$115,901
C	EDC Evaluation Costs	\$5,138	\$5,621	\$5,621
D	SWE Audit Costs	-\$492	\$11,195	\$11,195
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$78,673	\$132,716	\$132,716
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.10 Commercial / Industrial Small Sector Energy Audit and Technical Assessment Program

In addition to providing information and a list of auditors, this program funds all the CFL installations for this class of customers. Since all lighting is marketed via the Standard and Nonstandard lighting incentives, this program will be combined with the C&I Equipment Program for reporting purposes.

4.10.1 Program Logic

A list of Auditor & Technical Assessment Providers has been posted on the website. The CFLs have been promoted through Penelec's Standard Lighting Incentive Program.

Penelec will support and track participation by governmental customers in a separate program.

4.10.2 Program M&V Methodology

Gross Impact Analysis

For the first program year, the CFLs were marketed and processed in the Standard Lighting Incentive Program. As such, the gross impact of the CFL installations is covered under the impact evaluation of the C/I Equipment Program.

4.10.3 Program Sampling

The impact evaluation sample for this program is subsumed into the sample for the C/I Equipment program. In the second program year, the impact evaluation will classify all C/I programs and measures into two categories – custom and prescriptive. This program will fall under the prescriptive component of the C/I Equipment program.

4.10.4 Process Evaluation

A primary aspect of this program's process evaluation is to determine the relationship between the Audit program and the other energy efficiency programs offered by Penelec. The audits are intended to provide customers with "a customized comprehensive understanding of the opportunities available for saving energy." In theory, this understanding may induce customers to partake in appropriate energy efficiency programs offered by Penelec. Quantitatively, one can track the number of audit participants that also participated in other Penelec energy efficiency programs. Qualitatively, the evaluation effort will attempt to capture whether the appropriate energy savings opportunities are identified and described to the customers. Additionally, the evaluation team will interview the Small C/I audit vendor, the Large C/I audit contractors (trade allies), participant customers and program non-participants to address the following issues:

- Degree to which the trade ally is integrated into professional organizations;
- How the trade ally heard about the program;
- Concerns the trade ally might have had about the program;
- Motivation for participating in the program;
- Technologies and practices used by the trade ally prior to hearing about or using the program;
- Extent to which the trade ally recommends the technologies and practices to other customers;
- Extent of uptake of technologies and practices by nonparticipating customers;
- Degree to which participants promote the program with customers;
- How the trade ally "sells" the program;
- Factors that make it difficult to sell or implement the program;
- Customer reactions to the technologies and practices, and to the program;
- Effectiveness of program promotional activities and program operations;
- Quality of interactions with the implementation contractor;
- Extent to which the trade ally has talked to other trade allies about the program; and
- Recommendations for program improvement

Evaluating the Procedures for Administering and Managing the Program

In addition to the above interviews, evaluation team members will conduct interviews with internal staff to assess program implementation and processes including but not limited to the following issues:

- Program goals and objectives;

- Development and structure of the program;
- Program activities, their outputs, and their expected outcomes;
- Internal processes and communications;
- Marketing, communication, and outreach activities;
- Step-by-step description of customer participation for each program track;
- Roles of staff members and adequacy of resources;
- Relation to other programs;
- Customer awareness of and satisfaction with program services;
- Reasons for lack of program participation;
- Data collection and tracking practices;
- Processing of projects and payments;
- Quality control and quality assurance; and
- Effectiveness of the program design, including strengths and weaknesses.

Information from the above interviews will be used to construct a “logic model” for the program. Developing a logic model for the program will help to identify gaps in the program, to develop measures for assessing progress, to identify critical issues that need attention, and to communicate with stakeholders about the program and their outcomes.

4.10.5 Program Partners and Trade Allies

SAIC was contracted to administer this program and has sent out a request for qualifications (RFQ) to gather interested energy auditors for all nonresidential sectors. This list has been provided to commercial and industrial customers. In addition, an application form has been posted on Penelec’s website. Customers will contract with these vendors directly and it is the expectation that audits will generate additional applications to other programs. SAIC will track original audit activities that culminate into equipment installations.

4.10.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-10: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$18	\$2,749	\$2,749
B.2	Administration ²	-\$11,697	\$64,400	\$64,400
B.3	Management ³	\$847	\$1,333	\$1,333
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$161	\$163	\$163
B	Subtotal EDC Implementation Costs	-\$10,671	\$68,646	\$68,646
C	EDC Evaluation Costs	\$2,122	\$2,162	\$2,162
D	SWE Audit Costs	-\$40	\$913	\$913
E	Participant Costs	\$0	\$0	\$0
	Total Costs	-\$8,589	\$71,720	\$71,720
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.11 Commercial / Industrial Small Sector Equipment Program

This program provides for the implementation of cost effective, high efficiency measures through the Standard Lighting, Nonstandard Lighting, Heating Ventilating and Air-conditioning, Motors & Drives, Specialty Equipment and Custom incentive programs.

4.11.1 Program Logic

The program is designed to reduce the first cost of high efficiency equipment thereby encouraging the adoption of this equipment in lieu of standard at the end of the useful life measures, or as early replacement. The savings and budget from the Energy Audit and Technical Assessment Program will be combined with this program for reporting purposes.

Incentives are provided to offset a portion of the incremental technology costs (“capital costs”) of high efficiency units as well as technical support when needed. Penelec currently supports measures targeting existing buildings with packaged commercial HVAC systems for small commercial and industrial customers. Tenants in rental properties will be eligible with appropriate approvals from the property owner.

Incentives will be set at a schedule of payments per unit to address the incremental cost of commercially available energy efficient technology for each equipment category, when compared to the commonly available replacement.

Custom measures will be rebated based upon an analysis of potential energy savings on a case by case basis.

4.11.2 Program M&V Methodology

This program implements both custom measures and prescriptive measures. The impact evaluation categorizes all measures rebated under the C/I, and Governmental/Non-Profit programs as either custom or prescriptive. As a first step, then, the measures rebated under this program are combined with either the custom or prescriptive populations of measures. The M&V methodologies for each population are briefly described below.

Custom Measures

Custom measures are evaluated according to the custom measures protocol specified in the PA Statewide Evaluator’s Audit Plan. A custom measure protocol is created for each new custom measure. The protocol, once reviewed and accepted by the Statewide Evaluator, will be used to determine both ex-ante and ex-post savings¹⁷. In most cases, a site visit will be required to gather data, either by inspection or monitoring, to inform the calculations in the custom measure protocol.

Prescriptive Measures

Prescriptive measures for the C/I sector are typically partially deemed according to protocols in the PA TRM. The impact evaluation activities for such measures involve on-site inspections to verify that the measures are installed and commercially operable, and that the associated energy savings and demand reductions are calculated appropriately according to the relevant protocol in the PA TRM.

¹⁷ The impact evaluation team may determine savings that differ from the ex-ante calculations - even while using the same protocol – if the on-site data collected for impact evaluation purposes is inconsistent with the assumptions and corresponding values of parameters used in the *ex-ante* energy savings estimation.

4.11.3 Program Sampling

The sampling approach for this program is batch-wise stratified sampling. Batch-wise samples were drawn on a bi-weekly basis for the first program year given the compressed time frame in which the program was evaluated. This resulted in three batches for this program year from which stratified random samples were drawn. Batches for future program years will be updated quarterly. The number of sample sites will be sufficient to achieve $\pm 10\%$ relative precision at the 90% confidence level separately for the prescriptive and the custom samples¹⁸.

4.11.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.11.5 Program Partners and Trade Allies

SAIC is the CSP that administers this program and has conducted face to face presentations, email solicitations using Penelec account representative leads. The program marketing strategy will utilize end-use technology such as lighting and HVAC rather than just C&I Equipment. Using electronic tools (e.g., website, email-distributions, trade shows and case studies) SAIC has and will continue to market directly to customers. In addition, there has been a special emphasis on trade and professional organizations using event sponsorship, membership and speaking opportunities.

¹⁸ In the first program year, a census of custom, non-lighting projects was evaluated. In future years, the impact evaluation team will attempt to evaluate the census of custom (non-lighting) projects, unless evaluation protocols that employ sampling of custom sites are agreed upon by all stakeholders.

4.11.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-11: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$112,550	\$112,550	\$112,550
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$112,550	\$112,550	\$112,550
B.1	Design & Development ¹	\$395	\$59,557	\$59,557
B.2	Administration ²	\$73,750	\$114,175	\$114,175
B.3	Management ³	\$18,350	\$28,881	\$28,881
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$3,481	\$3,536	\$3,536
B	Subtotal EDC Implementation Costs	\$95,976	\$206,149	\$206,149
C	EDC Evaluation Costs	\$8,938	\$9,790	\$9,790
D	SWE Audit Costs	-\$869	\$19,772	\$19,772
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$216,595	\$348,261	\$348,261
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.12 Commercial / Industrial Large Sector Demand Response Program – CSP Mandatory and Voluntary Curtailment Program

For Commercial and Industrial, as well as government sector customers, Penelec will solicit registration for curtailment service providers (“DR-CSPs”) registering load in PJM programs. The Companies are developing RFPs supporting a mandatory program offering firm pricing for commitments for peak load reductions in at least 50 peak load hours, and a voluntary program offering supplemental payment for

economic market transactions during the top 100 hours for expected release in the fourth quarter of 2010.

4.12.1 Program Logic

The Companies will enter into an agreement with qualified DR-CSPs selected on a first come first serve basis up to the contracted MW of peak load reductions for annual performance periods. Annual performance periods will address the 2011/12, and 2012/13 PJM planning years.

Estimated MW required from this program to meet Act 129 minimum requirements will depend on the MW achieved through energy efficiency (EE) programs. Actual MW registered for the summer of 2012 will be subject to adjustment (up or down) based on actual EE program performance through 2011, as well as experience under this program in the first two years.

4.12.2 Program M&V Methodology

Following the selection of load control technologies, the Companies will verify that demand reduction targets are being achieved consistent with PJM Economic Program protocols in effect during the summer of 2012. A "realization rate" will be developed based on PJM's DR program transaction review and compliance with the accepted CBL protocols. That realization rate will be used to assess the Companies' DR program impacts for Act 129 compliance during the top 100 hours. Details of how the realization rate will be calculated will be determined through evaluation technical working groups, with the participation of the EDCs, the EDC evaluators, and the PA Statewide Evaluator.

4.12.3 Program Sampling

A stratified random sample will be constructed for the program. The number of sample sites will be sufficient to quantify the demand reduction with $\pm 10\%$ relative precision at the 90% confidence level. If the population size is sufficiently small, the census of participants will be evaluated.

4.12.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?

Participant surveys and non-participant surveys will help to assess the efficiency of the program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.12.5 Program Partners and Trade Allies

Penelec plans to issue an RFP to curtailment providers sometime during the fourth quarter of fiscal year 2010.

4.12.6 Program Finances

This program is not active yet.

4.13 Commercial / Industrial Large Sector Performance Contracting/Equipment Program

Large commercial and industrial (and other non-residential) customers may elect to secure DSM/EE services through an Energy Services Company (ESCO) that will identify opportunities, implement retrofits and attain payment through the savings generated by the project over time

4.13.1 Program Logic

This program is designed to reduce the first cost of high efficiency equipment thereby encouraging the adoption of this equipment in lieu of standard at the end of the useful life measures, or as early replacement. The program may be delivered through qualified ESCO contractors. The same incentive programs available to Small Sector customers, the Standard Lighting, Nonstandard Lighting, Heating Ventilating and Air-conditioning, Motors & Drives, Specialty Equipment and Custom, apply to this sector. Incentives can be provided to the ESCO or to the customer as directed by the customer.

4.13.2 Program M&V Methodology

This program implements both custom measures and prescriptive measures. The impact evaluation categorizes all measures rebated under the C/I, and Governmental/Non-Profit programs as either custom or prescriptive. As a first step, then, the measures rebated under this program are combined with either the custom or prescriptive populations of measures. The M&V methodologies for each population are briefly described below.

Custom Measures

Custom measures are evaluated according to the custom measures protocol specified in the PA Statewide Evaluator's Audit Plan. A custom measure protocol is created for each new custom measure. The protocol, once reviewed and accepted by the Statewide Evaluator, will be used to determine both ex-ante and ex-post savings¹⁹. In most cases, a site visit will be required to gather data, either by inspection or monitoring, to inform the calculations in the custom measure protocol.

Prescriptive Measures

Prescriptive measures for the C/I sector are typically partially deemed according to protocols in the PA TRM. The impact evaluation activities for such measures involve on-site inspections to verify that the measures are installed and commercially operable, and that the associated energy savings and demand reductions are calculated appropriately according to the relevant protocol in the PA TRM.

¹⁹ The impact evaluation team may determine savings that differ from the ex-ante calculations - even while using the same protocol - if the on-site data collected for impact evaluation purposes is inconsistent with the assumptions and corresponding values of parameters used in the *ex-ante* energy savings estimation.

4.13.3 Program Sampling

The sampling approach for this program is batch-wise stratified sampling. Batch-wise samples were drawn on a bi-weekly basis for the first program year given the compressed time frame in which the program was evaluated. This resulted in three batches for this program year from which stratified random samples were drawn. Batches for future program years will be updated quarterly. The number of sample sites will be sufficient to achieve $\pm 10\%$ relative precision at the 90% confidence level separately for the prescriptive and the custom samples²⁰. The performance contracting program did not have any implementation in the first program year.

4.13.4 Program Sampling

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.13.5 Program Partners and Trade Allies

SAIC is the CSP who is administering this program and is responsible for marketing by conducting face to face presentations, email solicitations and using Penelec account representative leads. The program marketing strategy will utilize end-use technology such as lighting and HVAC rather than just C&I Equipment. Using electronic tools (e.g., website, email-distribution, trade shows and case studies) SAIC has marketed directly to customers and their performance contractors. In addition, there has been a special emphasis on trade and professional organizations using event sponsorship, membership and speaking opportunities.

²⁰ In the first program year, a census of custom, non-lighting projects was evaluated. In future years, the impact evaluation team will attempt to evaluate the census of custom (non-lighting) projects, unless evaluation protocols that employ sampling of custom sites are agreed upon by all stakeholders.

4.13.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-13: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$125,986	\$125,986	\$125,986
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$125,986	\$125,986	\$125,986
B.1	Design & Development ¹	\$235	\$35,367	\$35,367
B.2	Administration ²	\$91,615	\$152,218	\$152,218
B.3	Management ³	\$17,756	\$24,009	\$24,009
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$2,067	\$2,100	\$2,100
B	Subtotal EDC Implementation Costs	\$111,673	\$213,694	\$213,694
C	EDC Evaluation Costs	\$19,187	\$19,692	\$19,692
D	SWE Audit Costs	-\$516	\$11,741	\$11,741
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$256,329	\$371,113	\$371,113
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.14 Commercial / Industrial Large Sector Industrial Motors and Variable Speed Drives Program

This program is designed to encourage Penelec's commercial and industrial customers to:

1. Upgrade their existing motors to NEMA Premium® motors when switching out old motors due to breakdowns and or programmed replacements

2. Install variable speed drives on motors that do not always operate at the same speed.

The variable speed drive program is designed for commercial and industrial energy customers whose motors are utilized for increased operating hours and have a higher variability of loads on the system (centrifugal pumps and fans) or the application of use includes mechanical throttling (valves, dampers, etc). Applications with low variability of loads such as vibrating conveyors, punch presses, rock crushers, machine tools and other applications where the motor runs at constant speed are not good candidates for a variable-speed drive.

4.14.1 Program Logic

This program seeks to provide an incentive for Penelec's customers to recognize that energy savings and costs are possible when motors are upgraded to NEMA Premium[®] motors. The relatively low cost of electrical energy may have resulted in many customers not focusing on or considering upgrading their motors. The incentives offered by Penelec are provided to help initiate momentum among its customers.

Incentives will be available to customers and through motors distributors as a rebate per unit replaced on a first come first serve basis and will be limited to Penelec's motor upgrade budget.

1. To qualify for an incentive, the motor(s) must operate a minimum of 3,000 hrs/yr
2. The motor upgrade program's individual incentives per motor start at \$20 for a 1HP.
3. The variable-speed drive incentive is \$30 per horsepower of the motor being used.

The program is being administered by SAIC.

4.14.2 Program M&V Methodology

The Motors and Variable Speed Drives Program is evaluated separately from all other C/I programs. This is done in part because the impact evaluation team expects to include all or most of the projects in the M&V sample. This program implements both custom measures and prescriptive measures. The M&V methodologies for each type of measure are briefly described below.

Custom Measures

Custom measures are evaluated according to the custom measures protocol specified in the PA Statewide Evaluator's Audit Plan. The PA statewide evaluator has created a custom measure protocol for motors and drives in non-HVAC applications. The protocol will be used to determine both ex-ante and ex-post savings. In most cases, pre-installation and post-installation monitoring will be required to inform the calculations in the custom motors and drives protocol. Only one rebate, for a custom VFD, was included in the first program year. There was not an opportunity to conduct pre-installation monitoring for this site, so the savings were evaluated based on post-installation monitored data, with the pre-installation energy usage inferred from the post-installation load profile.

Prescriptive Measures

Prescriptive measures for the motors and drives program are partially deemed according to protocols in the PA TRM. Most of the prescriptive measures are expected to target HVAC loop pumps and fans. The impact evaluation activities for such measures involve on-site inspections to verify that the measures

are installed and commercially operable, and that the associated energy savings and demand reductions are calculated appropriately according to the relevant protocol in the PA TRM.

4.14.3 Program Sampling

There was no sampling required for the first program year. For the current program year, there will be sampling for the prescriptive measures. The impact evaluation team will also work with the PA Statewide Evaluator to form an appropriate sampling protocol for certain projects that are not necessarily prescriptive, but have relatively small energy savings. The sampling scheme will be adequate to report overall verified savings with $\pm 10\%$ relative precision at the 90% confidence level.

4.14.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.14.5 Program Partners and Trade Allies

SAIC was contracted to administer this program and is responsible for marketing by conducting face to face presentations, email solicitations and using Penelec account representative leads. This program will be marketed to both commercial and industrial customers using tools such as a website, email-based distribution lists, trade shows and case studies. In addition, there will be special promotions to motor equipment suppliers.

4.14.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-14: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$60	\$9,004	\$9,004
B.2	Administration ²	\$29,480	\$93,159	\$93,159
B.3	Management ³	\$4,416	\$6,008	\$6,008
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$526	\$535	\$535
B	Subtotal EDC Implementation Costs	\$34,482	\$108,706	\$108,706
C	EDC Evaluation Costs	\$13,158	\$13,287	\$13,287
D	SWE Audit Costs	-\$131	\$2,989	\$2,989
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$47,509	\$124,982	\$124,982
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.15 Governmental / Non-Profit Street Lighting Program

The Street Lighting Program is offered to municipalities regardless of ownership of the street lights. This segment of the Government program will seek to convert street lights to high pressure sodium. In addition to street lights conversion, this program also provides an option to municipalities to upgrade traffic and pedestrian signals to LEDs.

4.15.1 Program Logic

This program provides incentives to offset the incremental technology costs (“capital costs”) for energy efficient retrofit projects.

4.15.2 Program M&V Methodology

The energy savings and demand reductions attributable to LED traffic and pedestrian signals are deemed in the PA TRM. Currently, Municipal Street Lighting Upgrades are not included in the TRM. However, it is likely that a deemed hours of operation for municipal lighting will be approved by the SWE and PA PUC. In this context, a deemed savings approach to impact evaluation is appropriate. The energy savings will be the product of the wattage reduction from the old Mercury Vapor lamps to the new High Pressure Sodium lamps, and the annual hours of operation. The impact evaluation of these measures will involve verification of installation and operation, coupled with verification that energy savings calculations are performed in accordance with the appropriate protocols in the PA TRM. Large projects will also be subject to on-site baseline verification.

4.15.3 Program Sampling

The sampling approach for this program is batch-wise stratified sampling, updated on a quarterly basis. The stratification is based on the total ex-ante kWh savings with municipal retrofit projects as sampling units. The number of sampled sites will be sufficient to quantify the energy savings and demand reduction with $\pm 10\%$ relative precision at the 90% confidence level.

4.15.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- Is the marketing plan likely to reach the targeted customers?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.15.5 Program Partners and Trade Allies

More than 98% of streetlights that must be changed under this program are Penelec owned. Penelec plans to use internal resources or a combination of internal resources and external contractors to accomplish the conversion. Information pertaining to this program will be delivered to customers who own streetlights by contracted CSPs and Penelec area managers or customer service representatives. Similarly, municipalities will receive information about the traffic and pedestrian signals change out

options through the contracted CSP and Penelec area managers. Also, the contracted CSP is marketing this program to electrical contractors and lighting distributors.

4.15.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-15: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$94	\$14,132	\$14,132
B.2	Administration ²	\$18,618	\$25,624	\$25,624
B.3	Management ³	\$9,583	\$12,081	\$12,081
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$826	\$839	\$839
B	Subtotal EDC Implementation Costs	\$29,120	\$52,677	\$52,677
C	EDC Evaluation Costs	\$5,643	\$5,845	\$5,845
D	SWE Audit Costs	-\$206	\$4,692	\$4,692
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$34,557	\$63,214	\$63,214
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes				
:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.16 Governmental / Non-Profit Program

This program targets a small sector of customers on special non-profit rates. They include volunteer fire companies, ambulance associations, some schools and municipal customers. This sector is eligible for all the incentive programs the Small or Large C&I Sector is eligible for, including the Standard Lighting, Nonstandard Lighting, Heating Ventilating and Air-conditioning, Motors & Drives, Specialty Equipment and Custom.

4.16.1 Program Logic

This program provides incentives to offset the incremental technology costs (“capital costs”) for energy efficient retrofit projects.

4.16.2 Program M&V Methodology

This program offers the same set of measures as the general C/I program and is administered by the same conservation service provider, SAIC, and managed by internal staff that also manage the C/I program. As such, the impact evaluation effort for this program is combined with the impact evaluation effort for the C/I Equipment program.

4.16.3 Program Sampling

The impact evaluation sample for this program is subsumed into the sample for the C/I Equipment program.

4.16.4 Process Evaluation

The evaluation team has conducted the first set of program staff interviews in May and June, 2010. Following the interviews, the evaluation team has drafted a process evaluation plan and a program logic model which will serve as a visual representation for the program processes (subject to periodic review and update). Additional interviews with program staff will seek information on researchable issues such as:

- Are IT processes in place and effective?
- Are program roles, hierarchies, and contracts clearly stated?
- How is the marketing plan specifically targeting the decision makers in this sector?

Participant surveys and non-participant surveys will help to assess the efficacy of the marketing program, to characterize the customer experience, and to identify any barriers to customer participation. In addition to interviews, a literature review will help to determine if the program goals were set appropriately. With many aspects of the program being identical to the general C/I Equipment program, the evaluation team recognizes that the outreach to the government and non-profit sectors is this program’s key characteristic. The process evaluation will focus on this program’s outreach and marketing effort, since many of the other issues, such as IT system processes, will be addressed in the process evaluations of the C/I Equipment program. The process evaluation will identify specific best practices that may help Penelec to improve program performance.

4.16.5 Program Partners and Trade Allies

SAIC is administering this program and is responsible for marketing by conducting face to face presentations, email solicitations and using Penelec personnel. This program has been marketed primarily to County and local government, nonprofit and institutional customers. SAIC has marketed

directly to customers using tools such as the website, email-based distribution lists, trade shows and case studies.

4.16.6 Program Finances

A summary of the project finances are presented in the following table.

Table 4-16: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$12,797	\$12,797	\$12,797
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$12,797	\$12,797	\$12,797
B.1	Design & Development ¹	\$8	\$1,226	\$1,226
B.2	Administration ²	\$6,975	\$18,637	\$18,637
B.3	Management ³	\$347	\$564	\$564
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$72	\$73	\$73
B	Subtotal EDC Implementation Costs	\$7,402	\$20,500	\$20,500
C	EDC Evaluation Costs	\$700	\$717	\$717
D	SWE Audit Costs	-\$18	\$407	\$407
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$20,881	\$34,421	\$34,421
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes				
:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

4.17 Governmental / Remaining Non-Profit Programs

The Federal Facilities Program supports identifying energy savings opportunities to expedite the Federal Government agencies taking action.

Governmental Buildings and Schools Program will help better identify energy savings opportunities and expedite their implementation. The CSP would provide diagnostic assistance, technical support and rebates incentives necessary for school districts to install high-efficiency measures.

County and Local Buildings including schools will be provided energy audits free of charge up to \$2,000 as a way to increase the proportional share of saving received from governmental customers.

4.17.1 Program Logic

The program provides for the implementation of cost effective, high efficiency measures through a CSP for local and state government buildings, as well as for institutional customers. With the exception of the Federal Program, this sector is eligible for the same incentives as the Small C&I sector (the Standard Lighting, Nonstandard Lighting, Heating Ventilating and Air-conditioning, Motors & Drives, Specialty Equipment and Custom).

Participation by low-income customers will be tracked or estimated to support assessment of equitable treatment of low-income customers. Estimates of low-income participation by zip code and census will be included in Penelec's annual report to the PUC.

4.17.2 Program M&V Methodology

This program offers the same set of measures as the general C/I program and is administered by the same conservation service provider, SAIC, and managed by internal staff that also manage the C/I program. As such, the impact evaluation effort for this program is combined with the impact evaluation effort for the C/I Equipment program.

4.17.3 Program Sampling

The impact evaluation sample for this program is subsumed into the sample for the C/I Equipment program.

4.17.4 Process Evaluation

As with the process evaluation for the Governmental /Non-Profit Program, the evaluation team has conducted initial interviews with program staff in May and June 2010. The initial interviews have resulted in a logic model and process evaluation work plan. Additional interviews, particularly with program participants and non-participants will help to identify the efficacy of the marketing and outreach campaign, and the needs and constraints of the target market.

4.17.5 Program Partners and Trade Allies

SAIC was contracted to administer this program and is responsible for marketing by conducting face to face presentations, email solicitations and using Penelec Governmental Affairs representative leads. This program has been marketed primarily to County and local government, nonprofit and institutional customers. SAIC will continue to market directly to customers using tools such as the website, email-distribution, trade shows and case studies.

4.17.6 Program Finances

A summary of the project finances are presented in the following table:

Table 4-17: Summary of Program Finances:

		IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$0	\$0	\$0
A.2	EDC Incentives to Trade Allies	\$0	\$0	\$0
A	Subtotal EDC Incentive Costs	\$0	\$0	\$0
B.1	Design & Development ¹	\$74	\$11,189	\$11,189
B.2	Administration ²	\$20,957	\$34,947	\$34,947
B.3	Management ³	\$3,171	\$5,149	\$5,149
B.4	Marketing ⁴	\$0	\$0	\$0
B.5	Technical Assistance ⁵	\$654	\$664	\$664
B	Subtotal EDC Implementation Costs	\$24,857	\$51,949	\$51,949
C	EDC Evaluation Costs	\$2,649	\$2,809	\$2,809
D	SWE Audit Costs	-\$163	\$3,714	\$3,714
E	Participant Costs	\$0	\$0	\$0
	Total Costs	\$27,342	\$58,472	\$58,472
F	Annualized Avoided Supply Costs	\$0	\$0	\$0
G	Lifetime Avoided Supply Costs	\$0	\$0	\$0
	Total Lifetime Economic Benefits	\$0	\$0	\$0
	Portfolio Benefit-to-Cost Ratio	0.00	0.00	0.00
Notes:	¹ Includes cost of EE Expert			
	² Costs paid to Conservation Service Providers (CSPs) for program implementation. To define in the TRC Technical Working Group.			
	³ Costs incurred to manage the CSPs and programs. To define in the TRC Technical Working Group.			
	⁴ Includes umbrella marketing costs for programs. Marketing completed by the CSPs are included in Administration.			
	⁵ Includes costs for Tracking and Reporting System			

5 Program Implementation Timeline

Consistent with the PUC's Opinions and Orders in Docket Nos. M-2009-2092222, M-2009-2112952 and M-2009-2112956, the Companies launched several programs and are currently in the process of launching the Companies' EE&C Plan's remaining programs through a combination of in-house utility staff and competitively selected Conservation Service Providers (CSP). Penelec's current timeline for program implementation is listed in the following table:

Table 5-1: Program Implementation Timeline:

Sector	Program Name	Proposed Launch Date ¹	Actual Launch Date ²
A. RESIDENTIAL SECTOR			
Residential	Direct Load Control	4Q 2010	
Residential	Home Energy Audits	May-10	May-10
Residential	Appliance Turn-In	Mar-10	Mar-10
Residential	HVAC & Solar Water Heat	Apr-10	Apr-10
Residential	EE Products Program	Mar-10	Apr-10
Residential	New Construction	Jun-10	
Residential	Whole Building	Jun-10	Jun-10
Residential	Multi-Family Tenants	Apr-10	Jun-10
B. LOW-INCOME RESIDENTIAL SECTOR			
Low-Income	Warm Programs - Warm Plus	Feb-10	Apr-10
Low-Income	Warm Programs - Warm Extra Measures	Nov-09	Nov-09
Low-Income	Warm Programs - Low Income Low Use	Sep-10	
C. SMALL C&I SECTOR			
Small C&I	Energy Audit, Assessment and Equipment Rebate	Feb-10	Feb-10
D. LARGE C&I SECTOR			
Large C&I	C/I Equipment Rebates - Performance Contracting	Apr-10	Jun-10
Large C&I	Industrial Motors and Variable Speed Drives	Apr-10	Apr-10
Large C&I	C/I PJM Demand Response	4Q 2010	
E. GOVERNMENT & NON-PROFIT SECTOR			
Gov't & Non-Profit	Non-Profit	Apr-10	Feb-10
Gov't & Non-Profit	Street Lighting	Apr-10	Apr-10
Gov't & Non-Profit	Remaining Government/Non-Profit	Apr-10	Jun-10

¹Launch Date as anticipated by Penelec at the time of PUC's 2/25/10 Order approving Penelec's EE&C Plan

²Eligibility requirements are defined in program material documentation and may not correspond to listed dates.