

# **Annual Report to the Pennsylvania Public Utility Commission**

**For the period  
December 2009 to May 2010  
Program Year 2009**

For Act 129 of 2008  
Energy Efficiency and Conservation Program

Prepared by Duquesne Light 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

## 1 Overview of Portfolio

Act 129, signed October 15<sup>th</sup>, 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 Duquesne Light through the end of Program Year 2009.

### Compliance goal progress as of the end of the reporting period<sup>1</sup>:

#### Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 26,217 MWh.
- The CPITD verified energy savings is 3,642 MWh.
- Achieved 19% of the 140,885 MWh May 31<sup>st</sup>, 2011 energy savings compliance target.
- Achieved 6% of the 422,565 MWh May 31<sup>st</sup>, 2013 energy savings compliance target.

#### Portfolio Demand Reduction<sup>2</sup>

- The CPITD reported gross demand reduction is 1.13 MW.
- The CPITD verified demand reduction is 0.16 MW.
- Achieved 1% of the 113 MW May 31<sup>st</sup>, 2013 demand reduction compliance target.

#### Low Income Sector

- There are 7 measures offered to the Low-Income Sector, comprising 11.5% of the total measures offered.
- The CPITD reported gross energy savings for low-income sector programs is 508 MWh.
- The CPITD verified energy savings for low-income sector programs is 510 MWh.  
*(All low-income measures reported have deemed savings specified in the TRM adopted concurrent or after implementation requiring adjustment using a Deemed Savings Adjustment factor (DSA) that increased recorded savings from 508 MWh to 510 MWh.)*

#### Government and Non-Profit Sector

- The CPITD reported gross energy savings for government and non-profit sector programs is 6,000 MWh.
- The CPITD verified energy savings for government and non-profit sector programs is -0- MWh.
- Achieved 14% of the 42,257 MWh May 31<sup>st</sup>, 2013 energy savings compliance target.

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

- The PYTD reported gross energy savings is 4,176 MWh.
- The PYTD verified energy savings is 3,642 MWh.
- The PYTD reported gross demand reduction is 1.13 MW.
- The PYTD verified demand reduction is 0.16 MW.
- The PYTD reported participation is 9,199 participants.<sup>3</sup>

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<sup>1</sup> 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.

<sup>2</sup> Demand reduction to include both the demand savings from the installation of energy efficiency measures and the demand reduction associated with demand response programs.

Duquesne Light filed its EE&C Plan on July 1, 2009 and received Commission conditional approval on October 22, 2009. Many programs were launched on or about December 1, 2009. Duquesne Light's PY 2009 EE&C program accomplishments were limited during this initial program year period of 6-month but significant ramp-up activities occurred.

Business process teams were initiated soon after filing to begin the preliminary analyses for implementation of the EE&C plan. This was accomplished by reviewing existing processes and development of new processes to facilitate the full integration of the existing work flows with the new flows necessary to meet the Act 129 goals. A series of Request for Proposals (RFPs) were developed and released to the designated list of Conservation Service Providers on the PA PUC website in four separate flights. Evaluations occurred, interviews were held, references checked and finally contracts were signed. The signed contracts followed the approved regulatory format and were forwarded to the PA PUC for approval. Official notices to proceed were received in all cases.

Training was given to the contracted CSPs for the Large Office and Primary Metals segments, the Small Office and Retail segments and the Mixed Industrial and Chemical segments on December 7, 2009 covering the overall EE&C program which had been branded as Watt Choices, the Watt Choices Website, the approved surcharge values for each customer class along with preliminary information on Program Management and Reporting System.

#### **Program Evaluation Measurement and Verification (EM&V)**

The following information was provided to the independent EDC program evaluator and incorporated into the EM&V Plan:

1. Full program descriptions, including operational and/or procedures manuals and activities descriptions and description of program service territory
2. Detailed descriptions of the Program Management and Reporting System (PMRS) tracking system and tracking system operations
3. A detailed description or map of how data in the tracking system rolls up to the quarterly PA PUC report
4. Program management and staff names, titles, work locations, phone numbers, fax numbers, and e-mail addresses
5. Program savings objectives
6. A program theory and logic model for each program. Program theory characterizes the relevant market(s) and how program activities are expected to change the behavior of the relevant participants in the market(s) to increase the adoption of energy efficient technologies and practices. The characterization of the market will include a description of the remaining technical energy and demand potential and the proportion of that potential that the program is expected to achieve at the conclusion of the current funding cycle
7. Name of firms participating in the delivery of the program or program component(s) (e.g., vendors, installers, specifiers, etc.)

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<sup>3</sup> For reporting participants, please report CFL participants separately from other program participant numbers.

For savings impact evaluation purposes, on June 22, 2010 an evaluation dataset was downloaded directly from PMRS that contained record of 9,180 customer actions taken to implement energy efficiency measures termed “projects” completed by Duquesne Light’s EE&C Programs from initiation through May 31, 2010 (PY 2009).<sup>4</sup> Data supporting verification of program results for PY 2009 were recorded within the six month reporting period ending May 2010. The PY 2009 verification dataset results are shown in the following table:

Program	Participants	MWh	MW
Residential: EE Rebate Program	2,861	723.2	0.0421
Residential: School Energy Pledge Program	4,750	1,898.6	0.7143
Residential: Refrigerator Recycling Program	252	452.7	0.0621
Residential: Low Income Energy Efficiency Program	1,296	507.9	0.1481
Commercial Sector Umbrella Program (1)	19	7.0	0.0014
Commercial Sector Retail Program	2	31.7	0.0061
<b>Total</b>	<b>9,180</b>	<b>3,621.2</b>	<b>0.9741</b>

(1) Project activity was 19 energy efficiency kits installed in residential dwellings served by commercial master-metered accounts

The 9,180 projects include 8,326 (91%) energy efficiency kits containing residential measures (CFLs, night lights and furnace whistles) that the utility provided free of charge to program participants. The remaining 854 projects included 852 residential measures, and two commercial lighting projects. Because 9,178 projects out of 9,180 projects reviewed (99.98%) involved implementing residential measures in residential dwellings, PY 2009 verification addressed only PY 2009 savings impacts of the residential programs described below.

Program performance and evaluation findings will be discussed in detail in sections that follow PY 2009 program verified savings impacts, project qualification and customer participation were very high (97-100%) resulting in the following realization rates and verified program savings reflected below:

	REEP	SEP	RRRP	LIEEP	Total
DSA kWh Savings	766,512	1,913,405	452,736	509,684	3,642,337
DSA kW Savings	25.5	62.2	62.1	18.9	168.7
Net kWh Savings	744,612	1,858,736	439,801	509,684	3,552,832
Net kW Savings	24.8	60.4	60.3	18.9	164.4
kWh Realization Rates	97.1%	97.1%	97.1%	100.0%	97.5%
kW Realization Rates	97.1%	97.1%	97.1%	100.0%	97.5%

REEP – Residential Energy Efficiency Rebate Program

<sup>4</sup> Monthly data transfers to the SWE reflect 9,191 projects due to inclusion of 11 back-dated projects resulting from a data entry back-log associated with program ramp-up. Verification activities such as survey design, data requests, customer interviews, hard-copy review and quantitative analysis require a snap-shot of tracking system data. Verification was not performed on the back-dated projects but strictly adhered to the content of the verification dataset provided on June 22, 2010. The additional back-dated program activity will be addressed in PY 2010 verification activities. Duquesne Light EM&V Report for PY 2009 EE&C Programs is provided as Attachment A.

SEP – Residential: School Energy Pledge Program  
RRRP – Residential: Refrigerator Recycling Program  
LIEEP – Low Income Energy Efficiency Program

**Program Changes Planned for 2010:**

**First proposed change:**

1. Residential: Refrigerator Recycling Program (RRRP):

The RRRP is patterned after exemplary appliance recycling programs<sup>5</sup> to encourage residential customers in Duquesne Light's service territory to turn in their older operating refrigerators to be recycled. Removing an older, operating refrigerator can result in an energy savings of more than 1,728 kWh and reduce 0.24 peak kW.<sup>6</sup> To encourage participation in this program, this program provides a \$35 check for the removal of the old refrigerator. The program is implemented by JACO Environmental that operates similar programs across the country and for other Pennsylvania EDCs.

Based on recommendations by JACO Environmental and requests from Duquesne's customers, Duquesne Light is requesting to expand the program by adding "Freezers" to the program offer. The PA TRM documents the identical deemed savings for freezers under Section 4.5 "Refrigerator/Freezer Retirement" as for refrigerators. Similarly, recycling costs are identical. Duquesne Light proposes to change the title of the program to the Residential: Refrigerator/Freezer Recycling Program to improve customer service and promote greater program savings.

Adding freezers to the program does not affect budgeting dollars already allocated to this program.

**Second Proposed Change:**

2. PA Technical Reference Manual (TRM) Deemed Savings Measure Additions:

Extensive collaborative work by the Bureau of Conservation, Economics & Energy Planning (CEEP), the Statewide Evaluation Team (SWE) and the EDC stakeholders in the TRM Technical Working Group (TWG) has resulted in the addition of many new deemed savings measures to the PA Technical Reference Manual. The TRM is updated annually through the development of Interim Protocols for the TRM. The updating process refines and improves deemed savings assumptions, adding new measures and streamlining program implementation processes. The collaborative process provides an opportunity for peer review of program measures under the guidance and oversight of the CEEP and SWE.

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<sup>5</sup> Based on the Pacific Gas & Electric 2008 ACEEE Exemplary Appliance Recycling Program (<http://aceee.org/pubs/u081/res-light-app.pdf>).

<sup>6</sup> PA TRM Section 4.5 Refrigerator/Freezer Retirement, Table 4-5

Measures proposed to be added to Duquesne Light’s approved EE&C Plan are shown below:

New Measure	Effected Program
Furnace Whistle	REEP
Night light (LED)	REEP
Night light (limelight)	REEP
Heat Pump Water Heater (EF 2.0 - 2.3)	REEP
Electric Water Heaters (EF .93 - .95)	REEP
Refrigerator/Freezer Replacement*	LIEEP
Smart Strips	REEP

\*This program is different than the recycling program noted in Change 1 above and involves complete replacement for low-income customers.

Adding these new TRM approved measures offers our customers additional energy efficient products. All of the incentives in the Program are in the form of a rebate. The total incentive budget for the Residential Energy Efficiency Rebate Program (REEP) is \$10.4 M and the incentive budget for LIEEP is \$3.8 M for 2009-2013. Rebates on these products are offered on a first-come, first-serve basis. All rebates are tracked on a monthly basis against the total budget. To date, nothing has occurred to indicate oversubscription of rebates for a particular measure or rebate. In the event that certain measure rebates appear to becoming over-subscribed in relation to their derived benefit, Duquesne will seek Commission approval to limit or remove the measure from its Plan.

**Summary of Portfolio Impacts**

A summary of the portfolio reported impacts is presented in Table 1-1.

**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	2,827.1	0.41
Reported Gross Impact: Program Year to Date	4,175.7	1.13
Reported Gross Impact: Cumulative Portfolio Inception to Date	4,175.7	1.13
Unverified Ex Post Savings <sup>7</sup> :	11,388.0	0.944
Estimated Impact: Projects in Progress	10,651.7	0.957
Estimated Impact: PYTD Total Committed	26,216.7	3.028
Preliminary PYTD Verified Impact <sup>[a]</sup>	3,552.8	.16
Preliminary PYTD Net Impact <sup>[b]</sup>	3,552.8	.16
<b>NOTES:</b>		
[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.		

<sup>7</sup> “Unverified Ex Post Savings” are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission.



A summary of total evaluation adjusted impacts for the portfolio is presented in Table 1-2.

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

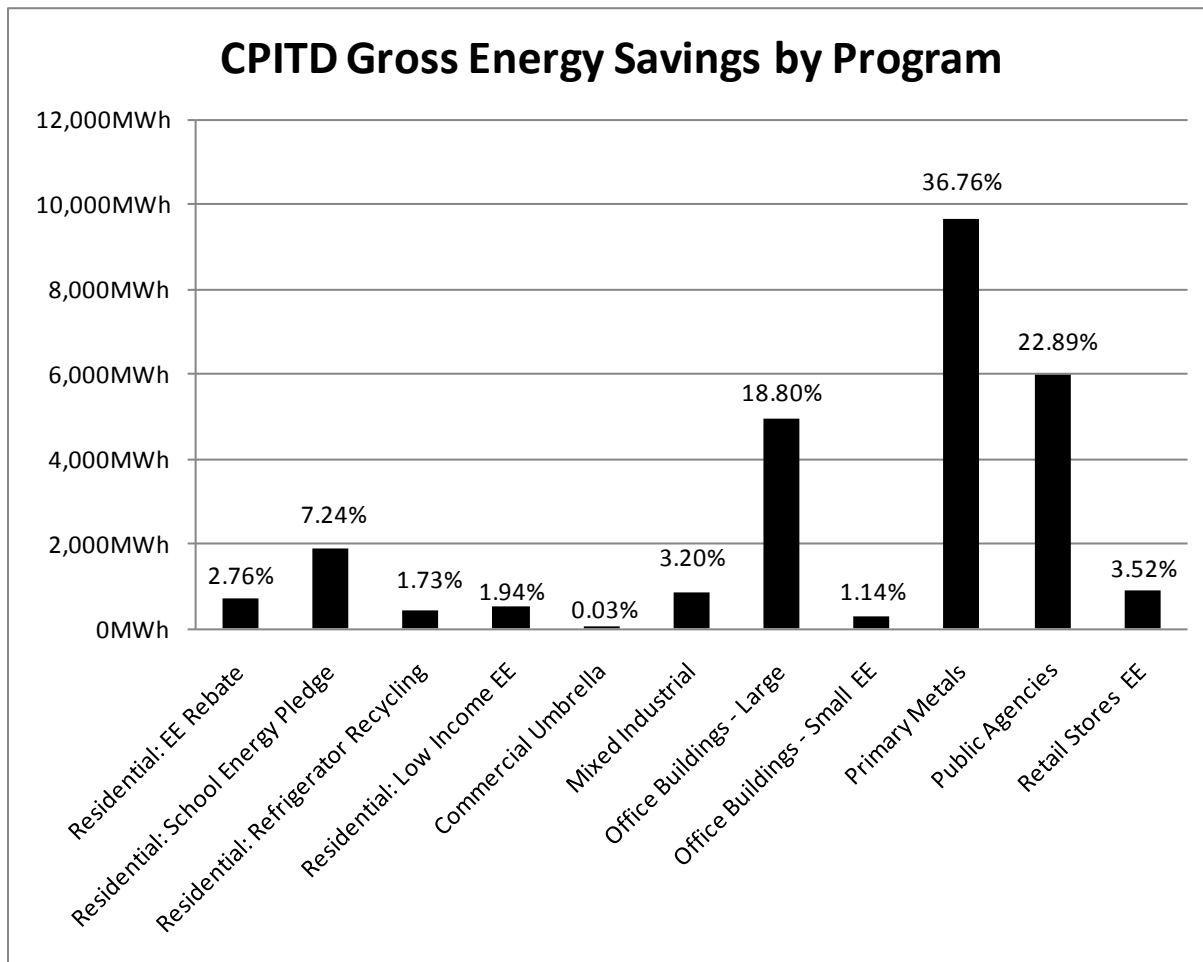
TRC Category	IQ <sup>[a]</sup>	PYTD <sup>[b]</sup>	CPITD
TRC Benefits (\$)*			
TRC Costs (\$)*			
TRC Benefit-Cost Ratio*			
<b>NOTES:</b>			
[a] Based on reported gross savings.			
[b] Based on reported gross savings.			

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

### 1.1 Summary of Energy Impacts by Program

A summary of the reported energy savings by program is presented in Figure 1-1.

**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 Program Year 2009 is presented in Table 1-3 and Table 1-4.

**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
Residential: EE Rebate	2,563	2,861	2,861	669	723	723
Residential: School Energy Pledge	3,236	4,750	4,750	1,346	1,899	1,899
Residential: Refrigerator Recycling	205	252	252	366	453	453
Residential: Low Income EE	1,022	1,296	1,296	408	508	508
Commercial Sector Umbrella EE	18	19	19	7	7	7
Mixed Industrial EE *	2	2	2	838	838	838
Office Building – Large – EE *	1	1	1	4,930	4,930	4,930
Office Building – Small EE *	3	3	3	299	299	299
Primary Metals EE *	2	2	2	9,638	9,638	9,638
Public Agency / Non-Profit *	1	1	1	6,000	6,000	6,000
Retail Stores EE *	10	12	12	922	922	922
<b>TOTAL PORTFOLIO</b>	7,063	9,199	9,199	25,423	26,217	26,217
<b>NOTES: * Includes in-progress and unverified ex post savings (unverified savings pending approval of a TRM of Custom Measure Protocol by the Commission).</b>						

**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 (%)
Residential: EE Rebate			723	16,785	4.3%
Residential: School Energy Pledge			1899	675	281.3%
Residential: Refrigerator Recycling			453	1,667	27.2%
Residential: Low Income EE			508	4,294	11.8%
Commercial Sector Umbrella EE			7	2,681	0.3%
Industrial Sector Umbrella EE				1,258	0.0%
Chemical Products EE				3,114	0.0%
Healthcare EE				5,698	0.0%
Mixed Industrial EE		838	838	2,779	30.2%
Office Buildings – Large EE	1,750	3,180	4,930	10,100	48.8%
Office Buildings – Small EE		75	299	5,317	5.6%
Primary Metals EE	9,638		9,638	8,570	112.5%
Public Agency, Non-Profit EE		6,000	6,000	12,493	48.0%
Retail Stores EE		559	922	6,200	14.9%
<b>TOTAL PORTFOLIO</b>	<b>11,388</b>	<b>10,652</b>	<b>26,217</b>	<b>81,630</b>	<b>32.1%</b>
<b>NOTES: "Unverified Ex Post Savings" are unverified savings pending approval of a TRM or Custom Measure Protocol by the Commission.</b>					

A summary of evaluation verified energy impacts by program is presented in Table 1-5.

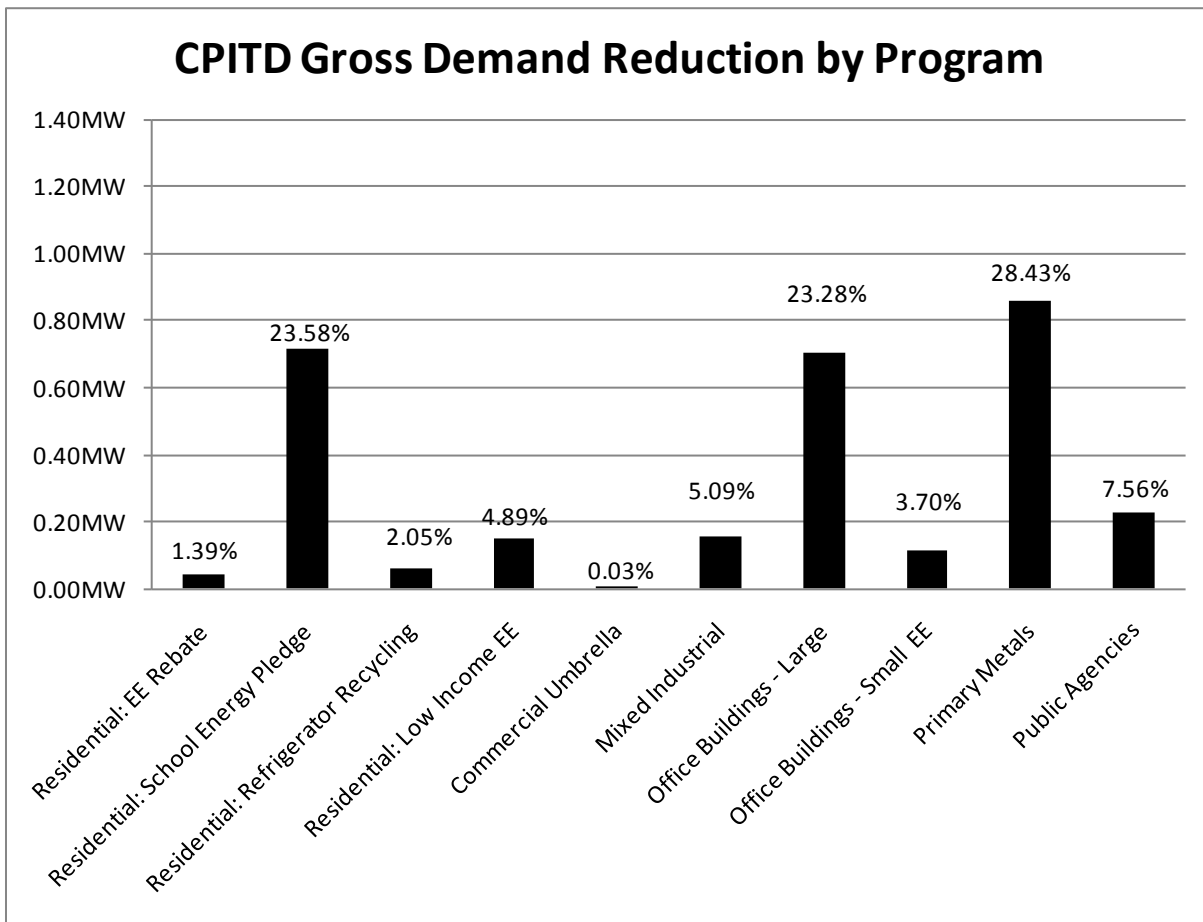
**Table 1-5: Verified Energy Savings by Program through the End of the Reporting Period**

Program	PYTD Reported Gross Impact (MWh)	Realization Rate	PYTD Verified Impact (MWh)	Net-to-Gross Ratio	PYTD Net Impact (MWh)
Residential: EE Rebate	767	97.1%	745	N/A	745
Residential: School Energy Pledge	1,913	97.1%	1,859	N/A	1,859
Residential: Refrigerator Recycling	453	97.1%	440	N/A	440
Residential: Low Income EE	510	100.0%	510	N/A	510
<b>TOTAL PORTFOLIO</b>	<b>3,642</b>		<b>3,553</b>	<b>N/A</b>	<b>3,553</b>
<b>NOTES:</b>					

## 1.2 Summary of Demand Impacts by Program

A summary of the reported demand reduction by program is presented in Figure 1-2.

**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 Program Year 2009 is presented in Table 1-6.

**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
Residential: EE Rebate	2,563	2,861	2,861	0.038	0.042	0.042
Residential: School Energy Pledge	3,236	4,750	4,750	0.269	0.714	0.714
Residential: Refrigerator Recycling	205	252	252	0.050	0.062	0.062
Residential: Low Income EE	1,022	1,296	1,296	0.050	0.148	0.148
Commercial Sector Umbrella EE	18	19	19	0.001	0.001	0.001
Mixed Industrial EE *	2	2	2	0.154	0.154	0.154
Office Buildings – Large EE *	1	1	1	0.705	0.705	0.705
Office Buildings – Small EE *	3	3	3	0.112	0.112	0.112
Primary Metals EE *	2	2	2	0.861	0.861	0.861
Public Agency / Non-Profit EE *	1	1	1			
Retail Stores EE *	10	12	12	0.229	0.229	0.229
<b>TOTAL PORTFOLIO</b>	7,063	9,199	9,199	2.469	3.028	3.028
<b>NOTES: * Includes in-progress and unverified ex post savings (unverified savings pending approval of a TRM of Custom Measure Protocol by the Commission).</b>						

A summary of demand reduction impacts by program through the Program Year 2009 is presented in Table 1-67.

**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 (%)
Residential: EE Rebate			0.04	8.1	0.5%
Residential: School Energy Pledge			0.7	0.6	117.4%
Residential: Refrigerator Recycling			0.1	0.4	14.9%
Residential: Low Income EE			0.1	1.8	8.5%
Commercial Sector Umbrella EE			0.001	0.6	0.2%
Industrial Sector Umbrella EE				0.2	0.0%
Chemical Products EE				0.5	0.0%
Healthcare EE				1.2	0.0%
Mixed Industrial EE	0.1	0.1	0.2	0.4	35.8%
Office Buildings – Large EE	0.1	0.6	0.7	2.2	32.0%
Office Buildings – Small EE		0.03	0.1	1.0	11.5%
Primary Metals EE	0.9		0.9	1.3	65.0%
Public Agency, Non-Profit EE				3.6	0.0%
Retail Stores EE		0.1	0.2	1.3	17.2%
<b>TOTAL PORTFOLIO</b>	1.0	1.0	3.0	23.3	13.0%
<b>NOTES:</b>					

A summary of evaluation adjusted demand impacts by program is presented in Table 1-8.

**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)
Residential: EE Rebate	0.026	97.1%	0.025	N/A	0.025
Residential: School Energy Pledge	0.062	97.1%	0.060	N/A	0.060
Residential: Refrigerator Recycling	0.062	97.1%	0.060	N/A	0.060
Residential: Low Income EE	0.019	100.0%	0.019	N/A	0.019
<b>TOTAL PORTFOLIO</b>	0.169		0.164	N/A	0.164
<b>NOTES:</b>					

### 1.3 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 measure<sup>8</sup> 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.

#### 1.3.1 Impact Evaluation

Explanation concerning the variance between monthly data transfers the Statewide Evaluation Team (SWE) and content of the evaluation dataset:

Data transfers to the SWE were affected in response to the SWE's data request of 7/1/2010 on 7/15/2010. Duquesne Light's program year (PY) 2009 savings impact verification report was based on a download of program tracking system data downloaded on 6/22/2010 for activity shown to be installed in the tracking system through 5/31/2010. Program activity was entered into the program tracking system between 6/22/2010 and 7/15/2010 adding 11 projects with installation dates on or before 5/31/2010 for five customers participating in the Small Office Building Program and the Retail Stores Program. Data entry for back-dated projects reflects a data entry back-log associated with program ramp-up. Verification activities such as survey design, data requests, customer interviews, hard-copy review and quantitative analysis require a snap-shot of tracking system data. Verification was not performed on the back-dated projects but strictly adhered to the content of the verification dataset provided on June 22, 2010. The additional back-dated program activity will be addressed in PY 2010 verification activities.

Evaluation, measurement and verification (EM&V) activities were performed on the following PY 2009 program activity:

Program	Participants	MWh	MW
Residential: EE Rebate Program	2,861	723.2	0.0421
Residential: School Energy Pledge Program	4,750	1,898.6	0.7143
Residential: Refrigerator Recycling Program	252	452.7	0.0621
Residential: Low Income Energy Efficiency Program	1,296	507.9	0.1481
Commercial Sector Umbrella Program (1)	19	7.0	0.0014
Commercial Sector Retail Program	2	31.7	0.0061
<b>Total</b>	<b>9,180</b>	<b>3,621.2</b>	<b>0.9741</b>

<sup>8</sup> TRM measures with stipulated values and variables.



The evaluation dataset contained a record of 9,180 customer actions taken to implement energy efficiency measures termed “projects” completed by Duquesne Light’s EE&C Programs during PY 2009. The 9,180 projects include 8,326 (91%) energy efficiency kits containing residential measures (CFLs, night lights and furnace whistles) that the utility provided free of charge to program participants. The 19 projects listed above under the Commercial Sector Umbrella Program (1) were actually residential energy efficiency kits provided participants residing in premises served by “commercial” master-meter accounts. The remaining 854 projects included 852 residential, measures, and two commercial lighting projects. PY 2009 verification activities addressed the four residential programs.

**Deemed Savings Adjustments**

As related above, deemed TRM measure realization rates are driven by differences in the number of installed measures. All energy efficiency measures delivered in the 9,180 projects were found to have deemed savings specified in the Technical Reference Manual<sup>9</sup> or interim updates to the TRM approved and adopted by the Statewide Evaluator (TRM). Consistent with Duquesne Light’s EM&V Plan and the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan)<sup>10</sup> analysis of tracking system values was performed to ensure claimed savings (tracking system savings values) reflected the approved deemed savings values.

Several key measures’ deemed savings values were in the process of being developed and approved by the SWE either concurrent with, and in some cases after, project implementation.<sup>11</sup> As a result program implementers could not have known the values ultimately adopted. This created the need to adjust claimed/tracked measure savings to align with the deemed savings adopted. Tracking system values were compared with adopted savings values and a Deemed Savings Adjustment factor (DSA) was applied to claimed/tracked savings to bring them in-line with adopted savings values. The following table shows the result of this adjustment:

Program	Tracking System		DSA Savings	
	kWh	kW	kWh	kW
REEP	723,172	42.1	766,512	25.5
SEP	1,898,633	714.3	1,913,405	62.2
RRRP	452,736	62.1	452,736	62.1
LIEEP	507,932	148.1	509,684	18.9
<b>Total</b>	3,582,473	966.5	3,642,337	168.7
<i>DSA Factor</i>	<i>102%</i>	<i>17%</i>		

DSA dramatically reduced demand savings (kW) linked to removal of demand reductions for programmable thermostats and components contained in the EE kits (furnace whistles & nightlights), as well as severed reductions in CFL demand impacts through application of a 5% residential lighting coincident factor.

<sup>9</sup> Pennsylvania Public Utility Commission, *Technical Reference Manual for Pennsylvania Act 129 Energy Efficiency and Conservation Program and Act 213 Alternative Energy Portfolio Standards*, June 2010.

<sup>10</sup> GDS Associates, Inc., Nextant, & Mondre Energy, *Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs*. December 1, 2009

<sup>11</sup> Updates to the TRM are implemented through “interim Protocols for the TRM”; the most recent draft is dated July 30, 2010.

### Sampling Plan

As related above, all energy efficiency measures delivered in PY 2009 were found to have deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator. Based on low project-level variability simplified random sampling (EM&V Plan Section 2.8.1) was employed to achieve the desired level of confidence and precision.

The table below reflects *achieved* versus *planned* confidence and precision rates. A complete description of the program evaluation sample plan, evaluation approach and findings is contained in the accompanying PY 2009 EM&V Report.

The realization rates for each program are presented in Table 1-9 below:

**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
Residential: EE Rebate	35	35	97.1%	90%/±4.7%	97.1%	90%/±4.7%
Residential: School Energy Pledge	35	35	97.1%	90%/±4.7%	97.1%	90%/±4.7%
Residential: Refrigerator Recycling	35	35	97.1%	90%/±4.7%	97.1%	90%/±4.7%
Residential: Low Income EE	35	35	100.0%	90%/±0.0%	100.0%	90%/±0.0%
<b>PORTFOLIO</b>	140	140	97.5%	90%/±2.7%	97.5%	90%/±2.5%
<b>NOTES:</b>						

### 1.3.2 Process Evaluation

A complete and formal process evaluation was not conducted for PY 2009 for all programs due to the limited program activity, program systems were still being implemented, an EM&V Plan was being developed and implementation contractors were still being engaged. While a process evaluation conducted during this time would have found many areas for process improvement, program management questioned the utility of such an activity.

However, during the conduct of program sampling and the evaluation of program tracking system data evaluators learned key metrics were not being properly recorded by implementation contractors. This led to adjustments in implementation processes which was communicated to CSPs and process revisions were made.

## 1.4 Summary of Finances

The TRC test demonstrates the cost-effectiveness of a program by comparing the total economic benefits to the total costs. A breakdown of the portfolio finances is presented in Table 1-10.

**Table 1-10: Summary of Portfolio Finances: TRC Test<sup>12</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$190,181	\$236,816	\$236,816
A.2	EDC Incentives to Trade Allies	\$62,289	\$91,877	\$91,877
A	<b>Subtotal EDC Incentive Costs</b>	\$252,470	\$328,693	\$328,693
B.1	Design & Development	\$691,262	\$2,993,815	\$2,993,815
B.2	Administration	0	0	0
B.3	Management	\$161,815	\$309,402	\$309,402
B.4	Marketing	\$13,931	\$197,051	\$197,051
B.5	Technical Assistance	0	0	0
B	<b>Subtotal EDC Implementation Costs</b>	\$867,008	\$3,500,268	\$3,500,268
C	<b>EDC Evaluation Costs</b>	\$84,000	\$84,000	\$84,000
D	<b>SWE Audit Costs</b>	0	\$291,879	\$291,879
E	<b>Participant Costs</b>	0	0	0
	<b>Total Costs</b>	\$1,203,478	\$4,204,840	\$4,204,840
F	<b>Annualized Avoided Supply Costs*</b>			
G	<b>Lifetime Avoided Supply Costs*</b>			
	<b>Total Lifetime Economic Benefits*</b>			
	<b>Portfolio Benefit-to-Cost Ratio*</b>			
<b>NOTES:</b>				

\* Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.

<sup>12</sup> 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.

The TRC for each program is presented in Table 1-11.

**Table 1-11: Summary of Portfolio Budget by Program**

<b>Program</b>	<b>TRC Benefits (\$)</b>	<b>TRC Costs (\$)</b>	<b>TRC Benefit-Cost Ratio</b>
Residential: EE Rebate*			
Residential: School Energy Pledge*			
Residential: Refrigerator Recycling*			
Residential: Low Income EE*			
Commercial Sector Umbrella EE*			
Office Building – Small EE*			
Retail Stores EE*			
<b>Portfolio</b>			
<b>NOTES:</b>			

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

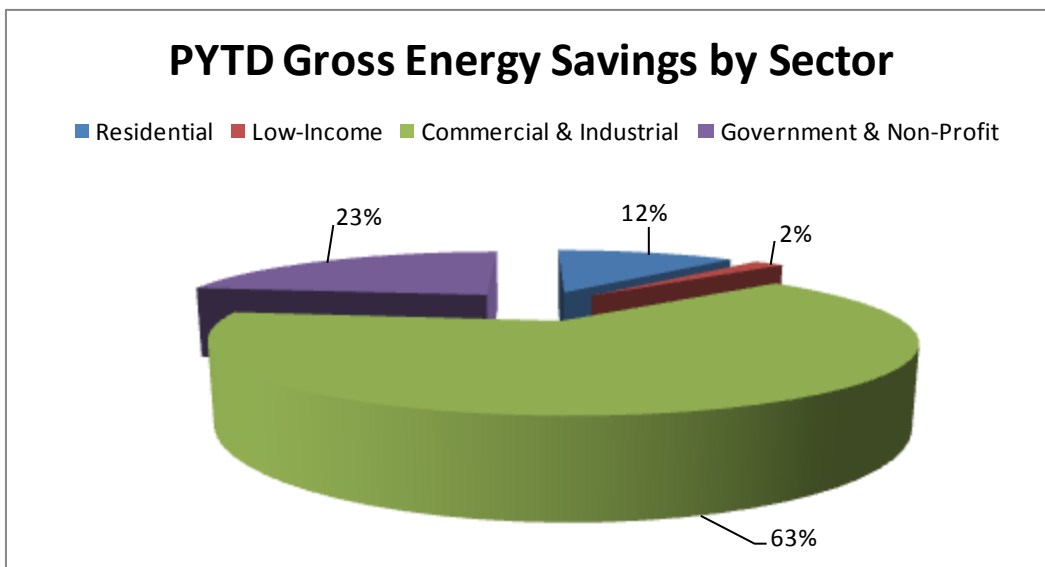
## 2 Portfolio Results by Sector

The EE&C Implementation Order issued on January 15<sup>th</sup>, 2009 states requirements for specific sectors on page 11. In order to comply with these requirements, each program has been categorized into one of the following sectors:

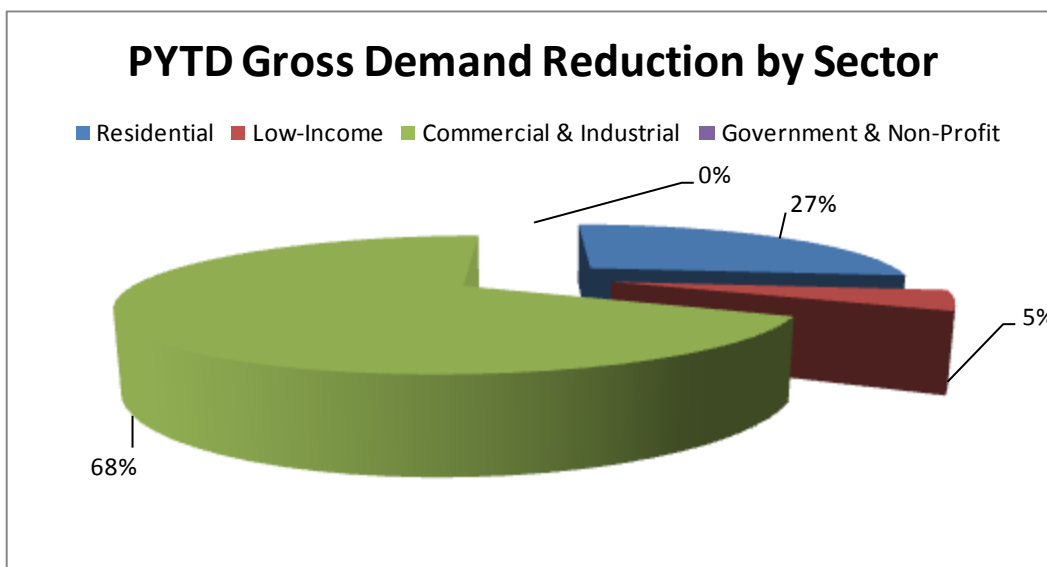
1. Residential EE (excluding Low-Income)
2. Residential Low-Income EE
3. Small Commercial & Industrial EE
4. Large Commercial & Industrial EE
5. Government & Non-Profit EE

A summary of portfolio gross energy savings and gross demand reduction by sector is presented in Figure 2-1 and Figure 2-2.

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



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



*Energy savings reported for the Government & Non-Profit Sector results from project savings that, consistent with adopted TRM savings protocols, does not produce demand reductions.*

**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 <sup>13</sup>
	IQ	PYTD	CPITD			
Residential EE	2,381	3,075	3,075		3,075	
Residential Low-Income EE	408	508	508		508	
Small Commercial & Industrial EE	580	593	593	913	1,506	
Large Commercial & Industrial EE				3,739	3,739	11,388
Government & Non-Profit EE				6,000	6,000	
<b>TOTAL PORTFOLIO</b>	<b>3,369</b>	<b>4,176</b>	<b>4,176</b>	<b>10,652</b>	<b>14,828</b>	<b>11,388</b>

<sup>13</sup> "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 <sup>14</sup>
	IQ	PYTD	CPITD			
Residential EE	0.358	0.819	0.819		0.819	
Residential Low-Income EE	0.072	0.148	0.148		0.148	
Small Commercial & Industrial EE	0.159	0.161	0.161	0.336	0.497	
Large Commercial & Industrial EE				0.622	0.622	.944
Government & Non-Profit EE						
<b>TOTAL PORTFOLIO</b>	0.588	1.128	1.128	0.958	2.086	.944

*Energy savings reported for the Government & Non-Profit Sector results from project savings that, consistent with adopted TRM savings protocols, does not produce demand reductions.*

<sup>14</sup> ibid

## 2.1 Residential EE Sector

The sector target for annual energy savings is 19,127 MWh and the sector target for annual peak demand reduction is 9.172 MW.

A sector summary of results by program is presented in Table 2-3 and Table 2-4.

**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)
Residential: EE Rebate	2,563	669	0.038
Residential: School Energy Pledge	3,236	1,346	0.269
Residential: Refrigerator Recycling	205	366	0.050
<b>Sector Total</b>	6,004	693	0.358
<b>NOTES:</b>			

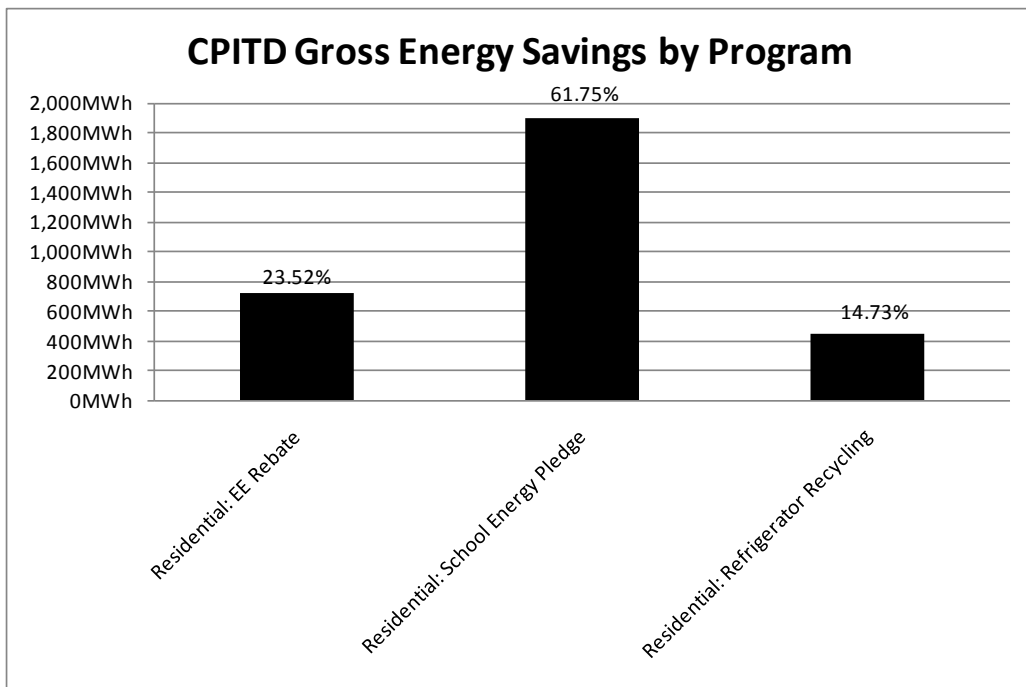
**Table 2-4: Summary of Residential EE Sector PYTD Impacts by Program through the End of the Reporting Period**

Residential EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Residential: EE Rebate	2,861	723	0.042
Residential: School Energy Pledge	4,750	1,899	0.714
Residential: Refrigerator Recycling	252	453	0.062
<b>Sector Total</b>	7,863	3,075	0.819
<b>NOTES:</b>			



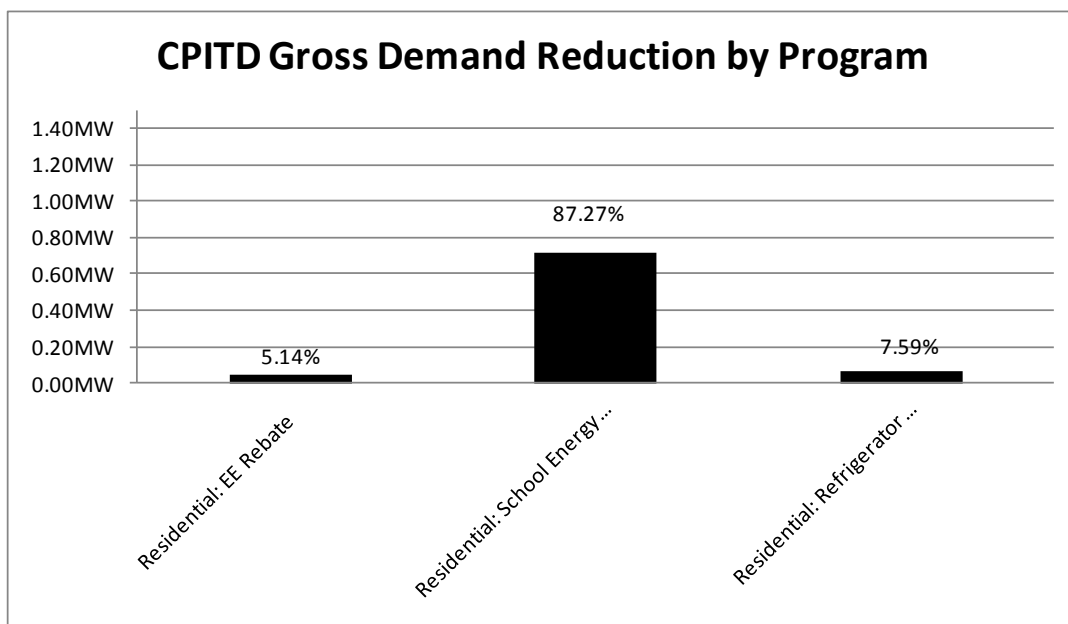
A summary of the sector energy savings by program is presented in Figure 2-3.

**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 Figure 2-4.

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



## 2.2 Residential Low-Income EE Sector

The sector target for annual energy savings is 4,294 MWh and the sector target for annual peak demand reduction is 1.751 MW.

A sector summary of results by program is presented in Table 2-5 and Table 2-6.

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

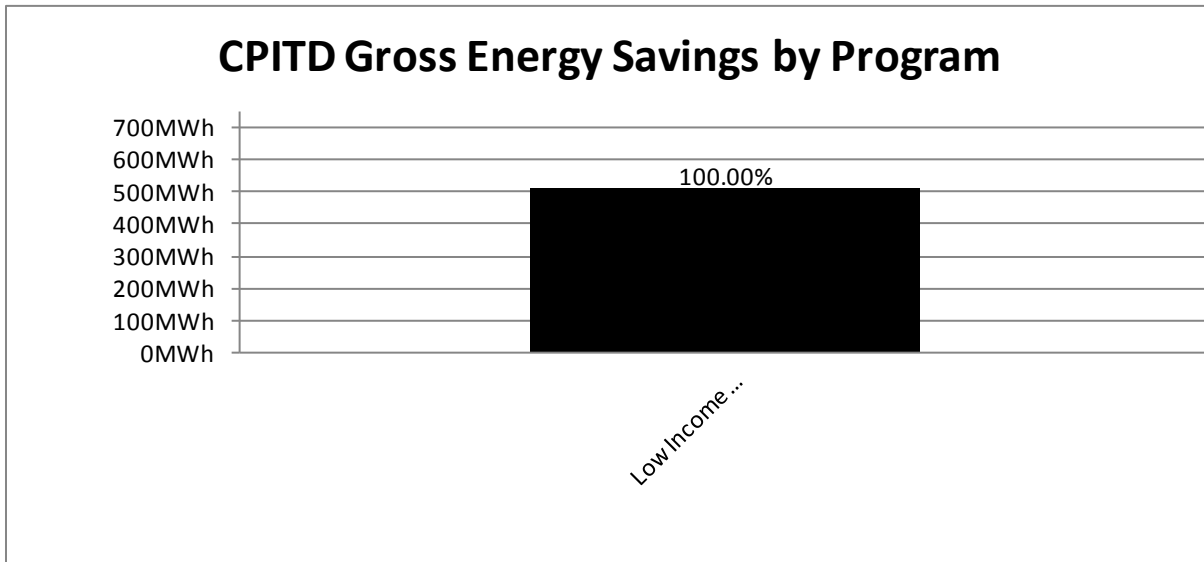
Residential Low-Income EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Low Income Energy Efficiency Program	1,022	408	0.072
<b>Sector Total</b>	1,022	408	0.072
<b>NOTES:</b>			

**Table 2-6: Summary of Residential Low-Income EE Sector Low-Income 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)
Low Income Energy Efficiency Program	1,296	508	0.148
<b>Sector Total</b>	1,296	508	0.148
<b>NOTES:</b>			

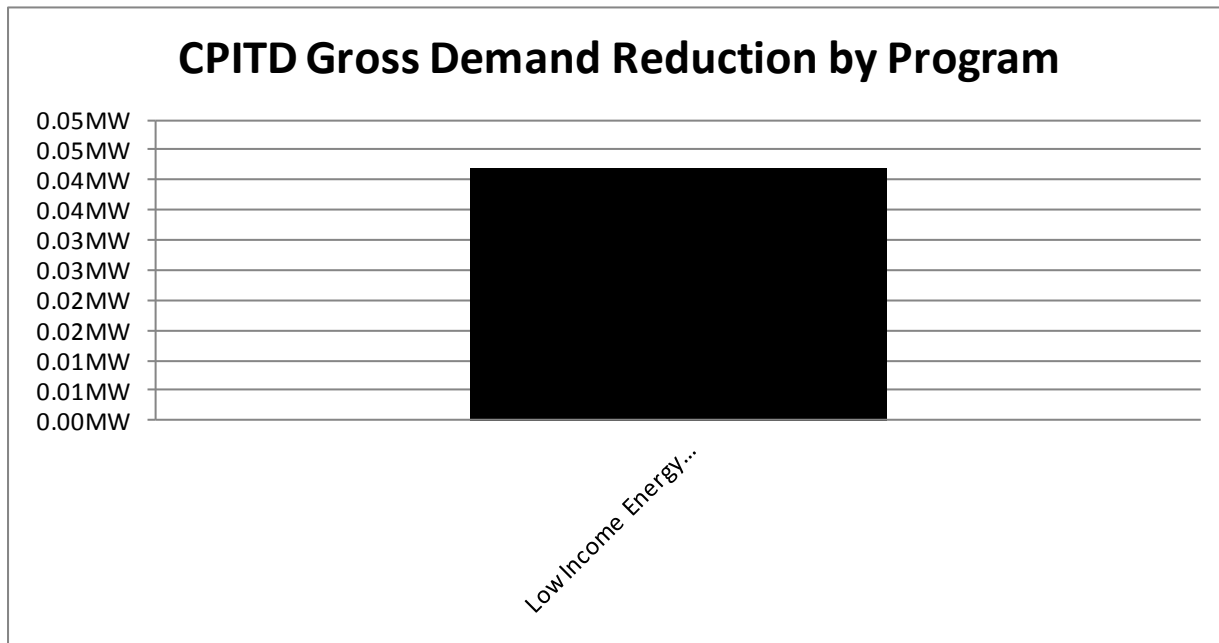
A summary of the sector energy savings by program is presented in Figure 2-3.

**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 Figure 2-4.

**Figure 2-6: Summary of Residential Low-Income EE Sector PYTD Reported Demand Reduction by Program**



Requirements per the Low-Income Working Group: Report of Act 129 Low-Income Working Group, March 19, 2010 Docket no. M-2009-2146801 Recommendations, 1. Estimated Baseline Usage of Low-Income Households (page 5-6) Table 1: The number of measures shall be proportionate to those households' share of the total energy usage in the service territory. Total Number of Measures = 61; Duquesne Light Percent kWh Usage Low-Income Households vs. Total Consumption: 7.88%; 7.88% of 61 measures =4.8 measures. In PY 2009 Duquesne Light reported savings for the Low Income Energy Efficiency Program from income qualifying participant implementation of energy saving CFLs, furnace whistles, night lights, ENERGY STAR (ES) dehumidifiers, ES outdoor lighting fixtures, ES refrigerators and refrigerator recycling. This activity accounts for 7 measures, exceeding the 4.8 measures required for compliance.

### 2.3 Small Commercial & Industrial EE Sector

The sector target for annual energy savings is 12,100 MWh and the sector target for annual peak demand reduction is 2.236 MW.

A sector summary of results by program is presented in Table 2-6 and Table 2-7.

**Table 2-6: Summary of Small Commercial & Industrial EE Sector Incremental Impacts by Program through the End of the Reporting Period**

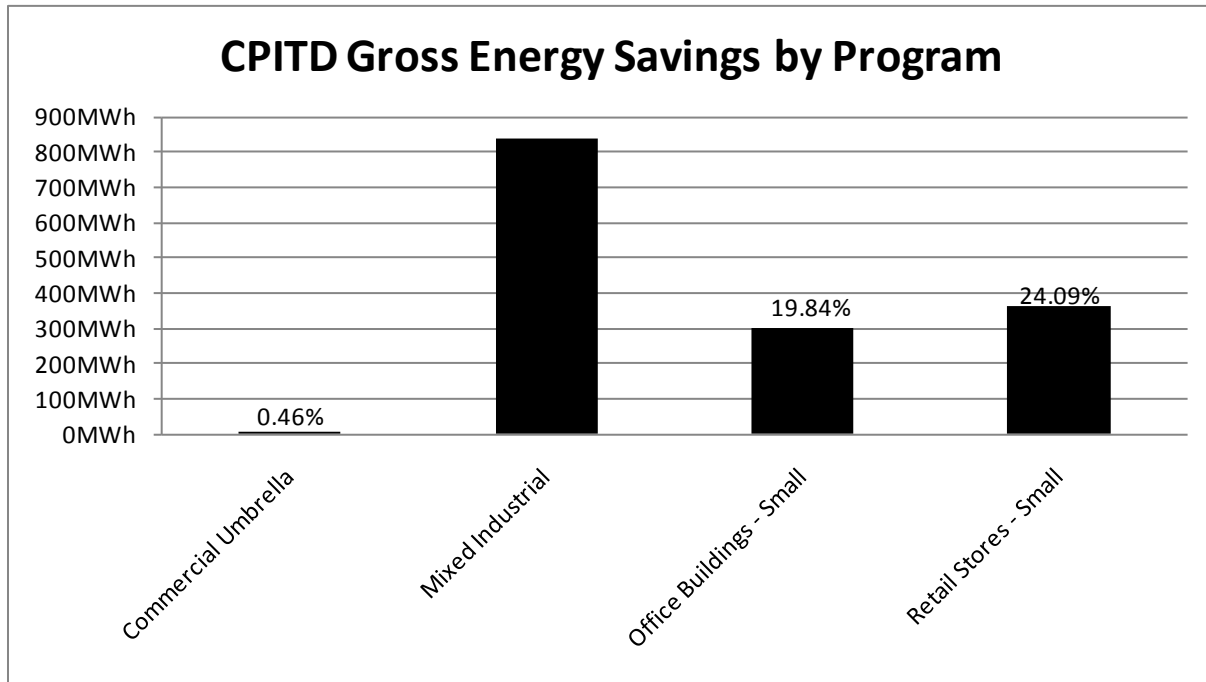
Small Commercial & Industrial Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Commercial Sector Umbrella Program	18	7	0.001
Mixed Industrial EE	2	838	0.154
Office Buildings EE - Small	3	299	0.112
Retail Stores EE - Small	7	363	0.081
<b>Sector Total</b>	<b>30</b>	<b>1,507</b>	<b>0.348</b>
<b>NOTES:</b>			

**Table 2-7: Summary of Small Commercial & Industrial EE Sector Low-Income PYTD Impacts by Program through the End of the Reporting Period**

Small Commercial & Industrial Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Commercial Sector Umbrella Program	19	7	0.001
Mixed Industrial EE	2	838	0.154
Office Buildings EE - Small	3	299	0.112
Retail Stores EE - Small	7	363	0.081
<b>Sector Total</b>	<b>31</b>	<b>1,507</b>	<b>0.348</b>
<b>NOTES:</b>			

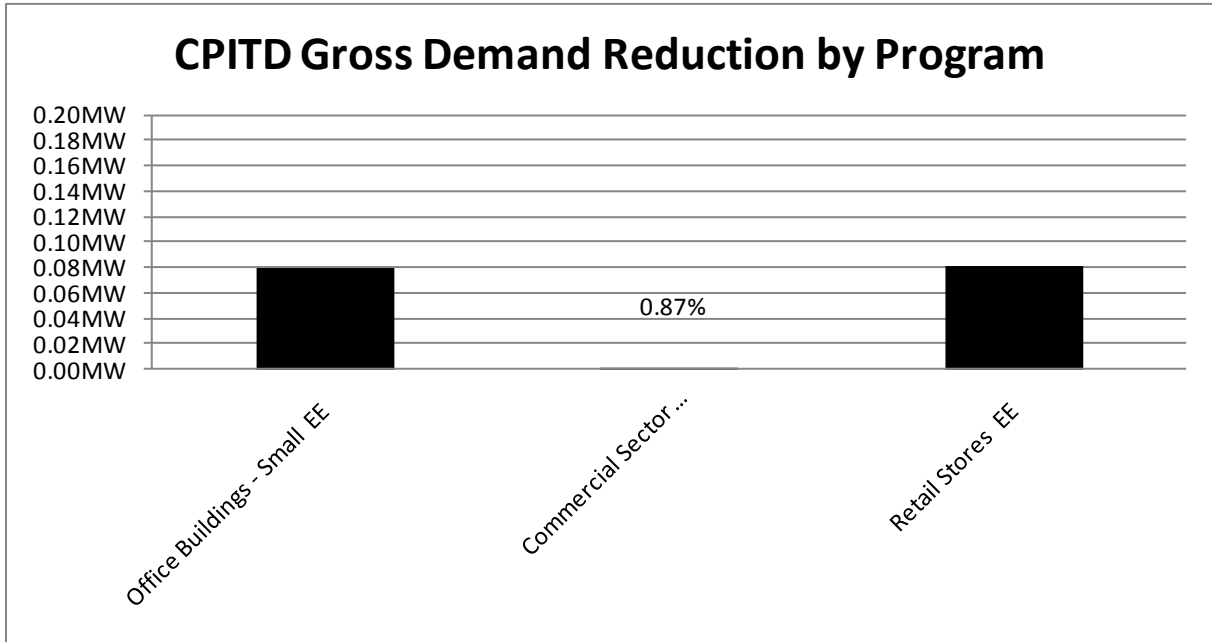
A summary of the sector energy savings by program is presented in Figure 2-3.

**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 Figure 2-8.

**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 37,136 MWh and the sector target for annual peak demand reduction is 7.245 MW.

A sector summary of results by program is presented in Table 2-8 and Table 2-9.

**Table 2-8: 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)
Office Buildings - Large	1	4,930	0.705
Primary Metals	2	9,638	0.861
Retail Stores - Large	3	559	0.148
<b>Sector Total</b>	6	15,127	1.714
<b>NOTES:</b>			

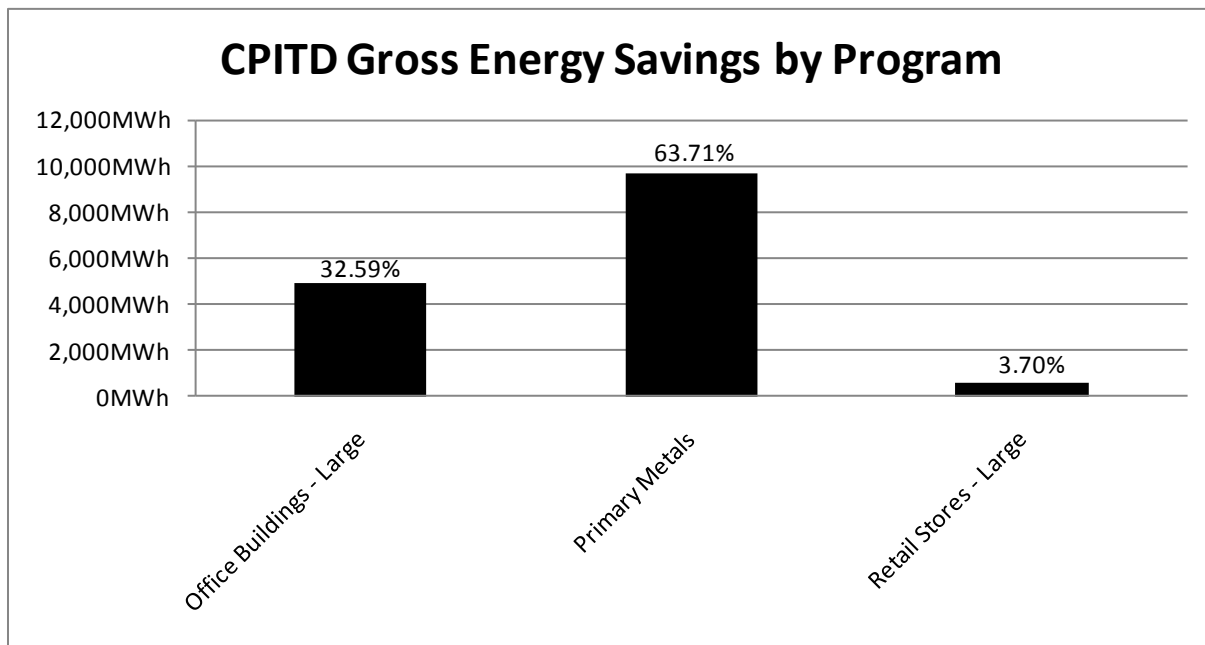
**Table 2-9: Summary of Large Commercial & Industrial EE Sector PYTD Impacts by Program through the End of the Reporting Period**

Large Commercial & Industrial EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Office Buildings - Large	1	4,930	0.705
Primary Metals	2	9,638	0.861
Retail Stores - Large	3	559	0.148
<b>Sector Total</b>	6	15,127	1.714
<b>NOTES:</b>			



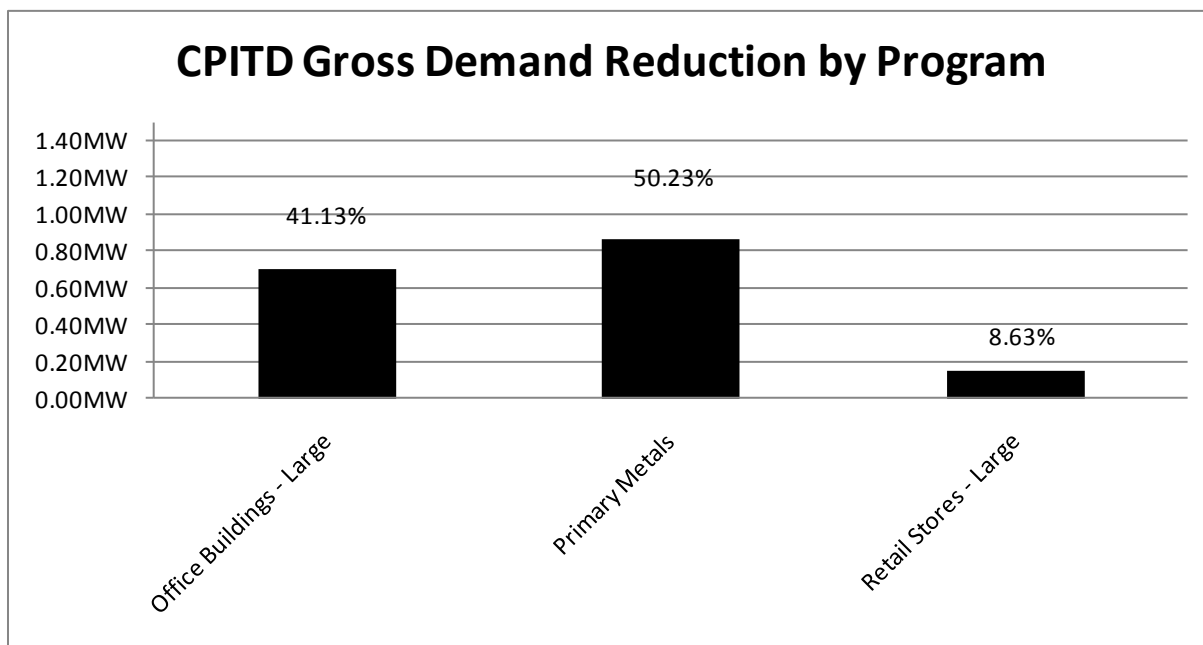
A summary of the sector energy savings by program is presented in Figure 2-9.

**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 Figure 2-10.

**Figure 2-10: Summary of Large Commercial & Industrial EE Sector PYTD Reported Demand Reduction by Program**



The large commercial and industrial sector includes an overall umbrella program structure and specialized sub-programs that address market segments within the Duquesne Light service territory. Under the overarching umbrella program, specialized sub-programs are allowed to promote specific technologies or target specific market segments while incorporating the umbrella program savings impacts and incentive levels. In this manner, sub-programs are intended to present a consistent and common offering. The following provides a brief description of each large commercial and industrial sector sub-program.

The large commercial and industrial sub-programs are intended to provide a comprehensive approach to energy savings and permanent demand reduction, and address a full range of efficiency opportunities from low cost improvements to entire system upgrades -- with Duquesne Light customers. Each sub-program is charged with providing the following services:

- Targeted and comprehensive on-site walk-through assessments and professional grade audits to identify energy savings opportunities.
- Efficiency studies/reports that detail process and equipment upgrades that present the greatest potential for energy/cost savings.
- Support to access rebates and incentives available across electric measures designed to help defray upfront costs of installing the equipment.
- Coordination with local chapters of key industry associations to promote energy efficiency improvements through trusted sources and encourage market-transforming practices among equipment vendors and purchasers

Duquesne Light has chosen the following Conservation Service Providers (CSPs) to implement large commercial and industrial sector programs:

- Primary Metals and Large Offices: Roth Bros, Inc. and Enerlogics Networks, Inc.
- Chemical Products: Global Energy Partners, LLC
- Mixed Industrial: Global Energy Partners, LLC
- Large Retail: AllFacilities Energy Group

## 2.5 Government & Non-Profit EE Sector

The sector target for annual energy savings is 8,973 MWh and the sector target for annual peak demand reduction is 2.884 MW.

A sector summary of results by program is presented in Table 2-9 and Table 2-10.

**Table 2-9: Summary of Government & Non-Profit EE Sector Incremental Impacts by Program through the End of the Reporting Period**

Government & Non-Profit EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Government / Non-Profit	1	6,000	0
<b>Sector Total</b>	1	6,000	0
<b>NOTES:</b>			

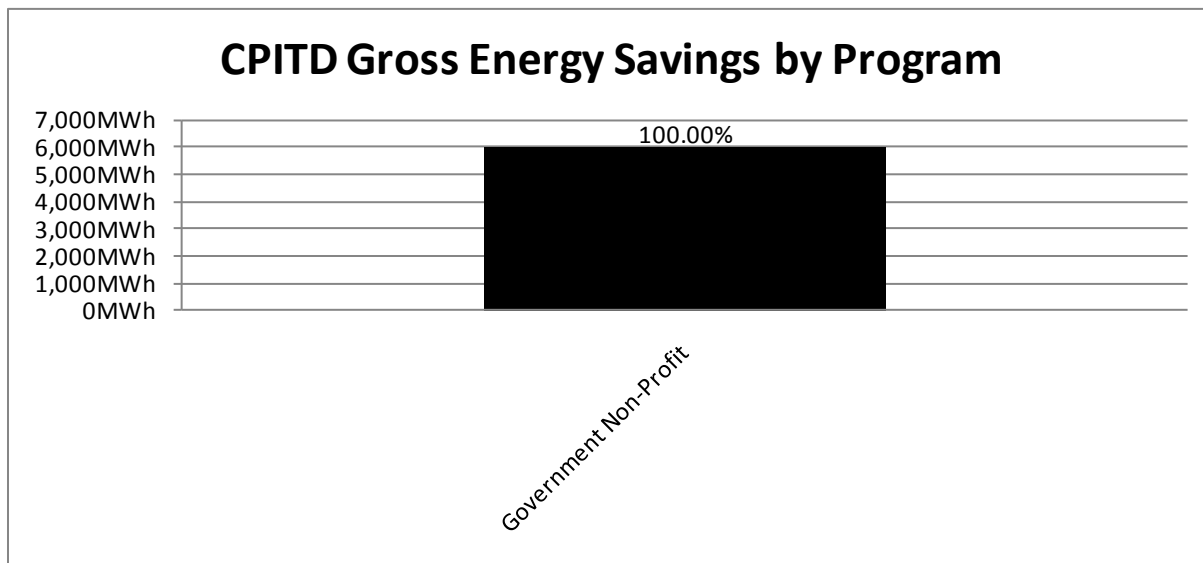
**Table 2-10: Summary of Government & Non-Profit EE Sector PYTD Impacts by Program through the End of the Reporting Period**

Government & Non-Profit EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Government / Non-Profit	1	6,000	0
<b>Sector Total</b>	1	6,000	0
<b>NOTES:</b>			

*Energy savings reported for the Government & Non-Profit Sector results from project savings that, consistent with adopted TRM savings protocols, does not produce demand reductions.*

A summary of the sector energy savings by program is presented in Figure 2-11.

**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 Figure 2-12.

***Energy savings reported for the Government & Non-Profit Sector results from project savings that, consistent with adopted TRM savings protocols, does not produce demand reductions.***

The Public Agency Partnerships program targets federal, state and local governments, including municipalities, school districts, institutions of higher education and nonprofits (per Act 129).

Local Government Partnerships were established through execution of a memorandum of understanding (MOU) by and between Duquesne and selected local governmental agencies. The MOU established working groups comprised of Duquesne and agency representatives and identified project areas within agency departments (and jurisdictional agencies); define project scopes of service; and establish project agreements to co-fund agreed-to projects. A partnership such as this was structured with Allegheny County and the City of Pittsburgh.

Bi-monthly meetings have been occurring with the officials from Allegheny County and Duquesne Light which have partnered to provide over 100 municipalities the opportunity to have audits performed in their county facilities and provide opportunities to take action to save energy, money and the environment by participating in Watt Choices.

In addition, several institutions of higher education have executed MOUs and have been involved in discussions and currently there are dozens of projects being evaluated as a result of these types of partnerships.

### 3 Demand Response

For Duquesne Light, the demand response goal translates into a demand reduction of 113 MW. Three demand response programs were proposed on July 1, 2009 for a total of 37.2 MW. The three include:

- 1) A direct load control program for air conditioners and water heaters for residential customers (18.6 MW)
- 2) A direct load control program for air conditioners for small and mid-sized commercial and industrial customers (7.8 MW)
- 3) A curtailable load program for large commercial and industrial customers defined as those facilities above 300 kW (10.8 MW)

The proposed energy efficiency programs have a target demand reduction of 162 MW. Thus the total of demand response and energy efficiency is 199 MW, compared to the Act 129 goal of 113 MW.

In March 2010, Duquesne Light issued RFPs for the demand response programs. The response in April yielded two bidders for the direct load control programs and one bidder for the curtailable load program. Meetings were held with all bidders in May 2010. The uncertainty over the establishment of approved measurement and verification protocols of the Statewide Evaluator may have accounted for the limited number of respondents.

Currently, the bidders have been notified that the proposals are under consideration. They have been alerted that future discussions will focus on how to meet the goals of Act 129 once measurement and verification protocols are established.

Plan of Action:

- 1) Participate on the demand response working group with PJM: Meet with other utilities, regulatory officials and PJM to develop consensus protocols for M&V of demand response programs. It is hoped the working group will have an acceptable protocol by October 2010.
- 2) Operate demand response programs with selected participants according to approved protocols beginning in the summer of 2011.
- 3) Operate and measure demand response programs in the summer of 2012 according to approved protocols.

## 4 Portfolio Results by Program

Duquesne Light prepared a comprehensive Evaluation Measurement and Verification Plan for its 2010-2012 Energy Efficiency & Conservation Programs (EM&V Plan). This EM&V Plan was reviewed by the Statewide Evaluator (SWE) and serves as the basis for EM&V performed of its Act 129 Programs. Additionally, Duquesne Light prepared a PY 2009 EM&V Report that was submitted and reviewed by the SWE. Both the EM&V Plan and PY 2009 EM&V Report went through a comment process with the SWE, whereby final comments were received and incorporated on August 31, 2010. These SWE reviewed and approved documents serve as the basis for and total EM&V activity performed, are referred to in the following section, and provided with this Annual Report for reference.

### 4.1 Residential: Energy Efficiency Rebate Program

The Residential Energy Efficiency Rebate Program (REEP) is designed to encourage customers to make an energy efficient choice when purchasing and installing household appliance and equipment measures by offering customers educational materials on energy efficiency options and rebate incentive offerings. Program educational materials and rebates will be provided in conjunction with an on-line survey. REEP also provides energy efficiency measures in the form of energy efficiency kits provided free of charge to Duquesne Light customers attending targeted community outreach events.

#### 4.1.1 Program Logic

Program Theories, Logic Models & Performance Indicators are provided in the EM&V Plan at Section 1.2.5. Program logic diagrams are provided in EM&V Plan Appendix E, Figure E-2 for the Residential Energy Efficiency Rebate Program.

#### 4.1.2 Program M&V Methodology

The following describes the M&V Approach: Consistent with Duquesne Light's EM&V Plan Sections 2.5 and 2.5.1, the basic level of verification rigor was used for TRM deemed savings measures and measures with rebates less than \$2,000 consisting of a six-step process:

**Step 1 – Verification Checklist:** A verification checklist includes data downloaded from PMRS and/or taken from hardcopy documentation for each participant installation or can be obtained by telephone or on-site visit. The following is a checklist of *qualification, savings verification and installation verification* activities applicable to the REEP:

*(Measure/Project Qualification)*

- 1) Participant has a valid utility account number
- 2) Measure is part of the applicable rebate catalog or approved measure list
- 3) Proof of purchase identifies qualifying measure and is dated within the period being verified.

- 4) Rebate payment date is within the evaluation period (this date may occur after closure of the current program year based on proof of purchases verified within the evaluation period).

(Deemed Savings Verification)

- 5) Tracking system unit kWh and kW are correct for when compared to adopted and referenced deemed savings values or partially deemed savings protocols.

(Installation Verification)

- 6) Telephone Installation Verification - Measure was actually installed at the customer site (telephone survey for basic level of rigor). If adopted deemed savings values and/or protocols include-service rates (ISR), verification shall confirm program participation and customer’s purchase or otherwise taking possession of the relevant energy efficiency products (in the case of give-away EE kits).

**Step 2 – Random Sampling:** Simplified random sample of participants selected from PMRS

All energy efficiency measures delivered by the REEP have deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). Based on low project-level variability simplified random sampling (EM&V Plan Section 2.8.1) is employed to achieve the desired level of confidence and precision (relative error).

The sample size meets or exceeds the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan) Table 3-35: Desired Confidence and Relative Precision for M&V Activities by Program Type. Using a Microsoft Excel random number generator function program participants were selected randomly. The planned sample size is statically valid to produce confidence/precision of 90/9.7% given minimum program participation of 85% of sampled participants.

Measure	Participants	Sample Size
Residential Deemed Savings Measures	2,861	35

**Step 3 – Measure/Project Qualification:** The evaluation team reviewed and confirmed relevant documentation for check list criteria item 1 through 4 described under Step 1 from PMRS, or other hardcopy documentation obtained for each sampled PMRS record.

- 1) Participant has a valid utility account number:  
All sampled participants had active Duquesne Light account numbers (these were found to be validated in PMRS via linkage to the Customer Information System).
- 2) Measure is on approved list:  
All sampled project measures were confirmed to be either listed in Duquesne Light’s residential rebate catalog containing approved measures or provided by Duquesne Light in a community outreach energy efficiency kit.



3) Proof of Purchase:

Of the 35 sampled participants, 27 received community outreach energy efficiency tool kits (EE Kits) and 8 received rebates for submitting applications and proof of purchase for qualifying rebate catalog items (REEP Rebates).

EE kits: Invoices from Niagara Conservation for Item YDUQ001-01 confirmed cost, delivery, shipping dates of kits Duquesne Light distributed at nine community outreach events identified in Table 1, above. The kits contained (2) 13 Watt CFLs, (1) 20 Watt CFL and a furnace whistle. Duquesne Light payment vouchers dated and signed, referencing Niagara Conservation invoice numbers were obtained and reviewed and checked against invoice costs, descriptions and event dates.

REEP Rebates: Retailer receipts or contractor invoices, bar codes and UPC descriptions were compared with rebate applications and PMRS measure descriptions. Applications envelop (bearing US Postal processing stamps) return addresses were compared with the rebate application and customer billing address. If proof of purchase was not definitive product information for referenced manufacturers and model numbers were obtained and compared against the rebate application and PMRS measure descriptions.

4) Rebate payment date is within the program year being verified

Rebate payment dates were checked to be within the evaluation period (If payment dates occurred after closure of the evaluation, period proof of purchase was accepted to verify a valid evaluation period transaction).

**Step 4 – Deemed Savings Verification:** All energy efficiency measures delivered by the REEP have deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). The fifth check list criterion described under Step 1, above, is addressed through comparison of PMRS tracking system unit kWh and kW with TRM or interim TRM update deemed savings values. REEP deemed savings verification bases are provided in Appendix A. Variances between tracking system savings values and adopted TRM deemed savings values are identified (Appendix B) for the sample set and incorporated into a Deemed Savings Adjustment (DSA) factor that is applied to savings claims of the sampled population. Overall REEP 2009 deemed savings were found to be 106% of tracking system energy savings values (kWh) and 61% of tracking system demand values (kW) linked to conservative tracking system energy savings estimates for programmable thermostats (PTs), dehumidifiers and EE Kits; deemed savings’ omission of demand reductions for PTs.

**Deemed Savings Adjusted Savings**

	Gross Savings	DSA	DSA Savings
kWh	723,172	106.0%	766,512
kW	42.1	60.6%	25.5

**Step 5 – Participation and Installation Verification:** Telephone surveys are employed for impact verification of measures receiving basic level of rigor verification (i.e., deemed savings measures with rebates less than \$2000)<sup>15</sup>. Telephone interviews of each sampled customer confirmed participation in

<sup>15</sup> Duquesne Light EM&V Plan Section 2.5.1 Verification of Gross Savings for Deemed Measures and Section 2.5.1.1 Basic Level of Verification Rigor Step 6.

the program, receipt a rebate or EE Kit, and installation the energy saving measure(s). If TRM, or adopted interim updates to the TRM, include deemed savings values and/or protocols incorporating in-service rates (ISR), verification surveys confirm program participation and participant purchase or otherwise receipt of subject energy efficiency products (i.e., in the case of EE kits provided participants at no cost).

Of the 35 sampled REEP participant projects, 27 are energy efficiency kits provided at community outreach events and 8 are for energy efficient product rebates. Telephone surveys were tailored to the product promotion and include questions designed to verify participants obtained the EE products. Appendix C contains the REEP Energy Efficiency Kit Recipient Survey and Appendix D – REEP Rebate Recipient Survey. Generally, the survey serves multiple impact verification, customer satisfaction, process evaluation and potentially net-to-gross related research objectives. Questions directly applicable to this report follow:

**REEP Energy Efficiency Kit Recipient Survey Participation / Installation Rates**

REEP Energy Efficiency Kit Recipient Survey Questions	Number
(V1 – Participation Rate)	
Q1. Do you recall receiving the energy savings kit at the [EVENT]?	
Yes	26
No	1
(V2 – Installation Rate)	
Q3. Can we report that you installed the energy efficiency products that were contained in the Kit?	
Yes	24
No	3

REEP Rebate Recipient Survey Questions	Number
(V1 – Participation Rate)	
Q3. Our program records indicate that you purchased [quantity of product] around [date of purchase] and applied for a rebate. Do you recall purchasing [quantity of product]?	
Yes	8
No	0
(V2 – Installation Rate)	
Q6. Can we report that you installed or are using the energy efficiency products that you purchased?	
Yes	8
No	0

Survey Results	Total	Yes	No	Rate (Yes)
V1- Participation Rate	35	34	1	97.1%
V2 – Installation Rate	35	32	3	91.4%

**Step 6 – Program Realization Rate:** Because all PY 2009 measure savings impacts resulted from the implementation of TRM deemed savings measures with stipulated savings and because the ISRs are also either stipulated in the deemed savings protocol or verified to be 100%, program realization rates presented herein are a function of participant projects meeting the program qualification requirements (QR - Step 3) and verification of program participation (PR - Step 5).

**REEP Program Year 2009 Verified Impacts**

	DSA Savings	QR	PR	Net Savings	Realization Rate
kWh	766,512	100.0%	97.1%	744,612	97.1%
kW	25.5	100.0%	97.1%	24.8	97.1%

**4.1.3 Program Sampling**

Program sampling is described above in Section 1.4.1 and 4.1.2 of this Annual Report.

**4.1.4 Process Evaluation**

A complete and formal process evaluation was not conducted for PY 2009. During the six month program activity, program systems and were still being implemented, an EM&V Plan was being developed and implementation contractors were still being engaged.

However, during the conduct of program sampling and the evaluation of program tracking system data evaluators learned key metrics were not being properly recorded by implementation contractors. This lead to adjustments in implementation processes which was communicated to CSPs and process revisions were made.

**4.1.5 Program Partners and Trade Allies**

Duquesne Light worked through local government partnerships with the City of Pittsburgh as well as Allegheny and Beaver Counties to coordinate delivery of its Act 129 program services.

#### 4.1.6 Program Finances

A summary of the project finances are presented in Table 4-1.

**Table 4-1: Summary of Program Finances: TRC Test<sup>16</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$20,582	\$20,582	\$20,582
A.2	EDC Incentives to Trade Allies	0	0	0
A	<b>Subtotal EDC Incentive Costs</b>	\$20,582	\$20,582	\$20,582
B.1	Design & Development	\$105,792	\$452,742	\$452,742
B.2	Administration	0	0	0
B.3	Management	\$6,100	\$42,943	\$42,943
B.4	Marketing	\$2,525	\$38,572	\$38,572
B.5	Technical Assistance	0	0	0
B	<b>Subtotal EDC Implementation Costs</b>	\$114,417	\$534,257	\$534,257
C	<b>EDC Evaluation Costs</b>	\$50,400	\$50,400	\$50,400
D	<b>SWE Audit Costs</b>	0	\$52,893	\$52,893
E	<b>Participant Costs</b>	0	0	0
	<b>Total Costs</b>	\$185,399	\$658,132	\$658,132
F	<b>Annualized Avoided Supply Costs*</b>			
G	<b>Lifetime Avoided Supply Costs*</b>			
	<b>Total Lifetime Economic Benefits*</b>			
	<b>Portfolio Benefit-to-Cost Ratio*</b>			
NOTES: Incentives are not included in the TRC test ratio calculation. Estimated measure costs are included as well as program administration costs applied pro-rata to each program incentive transaction.				

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

<sup>16</sup> Definitions for terms in following table are subject to TRC Order.

## 4.2 Residential: School Energy Pledge Program

The School Energy Pledge (SEP) program is designed to teach students about energy efficiency, have them participate in a school fundraising drive, and help their families to implement energy-saving measures at home. Energy efficiency impacts take place in student homes when families adopt energy efficiency measures that students learn about at school. Through the SEP, families complete a pledge form wherein they commit to install energy efficiency measures provided in an SEP Energy Efficiency Tool Kit (SEP EE Kit) provided free of charge. In return a family's commitment to install, the participating school receives an incentive of \$25.

### 4.2.1 Program Logic

Program Theories, Logic Models & Performance Indicators are provided in the EM&V Plan at Section 1.2.5. Program logic diagrams are provided in EM&V Plan Appendix E, Figure E-3 for the Residential School Energy Pledge Program.

### 4.2.2 Program M&V Methodology

Consistent with Duquesne Light's EM&V Plan Sections 2.5 and 2.5.1, the basic level of verification rigor used for TRM deemed savings measures and measures with rebates less than \$2,000 consists of a six-step process:

**Step 1 – Verification Checklist:** A verification checklist includes data downloaded from PMRS and/or taken from hardcopy documentation for each participant installation or can be obtained by telephone or on-site visit. The following is a checklist of *qualification, savings verification and installation verification* activities applicable to the SEP:

#### *(Measure/Project Qualification)*

- 1) Participant has a valid utility account number
- 2) Measure is part of the applicable rebate catalog or approved measure list
- 3) Proof of purchase identifies qualifying measure and is dated within the period being verified.
- 4) Rebate payment date is within the evaluation period (this date may occur after closure of the current program year based on proof of purchases verified within the evaluation period).

#### *(Deemed Savings Verification)*

- 5) Tracking system unit kWh and kW are correct for when compared to adopted and referenced deemed savings values or partially deemed savings protocols.

#### *(Installation Verification)*

- 6) Telephone Installation Verification - Measure was actually installed at the customer site (telephone survey for basic level of rigor). If adopted deemed savings values and/or protocols include-service rates (ISR), verification shall confirm program participation and customer's purchase or otherwise taking possession of the relevant energy efficiency products (in the case of give-away EE kits).

**Step 2 – Random Sampling:** Simple random sample of participants selected from the PMRS.

All energy efficiency measures delivered by the SEP have deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). Based on low project-level variability simplified random sampling (EM&V Plan Section 2.8.1) is employed to achieve the desired level of confidence and precision (relative error).

The sample size meets or exceeds the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan) Table 3-35: Desired Confidence and Relative Precision for M&V Activities by Program Type. Using a Microsoft Excel random number generator function program participants were selected randomly. The planned sample size is statically valid to produce confidence/precision of 90/9.7% given minimum program participation of 85% of sampled participants.

Measure	Participants	Sample Size
Residential Deemed Savings Measures	4,750	35

**Step 3 – Measure/Project Qualification:** The evaluation team reviewed and confirmed relevant documentation for check list criteria item 1 through 4 described under Step 1 from PMRS, or other hardcopy documentation obtained for each sampled PMRS record.

- 1) Participant has a valid utility account number:  
*All sampled participants had active Duquesne Light account numbers (these were found to be validated in PMRS via linkage to the Customer Information System).*
- 2) Measure is on approved list:  
*All sampled project measures were confirmed to be either listed in Duquesne Light’s residential rebate catalog containing approved measures or provided by Duquesne Light in a community outreach energy efficiency kit.*
- 3) Proof of Purchase:  
Of the 35 sampled participants all received SEP EE Kits. Invoices from Niagara Conservation for Item YDL02 and YDL04 confirmed cost, delivery, shipping dates of kits Duquesne Light distributed. Duquesne Light payment vouchers dated and signed, referencing Niagara Conservation invoice numbers were obtained and reviewed and checked against invoice costs and descriptions.
- 4) Rebate payment date is within the program year being verified:  
*Not applicable for this program.*

**Step 4 - Deemed Savings Verification:** All energy efficiency measures delivered by the SEP have deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). The fifth check list criterion described under Step 1, above, is addressed through comparison of PMRS tracking system unit kWh and kW with TRM or interim TRM update deemed savings values. SEP deemed savings verification bases are provided in Appendix E. Variances between tracking system savings values and adopted TRM deemed savings values are identified below as a census of all PY 2009 SEP EE Kits reflecting the FY 2009 SEP Program Deemed Savings Adjustments (DSA). Overall SEP 2009 verified deemed savings were found to be 100.8% of tracking system energy savings values (kWh) and 8.7% of tracking system demand values (kW).

Variations between tracking system savings values and adopted TRM deemed savings values can be linked to adoption of deemed savings during and after program implementation. Generally, SEP energy savings estimates were conservative (specifically for night lights and furnace whistles). However adopted deemed savings provide for no demand reductions associated with these measures as well as incorporating severed reductions in CFL demand impacts through adoption of 5% residential lighting coincident factors. Deemed savings verification for SEP EE Kits delivered in PY 2009 are summarized in the following table:

**SEP EE Kit Deemed Savings Adjustments**

Kit Description	2009	Unit PMRS		Unit Deemed		Total PMRS		DSA Adjusted		
	EE Kit Qty	kWh	kW	kWh	kW	kWh	kW	kWh	kW	
YLD02	1,517	365	0.294	379	0.0118	553,705	446.0	574,943	17.9	
YLD04	3,233	416	0.083	414	0.0137	1,344,928	268.3	1,338,462	44.3	
<b>Total</b>	4,750					1,898,633	714.3	1,913,405	62.2	
<i>Deemed Savings Adjustment</i>						100.8%	8.7%			

**Step 5 – Participation and Installation Verification:** Telephone surveys are employed for impact verification of measures receiving basic level of rigor verification (i.e., deemed savings measures with rebates less than \$2000)<sup>17</sup>. The SEP telephone interview survey (Appendix F) of each sampled customer confirmed participation in the program and receipt of a SEP EE Kit. Kit content installation rates are recorded at the kit level but lack measure specific detail. Installation rates are taken from TRM, or adopted interim updates to the TRM, deemed savings values and/or protocols incorporating in-service rates (ISR); The primary function of the verification survey is to confirm program participation and participant receipt of the SEP EE Kit.

Generally, the survey serves multiple impact verification, customer satisfaction, process evaluation and potentially net-to-gross related research objectives. Questions directly applicable to this report follow:

**SEP EE Kit Recipient Survey Participation / Installation Rates**

SEP Energy Efficiency Kit Recipient Survey Questions	Number
(V1 – Participation Rate)	
Q1. Do you recall the program? (if yes go to Q3)	
Yes	34
No	1
(V2 – Kit Content Installation Rate)	
Q3. Can we report that you installed the energy efficiency products that were contained in the Kit?	
Yes	31
No (1-No, 3 Partial)	4

Survey Results	Total	Yes	No	Rate (Yes)
V1- Participation Rate	35	34	1	97.1%
V2 – Installation Rate	35	31	4	88.6%

*Note: Results are not discounted for V2 because deemed savings adopt an in-service rate for EE kit components (CFL: 84%, Night Lights 87% and Furnace Whistle 47.4%)*

<sup>17</sup> Duquesne Light EM&V Plan Section 2.5.1 Verification of Gross Savings for Deemed Measures and Section 2.5.1.1 Basic Level of Verification Rigor Step 6.

**Step 6 – Program Realization Rate:** Because all PY 2009 measure savings impacts resulted from the implementation of TRM deemed savings measures with stipulated savings and because the ISRs are also either stipulated in the deemed savings protocol or verified to be 100%, program realization rates presented herein are a function of participant projects meeting the program qualification requirements (QR - Step 3) and verification of program participation (PR - Step 5).

**SEP Program Year 2009 Verified Impacts**

	DSA Savings	QR	PR	Net Savings	Realization Rate
kWh	1,913,405	100.0%	97.1%	1,858,736	97.1%
kW	62.2	100.0%	97.1%	60.4	97.1%

**4.2.3 Program Sampling**

Program sampling is described above in Section 1.4.1 and 4.2.2 of this Annual Report.

**4.2.4 Process Evaluation**

A complete and formal process evaluation was not conducted for PY 2009. During the six month period of program activity, program systems and were still being implemented, an EM&V Plan was being developed and implementation contractors were still being engaged.

**4.2.5 Program Partners and Trade Allies**

The School Energy Pledge Program was implemented as a partnership between Duquesne Light and 35 regional elementary schools. Duquesne Light also partnered with 4,750 families that “pledged” to install energy efficient products in return for a \$25 donation their child school.



#### 4.2.6 Program Finances

A summary of the project finances are presented in Table 4-2.

**Table 4-2: Summary of Program Finances: TRC Test<sup>18</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$80,900	\$118,750	\$118,750
A.2	EDC Incentives to Trade Allies (Kit Supplier Conservation)	62,289	\$91,877	\$91,877
A	<b>Subtotal EDC Incentive Costs</b>	\$143,189	\$210,627	\$210,627
B.1	Design & Development	\$12,977	\$356,618	\$356,618
B.2	Administration	0	0	0
B.3	Management	\$6,096	\$16,301	\$16,301
B.4	Marketing	\$458	\$6,599	\$6,599
B.5	Technical Assistance	0	0	0
B	<b>Subtotal EDC Implementation Costs</b>	\$19,531	\$379,518	\$379,518
C	<b>EDC Evaluation Costs</b>	\$9,240	\$9,240	\$9,240
D	<b>SWE Audit Costs</b>	0	\$9,601	\$9,601
E	<b>Participant Costs</b>	0	0	0
	<b>Total Costs</b>	\$171,960	\$608,986	\$608,986
F	<b>Annualized Avoided Supply Costs*</b>			
G	<b>Lifetime Avoided Supply Costs*</b>			
	<b>Total Lifetime Economic Benefits*</b>			
	<b>Portfolio Benefit-to-Cost Ratio*</b>			
<b>NOTES:</b>				

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

<sup>18</sup> Definitions for terms in following table are subject to TRC Order.

### 4.3 Residential: Refrigerator Recycling Program

The Residential Refrigerator (& Freezer) Recycling Program (RRRP) seeks to produce cost-effective, long-term, coincident peak demand reduction and annual energy savings in residential market sector by removing operable, inefficient, primary and secondary refrigerators and freezers from the power grid in an environmentally safe manner.

To stimulate participation, RRRP offers incentives for eligible refrigerators (\$35) and freezers (\$35). In addition, RRRP collaborates with other utility programs such as Low Income Energy Efficiency Program, the Public Agency Partnership Program and is implemented in a manner consistent with appliance recycling programs across Pennsylvania by using a common implementation contractor (JACO).

#### 4.3.1 Program Logic

Program Theories, Logic Models & Performance Indicators are provided in the EM&V Plan at Section 1.2.5. Program logic diagrams are provided in EM&V Plan Appendix E, Figure E-4 for the Residential School Energy Pledge Program.

#### 4.3.2 Program M&V Methodology

Consistent with Duquesne Light's EM&V Plan Sections 2.5 and 2.5.1, the basic level of verification rigor used for TRM deemed savings measures and measures with rebates less than \$2,000 consists of a six-step process:

**Step 1 – Verification Checklist:** A verification checklist includes data downloaded from PMRS and/or taken from hardcopy documentation for each participant installation or can be obtained by telephone or on-site visit. The following is a checklist of qualification, savings verification and installation verification activities applicable to the RRRP:

##### *(Measure/Project Qualification)*

- 1) Participant has a valid utility account number
- 2) Measure qualification:
  - Unit in working condition (tested prior to pick-up)
  - Unit meets size requirement which is 10 cu ft - 30 cu ft.
- 3) Energy savings impact occurred within the evaluation period (surrogate for EE rebate proof of purchase date); unit must have been removed within the evaluation period.
- 4) Rebate payment date is within the evaluation period (this date may occur after closure of the program year providing unit removal (savings impact) occurred within the evaluation period)

##### *(Deemed Savings Verification)*

- 5) Tracking system unit kWh and kW are correct for each listed measure

*(Installation Verification)*

- 6) Telephone Installation Verification - Measure was actually installed at the customer site (telephone survey for basic level of rigor - for this program means the appliance was actually picked up and recycled)

**Step 2 – Random Sampling:** Simple random sample of participants selected from the PMRS.

All energy efficiency measures delivered by the RRRP have deemed savings specified in the TRM.. Based on low project-level variability simplified random sampling (EM&V Plan Section 2.8.1) is employed to achieve the desired level of confidence and precision (relative error).

The sample size meets or exceeds the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan) Table 3-35: Desired Confidence and Relative Precision for M&V Activities by Program Type. Using a Microsoft Excel random number generator function program participants were selected randomly. The planned sample size is statically valid to produce confidence/precision of 90/9.1% given minimum program participation of 85% of sampled participants.

Measure	Participants (Through 5/31/2010)	Sample Size
Recycle Refrigerator or Freezer	252	35

**Step 3 – Measure/Project Qualification:** Relevant documentation for item #1 through #4 from PMRS, or other hardcopy documentation is then obtained for each sampled PMRS record.

- 1) Participant has a valid utility account number  
*Participant Duquesne Light account numbers are validated in PMRS via linkage to the Customer Information System.*
- 2) Measure is on approved list (Refrigerators/freezers qualify for Recycling when):
  - In working condition  
*Verification addressed under Step 5 – Participation and Installation Verification*
  - Meets the size requirement which is 10 cu ft - 30 cu ft.  
*See Appendix H: JACO data request “SizeCuFt” field*
- 3) Proof of Purchase: Not applicable for this program, appliance pick-up date was checked to ensure it was within the evaluation period.  
PMRS records indicates pick-up dates were within the evaluation period, cross-checked with JACO response to data request (Appendix H), and participant survey *addressed under Step 5 – Participation and Installation Verification.*
- 4) Rebate payment date is within the program year being verified  
*Rebate payment dates N/A, defer to appliance pick-up date for verification of impact within the evaluation period.*

**Step 4 - Deemed Savings Verification:** All energy efficiency measures delivered by the RRRP have deemed savings specified in the current TRM. The fifth check list criterion described under Step 1, above, is addressed through comparison of PMRS tracking system unit kWh and kW with TRM or interim TRM update deemed savings values. Under the TRM Refrigerator/Freezer Retirement is treated as the

one measure where the number of units is multiplied by specified savings per unit. Unit savings are defined as below:

$$\text{Electricity Impact (kWh)} = \text{ESav}_{\text{RetFridge}}$$

$$\text{Demand Impact (kW)} = \text{DSav}_{\text{RetFridge}} \times \text{CF}_{\text{RetFridge}}$$

*Term definition:*

$\text{ESav}_{\text{RetFridge}}$  = Gross annual energy savings per unit retired appliance

$\text{DSav}_{\text{RetFridge}}$  = Summer demand savings per retired refrigerator/freezer

$\text{CF}_{\text{RetFridge}}$  = Summer demand coincidence factor

**(TRM) Table 4-2: Refrigerator/Freezer Recycling – References**

Component	Type	Value
$\text{ESav}_{\text{RetFridge}}$	Fixed	1,728 kWh
$\text{DSav}_{\text{RetFridge}}$	Fixed	0.2376 kW
$\text{CF}_{\text{RetFridge}}$	Fixed	1

The aforementioned deemed savings values were compared with PMRS tracking system data for the RRRP sample projects and found to be 100% consistent where deemed savings values are 100% of tracking system energy savings values (kWh) and 100% of tracking system demand savings values (kW); there is no Deemed Savings Adjustment (DSA) indicated.

**Step 5 – Participation and Installation Verification:** Telephone surveys are employed for impact verification of measures receiving basic level of rigor verification (i.e., deemed savings measures with rebates less than \$2000)<sup>19</sup>. RRRP telephone interview surveys (Appendix I) were performed for of each sampled customer to confirm participation in the program. Participation verification includes confirmation the unit was picked up for recycling and the unit was tested to ensure it is in operating condition prior to removal (per Step 1, criterion 2). RRRP telephone survey questions addressing this activity follow:

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<sup>19</sup> Duquesne Light EM&V Plan Section 2.5.1 Verification of Gross Savings for Deemed Measures and Section 2.5.1.1 Basic Level of Verification Rigor Step 6.

**RRRP Participant Survey Participation / Installation Rates**

Refrigerator /Freezer Recycling Program Participant Survey Questions	Number
Q3. Our program records indicate that you received an incentive of [amount of program incentive] for pickup of [quantity of refrigerator, freezer] around [date of pickup]. Do you recall having your [refrigerator, freezer] picked up by JACO Environmental?	
Yes	35
No	0
Q8. Do you recall if the representative from JACO Environmental tested the refrigerator, freezer] before taking it away?	
Yes	34
No	1

Confirmation of participation requires both questions 3 and 8 be answered in the affirmative; a negative response to either of the questions constitutes failure of the participation test.

Survey Results	Total	Yes	No	Rate (Yes)
Participation Rate	35	34	1	97.1%

**Step 6 – Program Realization Rate:** Because all PY 2009 measure savings impacts resulted from the implementation of TRM deemed savings measures with stipulated savings and because the ISRs are also either stipulated in the deemed savings protocol or verified to be 100%, program realization rates presented herein are a function of participant projects meeting the program qualification requirements (QR - Step 3) and verification of program participation (PR - Step 5).

The PR (Participation Rate) is a function of project verification undertaken in function of Step 1 and Step 5.

- The participant is a current Duquesne Light customer
- Verification (via telephone survey) the customer participated in the program.
- Measure qualifies under program requirements:
  - Unit in working condition (tested prior to pick-up)
  - Unit meets size requirement which is 10 cu ft - 30 cu ft.

Participant telephone surveys found one participant had unplugged a refrigerator prior to the contractor’s arrival to remove the unit. Based on this finding the evaluation team concludes it could not have been tested and thereby failed the participation test resulting in participation verification of 34 out of 35 participants sampled resulting in a participation rate of 97.14%

**RRRP Program Year 2009 Verified Impacts**

	Gross Savings	QR	PR	Net Savings	Realization Rate
kWh	452,736	100.0%	97.1%	439,801	97.1%
kW	62.1	100.0%	97.1%	60.3	97.1%

### 4.3.3 Program Sampling

Program sampling is described above in Section 1.4.1 and 4.3.2 of this Annual Report.

### 4.3.4 Process Evaluation

A complete and formal process evaluation was not conducted for PY 2009. During the four month period of program activity, program systems and were still being implemented, an EM&V Plan was being developed and implementation contractors were still being engaged.

### 4.3.5 Program Partners and Trade Allies

The program implementer (JACO) is implementing similar programs for the other Pennsylvania EDCs, promoting consistent regional treatment, increasing efficiencies and reducing customer confusion.

### 4.3.6 Program Finances

A summary of the project finances are presented in Table 4-3.

**Table 4-3: Summary of Program Finances: TRC Test<sup>20</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$7,420	\$9,170	\$9,170
A.2	EDC Incentives to Trade Allies	0	0	0
A	<b>Subtotal EDC Incentive Costs</b>	\$7,420	\$9,170	\$9,170
B.1	Design & Development	\$39,178	\$85,777	\$85,777
B.2	Administration	0	0	0
B.3	Management	\$6,096	\$16,301	\$16,301
B.4	Marketing	\$332	\$5,502	\$5,502
B.5	Technical Assistance	0	0	0
B	<b>Subtotal EDC Implementation Costs</b>	\$45,606	\$107,580	\$107,580
C	<b>EDC Evaluation Costs</b>	\$6,720	\$6,720	\$6,720
D	<b>SWE Audit Costs</b>	0	\$6,959	\$6,959
E	<b>Participant Costs</b>	0	0	0
	<b>Total Costs</b>	\$59,746	\$130,429	\$130,429
F	<b>Annualized Avoided Supply Costs*</b>			
G	<b>Lifetime Avoided Supply Costs*</b>			
	<b>Total Lifetime Economic Benefits*</b>			
	<b>Portfolio Benefit-to-Cost Ratio*</b>			

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

<sup>20</sup> Definitions for terms in following table are subject to TRC Order.

## 4.4 Residential: Low Income Energy Efficiency Program

The Low-Income Energy Efficiency Program (LIEEP) is designed as an income-qualified program providing services to assist low-income households to conserve energy and reduce electricity costs. The objective of this program is to increase qualifying customers' comfort while reducing their energy consumption, costs, and economic burden.

In PY 2009 the LIEEP savings by income qualifying customers were delivered by the Residential Energy Efficiency Program (REEP), the Residential School Energy Pledge Program (SEP) and the Residential Refrigerator/Freezer Recycling Program (RRRP).

### 4.4.1 Program Logic

Program Theories, Logic Models & Performance Indicators are provided in the EM&V Plan at Section 1.2.5. Program logic diagrams are provided in EM&V Plan Appendix E, Figure E-1 for the Residential School Energy Pledge Program.

### 4.4.2 Program M&V Methodology

Consistent with Duquesne Light's EM&V Plan Sections 2.5 and 2.5.1, the basic level of verification rigor used for TRM deemed savings measures and measures with rebates less than \$2,000 consists of a six-step process:

**Step 1 – Verification Checklist:** A verification checklist includes data downloaded from PMRS and/or taken from hardcopy documentation for each participant installation or can be obtained by telephone or on-site visit. The following is a checklist of *qualification, savings verification and installation verification* activities applicable to the LIEEP:

*(Measure/Project Qualification)*

- 1) Participant has a valid utility account number
- 2) Measure is part of the applicable rebate catalog, approved measure list or provided free of charge by Duquesne Light. Where savings were delivered by the RRRP, measure qualification include:
  - Unit in working condition (tested prior to pick-up)
  - Unit meets size requirement which is 10 cu ft - 30 cu ft.
- 3) Proof of purchase identifies qualifying measure and is dated within the period being verified. Where EE kits were provided free of charge, or refrigerators or freezers were removed for recycling, verifying the date energy savings impact occurs shall serve as a surrogate for EE rebate proof of purchase date.
- 4) Rebate payment date is within the evaluation period (this date may occur after closure of the program year providing):
  - Proof of purchase is dated within the evaluation period
  - RRRP unit removal occurs within the evaluation period

*(Deemed Savings Verification)*

- 5) Tracking system unit kWh and kW are correct for when compared to adopted and referenced deemed savings values or partially deemed savings protocols.

*(Installation Verification)*

- 6) Telephone Installation Verification - Measure was actually installed at the customer site (telephone survey for basic level of rigor). If adopted deemed savings values and/or protocols include-service rates (ISR), verification shall confirm program participation and customer's purchase or otherwise taking possession of the relevant energy efficiency products (in the case of give-away EE kits).

**Step 2 – Random Sampling:** Simple random sample of participants selected from the PMRS.

All energy and demand savings reported for PY 2009 LIEEP result from the implementation of measures with deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). Based on low project-level variability simplified random sampling (EM&V Plan Section 2.8.1) is employed to achieve the desired level of confidence and precision (relative error).

The sample size meets or exceeds the Audit Plan and Evaluation Framework for Pennsylvania Act 129 Energy Efficiency and Conservation Programs (Audit Plan) Table 3-35: Desired Confidence and Relative Precision for M&V Activities by Program Type. Using a Microsoft Excel random number generator function program participants were selected randomly. The planned sample size is statically valid to produce confidence/precision of 90/9.6% given minimum program participation of 85% of sampled participants.

Measure	Participants	Sample Size
Residential Deemed Savings Measures	1,296	35

**Step 3 – Measure/Project Qualification:** The evaluation team reviewed and confirmed relevant documentation for check list criteria item 1 through 4 described under Step 1 from PMRS, or other hardcopy documentation obtained for each sampled PMRS record.

- 1) Participant has a valid utility account number:  
*All sampled participants had active Duquesne Light account numbers (these were found to be validated in PMRS via linkage to the Customer Information System).*
- 2) Measure is on approved list:  
97% of projects implemented (1,261 out of 1,296) by income qualifying customers resulting in savings reported by the PY 2009 LIEEP came from *measures provided by Duquesne Light in an EE Kit or SEP EE Kit. Random selection of 35 sample projects resulted in a sample set comprised of 12 EE Kits and 23 SEP EE Kits. The following table provides definition of the EE Kits or SEP EE kits sampled:*



### EE Kit and SEP EE Kit Content

Kit Type	Item	Sampled	Kit Content	Qty
EE Kit	YDUQ001-01	12	13 Watt CFL	2
			20 Watt CFL	1
			Furnace Whistle	1
			Description / Installation Sheet	1
SEP EE Kit	YDL02	23	13 Watt CFL	5
			Night Light (Lime Light)	2
			Furnace Whistle	1
			Door / Window Weather Stripping	1
			Energy Wheel	1
			Description / Installation Sheet	1

*All sampled project measures were provided by Duquesne Light and are qualifying measures.*

3) Proof of Purchase:

*As related above, random selection of 35 sample projects result in a sample set comprised of 12 EE Kits and 23 SEP EE Kits.*

EE kits: Invoices from Niagara Conservation for Item YDUQ001-01 EE Kits confirmed cost, delivery, shipping dates of kits Duquesne Light distributed at nine community outreach events identified in Table 12, above. Duquesne Light payment vouchers dated and signed, referencing Niagara Conservation invoice numbers were obtained and reviewed and checked against invoice costs, descriptions and event dates.

*SEP EE Kits. Invoices from Niagara Conservation for Item YDL02 (described above) confirmed cost, delivery, shipping dates of kits Duquesne Light distributed. Duquesne Light payment vouchers dated and signed, referencing Niagara Conservation invoice numbers were obtained and reviewed and checked against invoice costs and descriptions.*

4) Rebate payment date is within the program year being verified

*Not applicable for the sampled projects.*

**Step 4 - Deemed Savings Verification:** Measures implemented by income qualifying customers resulting in savings reported by the PY 2009 LIEEP came from measures with deemed savings specified in the TRM or interim updates to the TRM approved/adopted by the Statewide Evaluator (SWE). The fifth check list criterion described under Step 1, above, is addressed through comparison of PMRS tracking system unit kWh and kW with TRM or interim TRM update deemed savings values. LIEEP deemed savings verification bases are provided in Appendix K. Table 19 summarizes variances found between tracking system savings values and adopted TRM deemed savings values and bases for the FY 2009 LIEEP Deemed Savings Adjustments (DSA). The table expands the comparison from 35 sampled sites to

compare PMRS tracking system data to deemed savings data for all EE Kits, SEP EE Kits, Duquesne Light Employee Kits, and Refrigerator Recycling activity provided income qualifying participants reported under LIEEP. This activity comprises a near census of LIEEP claimed savings: 1,272 projects (1,274 measures see below) out of 1,296 reported projects comprising 98% of all projects; 501 MWh out of 507 MWh claimed savings (99%). The remaining 24 projects were comprised of individual rebates for items such as dehumidifiers, refrigerators, CFLs, lighting fixtures and programmable thermostats for low income customers.

**Comparison of EE Kit Tracking System Savings with Adopted Deemed Savings**

Kit Description	2009 EE Kit Qty	Unit PMRS		Unit Deemed		Total PMRS		DSA Adjusted	
		kWh	kW	kWh	kW	kWh	kW	kWh	kW
YDUQ001-01	177	248	0.007	248	0.0075	43,896	1.2	43,914	1.3
YLD02	256	365	0.294	379	0.0118	93,440	75.3	97,024	3.0
YLD04	812	416	0.083	414	0.0137	337,792	67.4	336,168	11.1
Employee Kit 1	13	142	0.005	120	0.0051	1,846	0.1	1,558	0.1
Employee Kit 2	3	568	0.095	581	0.0511	1,704	0.3	1,743	0.2
Refrig Recycling	13	1728	0.237	1728	0.237	22,464	3.1	22,464	3.1
<b>Total</b>	1,274					501,142	147.3	502,870	19
<i>Deemed Savings Adjustment Factors</i>						<i>100.3%</i>	<i>12.7%</i>		

Table 20 applies the DSA calculated above to total claimed savings (tracking system values) for the PY 2009 LIEEP DSA Savings:

**Deemed Savings Adjusted Savings**

	Gross Savings	DSA	DSA Savings
kWh	507,932	100.3%	509,684
kW	148.1	12.7%	18.9

Overall LIEEP 2009 deemed savings were found to be 100.4% of tracking system energy savings values (kWh) and 10.8% of tracking system demand savings values (kW). Variances between tracking system savings values and adopted TRM deemed savings values can be linked to adoption of deemed savings during and after program implementation. Generally, energy savings estimates were conservative (specifically for night lights and furnace whistles). However adopted deemed savings provide for no demand reductions associated with these measures as well as incorporating severed reductions in CFL demand impacts through adoption of a 5% residential lighting coincident factor.

**Step 5 – Participation and Installation Verification:** Telephone surveys are employed for impact verification of measures receiving basic level of rigor verification (i.e., deemed savings measures with rebates less than \$2000)<sup>21</sup>. Of the 35 sampled LIEEP participant projects, 12 are EE kits and 23 are SEP EE Kits. Telephone surveys were tailored to the product promotion and include questions designed to verify participants obtained the EE products. Appendix B contains the EE Kits recipient survey and Appendix F contains the SEP EE Kit recipient survey. Kit content installation rates are recorded at the kit level but lack measure specific detail. Installation rates are taken from TRM, or adopted interim updates to the TRM, deemed savings values and/or protocols incorporating in-service rates (ISR); The primary function

<sup>21</sup> Duquesne Light EM&V Plan Section 2.5.1 Verification of Gross Savings for Deemed Measures and Section 2.5.1.1 Basic Level of Verification Rigor Step 6.

of the verification survey is to confirm program participation and participant receipt of the EE Kit of SEP EE Kit.

Generally, the survey serves multiple impact verification, customer satisfaction, process evaluation and potentially net-to-gross related research objectives. Questions directly applicable to this report follow:

**LIEEP Energy Efficiency Kit Recipient Survey Participation / Installation Rates**

LIEEP Energy Efficiency Kit Recipient Survey Questions	Number
(V1 – Participation Rate)	
Q1. Do you recall receiving the energy savings kit at the [EVENT]?	
Yes	12
No	0
(V2 – Installation Rate)	
Q3. Can we report that you installed the energy efficiency products that were contained in the Kit?	
Yes	11
No (1-partial)	1

LIEEP - SEP Energy Efficiency Kit Recipient Survey Questions	Number
(V1 – Participation Rate)	
Q1. Do you recall the program? (if yes go to Q3)	
Yes	23
No	0
(V2 – Kit Content Installation Rate)	
Q3. Can we report that you installed the energy efficiency products that were contained in the Kit?	
Yes	23
No	0

Survey Results	Total	Yes	No	Rate (Yes)
V1- Participation Rate	35	35	0	100.0%
V2 – Installation Rate	35	34	1	97.1%

**Step 6 – Program Realization Rate:** Because all PY 2009 measure savings impacts resulted from the implementation of TRM deemed savings measures with stipulated savings and because the ISRs are also either stipulated in the deemed savings protocol or verified to be 100%, program realization rates presented herein are a function of participant projects meeting the program qualification requirements (QR - Step 3) and verification of program participation (PR - Step 5).

The PR (Participation Rate) is a function of project verification undertaken in function of Step 1 and Step 5. If any of the following tests fail, verified program impacts are set to zero:

- 1) The participant is a current Duquesne Light customer
- 2) The measure is included in The LIEEP

- 3) The measure was obtained during the program period
- 4) Verification (via telephone survey) the customer participated in the program.

The IR (Installation Rate) is a function of project verification under taken in Step 5 wherein participants are asked if they installed the item purchased or received (in the case of community outreach EE Kits). The IR is a percentage of the items obtained that were reported to be installed. All LIEEP rebate recipients surveyed confirmed an IR of 100%.

LIEEP Program Year 2009 Verified Impacts

	DSA Savings	QR	PR	Net Savings	Realization Rate
kWh	509,684	100.0%	100.0%	509,684	100.0%
kW	18.9	100.0%	100.0%	18.9	100.0%

**4.4.3 Program Sampling**

Program sampling is described above in Section 1.4.1 and 4.4.2 of this Annual Report.

**4.4.4 Process Evaluation**

A complete and formal process evaluation was not conducted for PY 2009. During the four month period of program activity, program systems and were still being implemented, an EM&V Plan was being developed and implementation contractors were still being engaged.

**4.4.5 Program Partners and Trade Allies**

Primary reporting for PY 2009 for the LIEEP reflects income qualifying customers participating in REEP, SEP or RRRP. Consistent with its filed program plan, in PY 2010 the LIEEP will be delivered through Public Agency Partnership arrangements whereby Duquesne Light partners with local government (cities and counties and their jurisdictional agencies) to deliver program services. This program design leverages program resources and enables it to reach a greater number of participants while retaining its status as a cost-effective resource program.

#### 4.4.6 Program Finances

A summary of the project finances are presented in Table 4-4.

**Table 4-4 A Summary of Program Finances**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$21,445	\$27,915	\$27,915
A.2	EDC Incentives to Trade Allies	0	0	0
A	<b>Subtotal EDC Incentive Costs</b>	\$21,445	\$27,915	\$27,915
B.1	Design & Development	\$20,661	\$122,344	\$122,344
B.2	Administration	0	0	0
B.3	Management	\$6,096	\$16,301	\$16,301
B.4	Marketing	\$869	\$11,985	\$11,985
B.5	Technical Assistance	0	0	0
B	<b>Subtotal EDC Implementation Costs</b>	\$27,626	\$150,630	\$150,630
C	<b>EDC Evaluation Costs</b>	\$17,640	\$17,640	\$17,640
D	<b>SWE Audit Costs</b>	0	\$18,212	\$18,212
E	<b>Participant Costs</b>	0	0	0
	<b>Total Costs</b>	\$66,711	\$214,397	\$214,397
F	<b>Annualized Avoided Supply Costs*</b>			
G	<b>Lifetime Avoided Supply Costs*</b>			
	<b>Total Lifetime Economic Benefits*</b>			
	<b>Portfolio Benefit-to-Cost Ratio*</b>			
<b>NOTES:</b>				

*\*Per direction from the SWE on 9-13-2010, no TRC values are provided for the PY 2009 annual report.*

## **4.5 Other Programs Active in PY 2009**

As related above under Annual Report Section 1.4.1, the evaluation dataset contained record of 9,180 customer actions taken to implement energy efficiency measures termed “projects” completed by Duquesne Light’s EE&C Programs during PY 2009. The 9,180 projects include 8,326 (91%) energy efficiency kits containing residential measures (CFLs, night lights and furnace whistles) that the utility provided free of charge to program participants. The remaining 854 projects included 852 residential, measures, and two commercial lighting projects. Because 9,178 projects out of 9,180 projects reviewed involved implementing residential measures in residential dwellings, PY 2009 verification addressed only PY 2009 savings impacts of the residential programs described above.