

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

**For the period  
June 2010 to May 2011  
Program Year 2**

For Act 129 of 2008  
Energy Efficiency and Conservation Program  
of West Penn Power Company

Prepared by West Penn Power Company  
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**Abbreviations (see Glossary for definitions)**

AYE	Allegheny Energy Corp.
CPITD	Cumulative Program/Portfolio Inception to Date
CSP	Conservation Service Provider
EDC	Electric Distribution Company
EE&C	Energy Efficiency and Conservation
EM&V	Evaluation Measurement and Verification
FE	FirstEnergy Corp.
IQ	Incremental Quarter
kW	Kilowatt
kWh	Kilowatt-hour
LDDA	Local Development District Associations
M&V	Measurement and Verification
MW	Megawatt
MWh	Megawatt-hour
NTG	Net-to-Gross
PY	Program Year
PYTD	Program/Portfolio Year to Date
SWE	Statewide Evaluator
TRC	Total Resource Cost
TRM	Technical Reference Manual
TWG	Technical Working Group
WPP	West Penn Power

## 1 Overview of Portfolio

Act 129 of 2008, 66 Pa. C.S. § 2806.1 *et seq.* (“Act 129”), signed into law on October 15, 2008, set forth energy efficiency (“EE”) and peak demand reduction (“PDR”) requirements for Pennsylvania’s largest electric distribution companies (EDCs). Section 2806.1(c)(1) and (2) of Act 129 requires EDCs to reduce electric consumption by 1% and 3% of their annual weather-normalized energy requirements by May 31, 2011 and May 31, 2013, respectively. Section 2806.1(d)(1) further requires EDCs to reduce their PDR by 4.5% by May 31, 2013. Pursuant to these requirements, West Penn Power (“WPP” or “Company”) submitted an energy efficiency and conservation (EE&C) plan (“EE&C Plan”) on October 23, 2009 and several subsequent iterations, the last of which was included in an amendment on September 10, 2010, which explained how WPP intended to comply with these statutory requirements. The Commission approved this EE&C Plan through a series of Orders.<sup>1</sup>

In accordance with the Secretarial Letter issued on May 25, 2011<sup>2</sup>, which requires EDCs to submit a preliminary and final annual status report by July 15<sup>th</sup> and November 15<sup>th</sup>, respectively, WPP respectfully submits this annual report documenting the progress towards compliance with the aforementioned requirements for the period June 1, 2010 through May 31, 2011 (“Reporting Period”).

As of the date of this report, the Company achieved 90,520 MWh of verified energy savings by May 31, 2011, which represents approximately 43% of the Company’s 2011 EE target. Due to the fact that several customers are still accumulating necessary documentation for projects that may qualify for inclusion in the Company’s final results, the Company cannot yet provide final results for purposes of compliance with statutory benchmarks<sup>3</sup>. Therefore, this report includes verified savings for most projects for the program year for all programs included in the Company’s EE&C Plan, cost-effectiveness evaluations (Total Resource Cost Test) for these projects and programs, the process evaluation, and other items required by Act 129 and Commission Orders. However, pursuant to the July 26, 2011 memorandum from the Statewide Evaluator regarding reporting timing issues, WPP has also included in Table A, a list of “lagged transactions” or transactions affected by reporting lag in such a way that the transaction is installed before, but recorded after, a statutory target date. Because the Company’s customers are still accumulating the necessary data, the information included in Table A is preliminary and is still subject to change.

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<sup>1</sup> *Energy Efficiency and Conservation Program*, Docket No. M-2008-2069887; Secretarial Letter (May 25, 2011), Docket No. M-2008-2069887. WPP notes that in its efforts to comply with Act 129, they followed their Commission-approved EE&C Plans, which were the result of collaboration between WPP and approximately 15 intervenors.

<sup>2</sup> *Energy Efficiency and Conservation Program*, Docket No. M-2008-2069887, Secretarial Letter (May 25, 2011). See Docket No. M-2008-2069887

<sup>3</sup> Because of the difficulty in obtaining some of this data from certain customers, WPP respectfully requests that the Commission postpone any assessment of compliance with statutory 2011 energy efficiency benchmarks until WPP provides final results for the 2013 EE and PDR requirements.

Table A

Program Name	Number of Participants	Reported Gross kWh Savings	Estimated Realization Rate (kWh)*	Estimated Verified Gross kWh Savings	Reported Gross kW Savings	Estimated Realization Rate (kW)*	Estimated Verified Gross kW Savings
Commercial Products Efficiency Program	12	3,160,000	0.98	3,096,800	386	0.93	359
Commercial HVAC Efficiency Program	1	35,000	1.21	42,350	0	1.19	0
Custom Applications Program	6	47,351,000	1.15	54,453,650	5,940	0.99	5,881
Governmental/Non-Profit Lighting Efficiency Program	3	50,000	0.79	39,500	0	0.81	0
<b>Total</b>	<b>22</b>	<b>50,596,000</b>		<b>57,632,300</b>	<b>6,326</b>		<b>6,240</b>

\* - Realization Rates reported on PY2 Final Annual Report table 1-9 were utilized to calculate Estimated Verified Gross kWh and kW Savings for Lagged Projects.

Since May 31, 2011, the Company has made strides in achieving its 2013 goals, including a request to amend its originally approved EE&C Plan. On August 9, 2011, WPP filed a Petition for Amendment of the Orders Approving Its Energy Efficiency and Conservation Plan and for Approval of Amended Energy Efficiency and Conservation Plan. On October 28, 2011, the Commission approved, in part, the Company's amended EE&C Plan. Specifically, the Commission approved the Company's proposal to rename and reorganize the measures in the Plan, add new program measures and delete some program measures. The Company is in the process of implementing these new programs and transitioning to an outsourced program management model that has proven successful with the other PA Companies. The new outsourced strategy leverages the buying power created by the economies of scale of the merged company, as well as, the best practices and FirstEnergy vendor expertise, thus reducing the overall costs of the outsourced model, and providing current WPP EE staff with more time to focus on issues that improve programs and customer participation. Also, an Opt-in CFL campaign similar to that of the other PA Companies was launched in May, 2011 under the Home Performance program and resulted in over 220,000 kits delivered through the end of October 2011. We project over 300,000 kits to be delivered by the end of 2011. With these changes, WPP is optimistic about meeting its post-2011 EE&C requirements.

#### Compliance goal progress as of the end of the reporting period<sup>4</sup>:

##### Cumulative Portfolio Energy Impacts

- The CPITD reported gross energy savings is 96,166 MWh.
- The CPITD verified energy savings is 90,520 MWh based on Plan Year 2 results.
- Achieved 46.0% of the 209,387 MWh May 31, 2011 energy savings compliance target on a gross basis, and a 43.3% on a verified basis. A Supplemental Report (See Table A) is included in the Overview of Portfolio section that identifies a preliminary listing of savings associated with projects installed prior to May 31, 2011 that have not yet been processed
- Achieved 15.3% of the 628,160 MWh May 31, 2013 energy savings compliance target on a gross basis, and 14.5% on a verified basis.

##### Portfolio Demand Reduction<sup>5</sup>

- The CPITD reported gross demand reduction is 14.3 MW and 15.3 MW including Line Losses.
- The CPITD verified demand reduction is 12.7 MW and 13.5 MW including Line Losses based on Plan Year 2 results.

<sup>4</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>5</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.

- Achieved 9.1% of the 157.3 MW May 31, 2013 demand reduction compliance target on a gross basis, and 8.1% on a verified basis.

#### **Low Income Sector**

- There are 48,533 measures offered to the low-income sector, comprising 5% of the total measures offered.
- The CPITD reported gross energy savings for low-income sector programs is 6,830 MWh.
- The CPITD verified energy savings for low-income sector programs is 5,979 MWh.

#### **Government and Non-Profit Sector**

- The CPITD reported gross energy savings for government and non-profit sector programs is 14,976 MWh.<sup>6</sup>
- The CPITD verified energy savings for government and non-profit sector programs is 12,126 MWh.
- Achieved 23.4% of the 63,997 MWh May 31, 2013 energy savings compliance target on a gross basis, and 19% on a verified basis.

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

- The PYTD reported gross energy savings is 90,260 MWh.
- The PYTD verified energy savings is 87,568 MWh based on Plan Year 2 results.
- The PYTD reported gross demand reduction is 13.3 MW, and 14.2 MW including Line Losses.
- The PYTD verified demand reduction 12.2 MW based on Plan Year 2 results.
- The PYTD reported participation is 240,042.<sup>7</sup>

#### **Portfolio M&V Status**

West Penn Power contracted with an independent Evaluation, Measurement and Verification Team (led by Tetra Tech and supported by SAIC and ADM Associates) to evaluate its energy efficiency and conservation (EE&C) programs portfolio. The Program Year 2010 (PY2) program evaluation efforts included process evaluations and impact evaluations for all programs.

The evaluation team completed the following activities in PY2:

- **Conducted Residential Trade Ally Interviews and Observation Visits:** Tetra Tech completed trade ally interviews and mystery shopping/observation visits for the CFL Rewards and Residential ENERGY STAR and High Efficiency Appliances programs. The purpose of these process evaluation activities were to gauge program awareness of market actors, energy efficient sales practices and provide recommendations to West Penn Power on how to increase market actor involvement with the programs.
- **Conducted Commercial Program Participant Surveys and Trade Ally Interviews:** Tetra Tech completed surveys of program participants for all commercial sector programs to support the process and impact evaluation. These included Government/Non-Profit Lighting, Commercial Lighting (now the Commercial Products Efficiency Program), Commercial HVAC, and Custom

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<sup>6</sup> This includes Government and Non-Profit Sector customer participation in all C&I and Government and Non-Profit Sector Programs.

<sup>7</sup> CFL participants comprise 163,155 of the listed participant numbers. CFL participants are defined by the number of CFL packages purchased through WPP's Compact Fluorescent Lighting (CFL) Rewards Program.

Applications programs. In addition, 34 trade ally interviews were completed for the Commercial and Government/Nonprofit Lighting programs and HVAC program.

- **Conducted Commercial Program Site Visits:** Tetra Tech’s team conducted on-site verification of savings and calculated realization rates for all of the commercial sector programs.
- **Conducted Program Design and Delivery Staff Interviews:** The evaluation team conducted periodic interviews with West Penn Power Program Managers as well as with implementers when relevant for programs. The interviews updated the EM&V team’s understanding of how programs are operating, identified future possible changes to the programs, and informed data collection activities with market actors and participants.
- **Verified Savings:** Tetra Tech has verified savings for all PY2 EE&C programs on a final basis as of this report.

## 1.1 Summary of Portfolio Impacts<sup>8</sup>

Cumulative energy savings in this report for each program represent verified customer savings reflecting realization rates from an evaluation of a sample of applications for each program year. Cumulative demand reductions for each program (see Section 1.3) represent verified customer demand savings. Please note that effective with this annual report, portfolio demand reductions are reported at the system level to be consistent with the target and include line losses. The factor utilized for line losses is 1.06766 consistent with the Company’s approved plan.

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

**Table 1-1: EDC Reported Portfolio Impacts through the Fourth Quarter, Program Year 2**

Impact Type	Total Energy Savings (MWh)	Total Demand Reduction (MW)
Reported Gross Impact: Incremental Quarterly	40,285	4.9
Reported Gross Impact: Program Year to Date	90,260	13.3
Reported Gross Impact: Cumulative Portfolio Inception to Date	96,166	14.3
Unverified Ex Post Savings	0	0.0
Estimated Impact: Projects in Progress	21,809	4.6
Estimated Impact: PYTD Total Committed	112,069	17.9
PYTD Verified Impact <sup>[a]</sup>	87,568	12.2
PYTD Net Impact <sup>[b]</sup>	87,568	12.2
PYTD Verified Impact Including Line Losses for MW only <sup>[c]</sup>	n/a	13.0
<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.		
[c] Portfolio Demand Reductions are reported at the system level.		

<sup>8</sup> The PY2 3<sup>rd</sup> Quarter report includes WPP’s September 10, 2010 Revised Amended Plan approved January 13, 2011 in all tables and figures. Programs removed or changed are identified within each pertinent Table.

A summary of total evaluation adjusted impacts for the portfolio is presented in Table 1-2.<sup>9</sup>

**Table 1-2: Verified Portfolio Total Evaluation Adjusted Impacts through the End of the Fourth Quarter, Program Year 2**

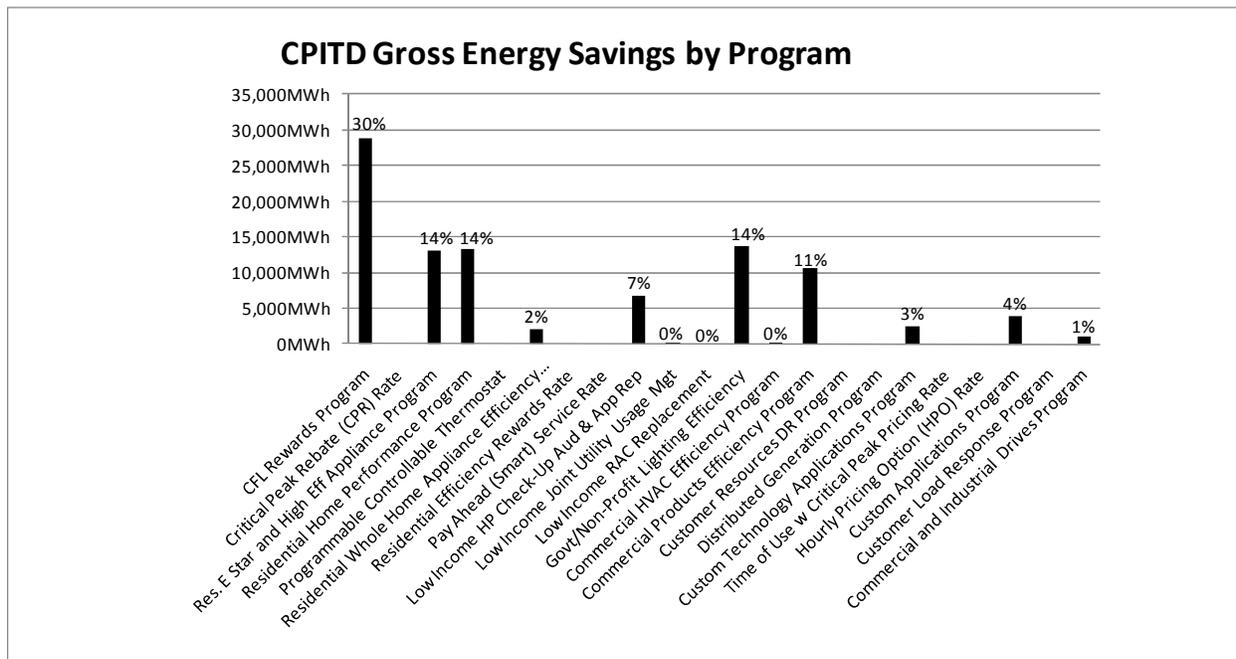
TRC Category	IQ <sup>[a]</sup>	PYTD <sup>[b]</sup>	CPITD
TRC Benefits (\$)	N/A	\$ 40,948,224	\$ 42,821,131
TRC Costs (\$)	N/A	\$ 17,940,171	\$ 23,310,518
TRC Benefit-Cost Ratio		2.3	1.8
<b>NOTES:</b>			
[a] Based on reported gross savings.			
[b] Based on reported gross savings.			

<sup>9</sup> Consistent with the 2011 Total Resource Cost Order dated July 28, 2011, Docket No. M-2009-2108601 (“TRC Order”), TRC Benefit-to-Cost Ratios are included in this Annual Report for the first time. TRC tests are performed for each program reflecting verified program costs as shown in each program financial summary excluding allocated costs associated with the Statewide Evaluator, verified savings for each program, estimated incremental measure costs, and a net-to-gross ratio of 1.

## 1.2 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 Fourth Quarter, Program Year 2



A summary of energy impacts by program through the Fourth Quarter, Program Year 2 is presented in Table 1-3 and Table 1-4.

**Table 1-3: EDC Reported Participation and Gross Energy Savings by Program through the Fourth Quarter, Program Year2**

Program	Participants			Reported Gross Impact (MWh)		
	IQ	PYTD	CPITD	IQ	PYTD	CPITD
Compact Fluorescent Lighting (CFL) Rewards Program	47,561	163,155	163,415	10,100	28,849	28,931
Critical Peak Rebate (CPR) Rate						
Residential Energy Star and High Efficiency Appliance Program	7,686	26,116	28,623	3,627	12,116	13,168
Residential Home Performance Program	35,750	42,668	46,638	11,792	12,670	13,384
Programmable Controllable Thermostat (PCT) Program (removed from Plan)						
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	241	1,983	1,986	309	2,109	2,112
Residential Efficiency Rewards Rate (removed from Plan)						
Pay Ahead (Smart) Service Rate (removed from Plan)						
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	1,928	5,381	5,624	2,017	5,903	6,747
Residential Low Income Joint Utility Usage Management Program	49	120	120	43	83	83
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)						
Governmental/Non-Profit Lighting Efficiency Program	175	434	758	2,263	10,617	13,641
Commercial HVAC Efficiency Program	0	2	2	0	2	2
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	43	153	156	6,029	10,439	10,626
Customer Resources Demand Response Program						
Distributed Generation Program						
Custom Technology Applications Program	8	15	15	1,183	2,509	2,509
Time of Use (TOU) with Critical Peak Pricing Rate						
Hourly Pricing Option (HPO) Rate (removed from Plan)						
Custom Applications Program	5	9	9	2,815	3,990	3,990
Customer Load Response Program						
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	1	6	6	106	972	972
<b>TOTAL PORTFOLIO</b>	<b>93,447</b>	<b>240,042</b>	<b>247,352</b>	<b>40,285</b>	<b>90,260</b>	<b>96,166</b>
<b>NOTES: (1)</b> Absence of data indicates program has not been launched.						

**Table 1-4: EDC Reported Gross Energy Savings by Program through the Fourth Quarter, Program Year 2**

Program	Projects In Progress (MWh)	Verified Ex Post Savings (MWh)	PYTD Total Committed (MWh)	EE&C Plan Estimate for Program Year	Percent of Estimate Committed (%)
Compact Fluorescent Lighting (CFL) Rewards Program	1	0	28,850	21,674	133%
Critical Peak Rebate (CPR) Rate				0	
Residential Energy Star and High Efficiency Appliance Program	280	0	12,396	11,698	106%
Residential Home Performance Program	0	0	12,670	17,035	74%
Programmable Controllable Thermostat (PCT) Program (removed from Plan)					
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	36	0	2,145	1,458	147%
Residential Efficiency Rewards Rate (removed from Plan)					
Pay Ahead (Smart) Service Rate (removed from Plan)					
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	0	0	5,903	2,408	245%
Residential Low Income Joint Utility Usage Management Program	0	0	83	3,322	3%
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)					
Governmental/Non-Profit Lighting Efficiency Program	793	0	11,410	44,301	26%
Commercial HVAC Efficiency Program	1	0	3	238	1%
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	993	0	11,432	64,740	18%
Customer Resources Demand Response Program				0	
Distributed Generation Program				0	
Custom Technology Applications Program	4,476	0	6,985	5,826	120%
Time of Use (TOU) with Critical Peak Pricing Rate				0	
Hourly Pricing Option (HPO) Rate (removed from Plan)					
Custom Applications Program	13,565	0	17,555	29,635	59%
Customer Load Response Program				0	
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	1,664	0	2,636	0	
<b>Total</b>	<b>21,809</b>	<b>0</b>	<b>112,069</b>	<b>202,335</b>	<b>55%</b>

**NOTES:** (1) "Unverified Ex Post Savings" are unverified savings pending approval of TRM or Custom Measure Protocol by the Commission.

(2) Absence of data indicates that program has not been launched.

(3) EE&C Plan Estimate for Program Year reflects Plan approved on January 13, 2011.

(4) EE&C Plan Estimate for Program Year for Commercial & Industrial Drives Program is included in Custom Technology Applications Program and Custom Applications Program.

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

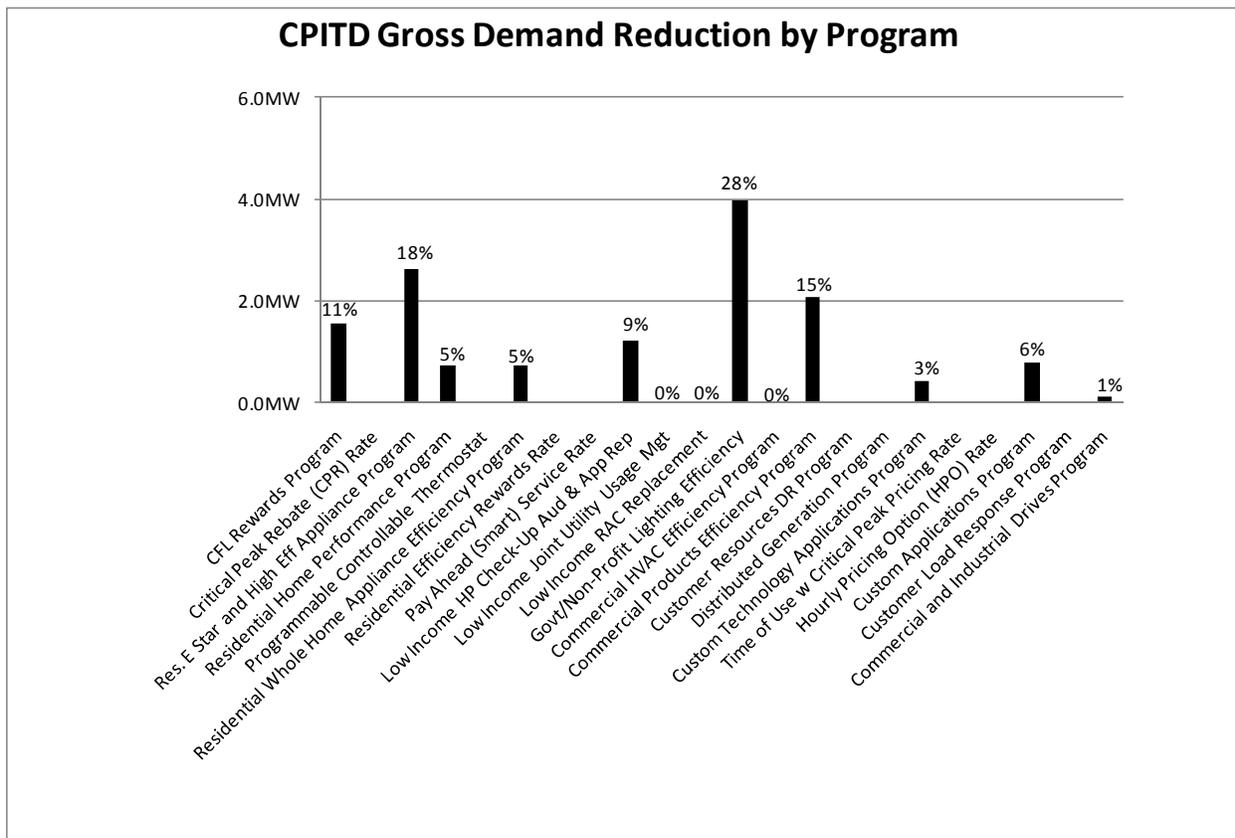
**Table 1-5: Verified Energy Savings by Program through the Fourth Quarter, Program Year 2**

Program	PYTD Reported Gross Impact (MWh)	Realization Rate	PYTD Verified Impact (MWh)	Net-to-Gross Ratio	PYTD Net Impact (MWh)
Compact Fluorescent Lighting (CFL) Rewards Program	28,849	1.00	28,849	1	28,849
Critical Peak Rebate (CPR) Rate					
Residential Energy Star and High Efficiency Appliance Program	12,116	1.00	12,116	1	12,116
Residential Home Performance Program	12,670	0.93	11,783	1	11,783
Programmable Controllable Thermostat (PCT) Program (removed from Plan)					
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	2,109	1.00	2,109	1	2,109
Residential Efficiency Rewards Rate (removed from Plan)					
Pay Ahead (Smart) Service Rate (removed from Plan)					
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	5,903	1.00	5,903	1	5,903
Residential Low Income Joint Utility Usage Management Program	83	0.91	76	1	76
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)					
Governmental/Non-Profit Lighting Efficiency Program	10,617	0.81	8,600	1	8,600
Commercial HVAC Efficiency Program	2	1.21	3	1	3
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	10,439	0.98	10,230	1	10,230
Customer Resources Demand Response Program					
Distributed Generation Program					
Custom Technology Applications Program	2,509	0.99	2,484	1	2,484
Time of Use (TOU) with Critical Peak Pricing Rate					
Hourly Pricing Option (HPO) Rate (removed from Plan)					
Custom Applications Program	3,990	1.15	4,588	1	4,588
Customer Load Response Program	0		0	1	0
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	972	0.85	827	1	827
<b>Total</b>	<b>90,260</b>		<b>87,568</b>		<b>87,568</b>
<b>NOTES:</b> (1) Absence of data in PYTD Reported Gross Impact (MWh) column indicates program has not been launched.					

### 1.3 Summary of Demand Impacts by Program

A summary of the reported demand reduction by program is presented in Figure 1-2.<sup>10</sup>

Figure 1-2: Reported Customer Demand Reduction by Program through the Fourth Quarter, Program Year 2



A summary of demand reduction impacts by program through the Fourth Quarter, Program Year 2 is presented in Table 1-6 and Table 1-7.

<sup>10</sup> Absence of data indicates program has not been launched.

**Table 1-6: Participation and Reported Gross Demand Reduction by Program through the Fourth Quarter, Program Year 2**

Program	Participants			Reported Gross Impact (MW)		
	IQ	PYTD	CPITD	IQ	PYTD	CPITD
Compact Fluorescent Lighting (CFL) Rewards Program	47,561	163,155	163,415	0.5	1.6	1.6
Critical Peak Rebate (CPR) Rate						
Residential Energy Star and High Efficiency Appliance Program	7,686	26,116	28,623	0.7	2.4	2.6
Residential Home Performance Program	35,750	42,668	46,638	0.6	0.7	0.7
Programmable Controllable Thermostat (PCT) Program (removed from Plan)						
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	241	1,983	1,986	0.1	0.7	0.7
Residential Efficiency Rewards Rate (removed from Plan)						
Pay Ahead (Smart) Service Rate (removed from Plan)						
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	1,928	5,381	5,624	0.3	1.2	1.2
Residential Low Income Joint Utility Usage Management Program	49	120	120	0.008	0.013	0.013
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)	0	0	0	0.0	0.0	0.0
Governmental/Non-Profit Lighting Efficiency Program	175	434	758	0.7	3.3	4.0
Commercial HVAC Efficiency Program	0	2	2	0.0	0.0	0.0
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	43	153	156	1.2	2.1	2.1
Customer Resources Demand Response Program						
Distributed Generation Program						
Custom Technology Applications Program	8	15	15	0.2	0.4	0.4
Time of Use (TOU) with Critical Peak Pricing Rate						
Hourly Pricing Option (HPO) Rate (removed from Plan)						
Custom Applications Program	5	9	9	0.6	0.8	0.8
Customer Load Response Program						
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	1	6	6	0.0	0.1	0.1
<b>TOTAL PORTFOLIO</b>	<b>93,447</b>	<b>240,042</b>	<b>247,352</b>	<b>4.9</b>	<b>13.3</b>	<b>14.3</b>
<b>TOTAL PORTFOLIO INCLUDING LINE LOSSES</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>5.2</b>	<b>14.2</b>	<b>15.3</b>
<b>NOTES:</b> (1) Absence of data indicates program has not been launched. (2) MW total may differ from sum of individual components due to rounding.						

**Table 1-7: Reported Gross Demand Reduction by Program through the Fourth Quarter, Program Year 2**

Program	Projects In Progress (MW)	Verified Ex Post Savings (MW)	PYTD Total Committed (MW)	EE&C Plan Estimate for Program Year	Percent of Estimate Committed (%)
Compact Fluorescent Lighting (CFL) Rewards Program	0.0	0.0	1.6	1.2	131%
Critical Peak Rebate (CPR) Rate				0.0	
Residential Energy Star and High Efficiency Appliance Program	0.1	0.0	2.5	2.9	88%
Residential Home Performance Program	0.0	0.0	0.69	1.7	41%
Programmable Controllable Thermostat (PCT) Program (removed from Plan)					
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	0.0	0.0	0.7	0.5	145%
Residential Efficiency Rewards Rate (removed from Plan)					
Pay Ahead (Smart) Service Rate (removed from Plan)					
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	0.0	0.0	1.2	0.7	173%
Residential Low Income Joint Utility Usage Management Program	0.0	0.0	0.013	0.6	2%
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)					
Governmental/Non-Profit Lighting Efficiency Program	0.3	0.0	3.6	10.6	34%
Commercial HVAC Efficiency Program	0.00	0.0	0.00	0.2	1%
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	0.2	0.0	2.3	13.2	17%
Customer Resources Demand Response Program				0.0	
Distributed Generation Program				0.0	
Custom Technology Applications Program	1.4	0.0	1.9	1.0	188%
Time of Use (TOU) with Critical Peak Pricing Rate				0.0	
Hourly Pricing Option (HPO) Rate (removed from Plan)					
Custom Applications Program	2.3	0.0	3.1	5.8	54%
Customer Load Response Program				0.0	
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	0.2	0.0	0.3		
<b>Total</b>	<b>4.6</b>	<b>0.0</b>	<b>17.9</b>	<b>38.4</b>	<b>47%</b>
<b>Total Portfolio including Line Losses</b>	<b>4.9</b>	<b>0.0</b>	<b>19.1</b>	<b>41.0</b>	
<b>NOTES:</b> (1) "Unverified Ex Post Savings" are unverified savings pending approval of TRM or Custom Measure Protocol by the Commission.					
(2) Absence of data indicates that program has not been launched.					
(3) MW total may differ from sum of individual components due to rounding.					
(4) EE&C Plan Estimate for Program Year for Commercial & Industrial Drives Program is included in Custom Technology Applications Program and Custom Applications Program.					

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 Fourth Quarter, Program Year 2**

Program	PYTD Reported Gross Impact (MW)	Realization Rate	PYTD Verified Impact (MW)	Net-to-Gross Ratio	PYTD Net Impact (MW)
Compact Fluorescent Lighting (CFL) Rewards Program	1.6	1.00	1.6	1	1.6
Critical Peak Rebate (CPR) Rate					
Residential Energy Star and High Efficiency Appliance Program (Note 3)	2.4	1.00	2.4	1	2.4
Residential Home Performance Program	0.7	0.93	0.6	1	0.6
Programmable Controllable Thermostat (PCT) Program (removed from Plan)					
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	0.7	1.00	0.7	1	0.7
Residential Efficiency Rewards Rate (removed from Plan)					
Pay Ahead (Smart) Service Rate (removed from Plan)					
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	1.2	0.73	0.9	1	0.9
Residential Low Income Joint Utility Usage Management Program	0.013	0.68	0.0	1	0.0
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)					
Governmental/Non-Profit Lighting Efficiency Program	3.3	0.82	2.7	1	2.7
Commercial HVAC Efficiency Program	0.001	1.19	0.0	1	0.0
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	2.1	0.94	1.9	1	1.9
Customer Resources Demand Response Program					
Distributed Generation Program					
Custom Technology Applications Program	0.4	0.96	0.4	1	0.4
Time of Use (TOU) with Critical Peak Pricing Rate					
Hourly Pricing Option (HPO) Rate (removed from Plan)					
Custom Applications Program	0.8	0.99	0.8	1	0.8
Customer Load Response Program					
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.	0.1	0.83	0.1	1	0.1
<b>Total</b>	<b>13.3</b>		<b>12.2</b>		<b>12.2</b>
<b>Total Portfolio including Line Losses</b>	<b>14.2</b>		<b>13.0</b>		<b>13.0</b>
<b>NOTES:</b> (1) Absence of data in PYTD Reported Gross Impact (MW) column indicates program has not been launched.					

## 1.4 Summary of Evaluation

Realization rates are calculated to adjust reported savings based on statistically significant verified savings measured by the EM&V team. 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>11</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 EM&V protocols. The protocol type determines the data type that is sampled. The EM&V team calculated realization rates based on the best engineering estimate for each program savings as identified through the EM&V effort. The methodology used to calculate the program realization rate based on the best engineering estimate varied by program as described in detail in West Penn Power's PY2 evaluation plan.

PY2 Evaluation activities completed include:

- Finalized PY2 Evaluation Plan.
- Pulled participant site visit sample for the programs requiring on-site verifications for PY1 and for all quarters of PY2. On-site data collection was completed for 91 projects for the commercial/industrial sector programs and 23 projects for the residential programs.
- Conducted 59 trade ally interviews across residential and non-residential programs. Evaluators also conducted 11 mystery shopping/observation visits for the CFL Rewards and Residential ENERGY STAR and High Efficiency Appliances programs. Trade ally interviews completed include: 15 lighting/appliance retailers, 20 lighting contractors and distributors, 10 HVAC contractors, 4 Local Development District Association (LDDA) representatives, and 10 Community Action Agencies.
- Conducted periodic program design and delivery staff interviews. The interviews updated the EM&V team's understanding of how programs are operating, discussed future possible changes to the programs, and collected information to inform research with participants and market actors.
- Updated Program Logic Models to reflect current program designs.
- Developed C&I EM&V process flow maps detailing information flows and responsibilities among West Penn Power, the third-party implementation M&V contractor, the EM&V contractor, the SWE, and the customer.
- Participated in Technical Working Group sessions, biweekly SWE calls, and on-site visits.
- Completed participant surveys for all programs.
- Reviewed the West Penn Power Energy Savings Calculator (ESC). This review compared the input assumptions to the TRM and related supporting documentation, including white papers to

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<sup>11</sup> TRM measures with stipulated values and variables.

help ensure calculations were done correctly. WPP made corrections and adjustments to energy savings and demand reductions as needed. The ESC used for reported savings for the annual report are in accordance with the 2010 TRM or Interim Protocols.

- Determined Final Realization Rates and Verified Savings for all PY2 programs.

### 1.4.1 Impact Evaluation

The impact evaluation is an organized and prioritized process to evaluating electric energy savings and kW impacts within the SWE guidelines. Realization rates and verified savings are presented in Tables 1-5 and 1-8.

The realization rates for programs verified in PY2 are presented in Table 1-9.

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

Program	PYTD Sample Participants	Program Year Sample Participant Target	Realization Rate for kWh	Confidence and Precision For kWh	Realization Rate for kW	Confidence and Precision for kW
Compact Fluorescent Lighting (CFL) Rewards Program	1,675	122	1.00	N/A	1.00	N/A
Critical Peak Rebate (CPR) Rate						
Residential Energy Star and High Efficiency Appliance Program (Note 3)	12,243	687	1.00	N/A	1.00	N/A
Residential Home Performance Program	8,446	171	0.93	90%/±3.2%	0.93	90%/±3.2%
Programmable Controllable Thermostat (PCT) Program (removed from Plan)						
Residential Whole Home Appliance Efficiency Program (previously Residential HVAC Efficiency Program)	1,043	216	1.00	N/A	1.00	N/A
Residential Efficiency Rewards Rate (removed from Plan)						
Pay Ahead (Smart) Service Rate (removed from Plan)						
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	2,093	78	1.00	N/A	0.73	90%/±8.1%
Residential Low Income Joint Utility Usage Management Program	71	30	0.91	N/A	0.68	N/A
Residential Low Income Room Air Conditioner Replacement Program (removed from Plan)						
Governmental/Non-Profit Lighting Efficiency Program	557	124	0.81	90%/±5.3%	0.82	90%/±5.2%
Commercial HVAC Efficiency Program	2	3	1.21	N/A	1.19	N/A
Commercial Products Efficiency Program (previously called Commercial Lighting Efficiency Program)	112	26	0.98	90%/±3.3%	0.94	90%/±5.7%
Customer Resources Demand Response Program						
Distributed Generation Program						
Custom Technology Applications Program			0.99	N/A	0.96	N/A
Time of Use (TOU) with Critical Peak Pricing Rate						
Hourly Pricing Option (HPO) Rate (removed from Plan)						
Custom Applications Program			1.15	N/A	0.99	N/A
Customer Load Response Program						
Commercial and Industrial Drives Program (added to Custom Technology Applications and Custom Applications Programs and removed as a stand-alone Program; however, will continue to report as a line item due to participation under stand-alone offering). Data reflects customer approved applications received prior to approval to decommission.			0.85	N/A	0.83	N/A
<b>Total</b>	<b>26,242</b>	<b>1,457</b>				
<b>NOTES:</b> (1) The Residential ENERGY STAR and High Efficiency Appliance Program realization rate of 1.00 takes into account rebated air conditioners that participants plan to install for the summer cooling months.						

#### **1.4.2 Process Evaluation**

The process evaluation activities are designed to provide a comprehensive and systematic assessment of program operations from the planning background to implementation to participant experiences. As stated in the Audit Plan, the process evaluation's primary objective is to help program designers and managers structure their programs to achieve cost-effective savings while maintaining high levels of market penetration, customer satisfaction and program efficiency and effectiveness. A well-designed and implemented process evaluation serves as a basis for recommendations to West Penn Power and program managers involved in program design and implementation. The process evaluation will also identify best practices that West Penn Power may choose to implement going forward.

PY2 process evaluation activity results are presented in program sections below. Overall findings from the PY2 process evaluation activities were summarized in PowerPoint form and presented on May 23, 2011 in Harrisburg, PA to the SWE and TWG group. Interim results memorandums have been delivered to program staff throughout the program year.

## 1.5 Summary of Finances

The Total Resource Cost Test (TRC) demonstrates the cost-effectiveness of a program by comparing the total economic benefits to the total costs. TRCs were calculated by program for PY2 and CPITD. The TRC benefits are based on the avoided costs of the Company's approved EE&C Plan. These avoided costs are calculated with gross verified impacts (Energy and Demand, scaled up for T&D losses as directed by the TRC order) and the discount rates, generation rates, and distribution rates from the original plan filing for all programs. The TRC benefits are expressed in base year (2009) dollars.

Incremental costs are also expressed in base year dollars. For residential energy-efficiency programs that rely on point-of-sale or mail-in rebates, the per-unit incremental costs from the original plan filing were assigned to each individual measure and aggregated to the program level. Incremental costs for most other measures are also taken from the original filing with exceptions noted below.

For programs that rely wholly on direct installation or direct delivery (e.g. low-income, recycling, online analyzer, Gov't "free" lighting measures, etc.) the full incremental costs are tracked in the program finances. These costs are more accurate than planning estimates and were used as the incremental costs.

For project-based programs such as motors and drives and custom, the TRC is calculated based on projects and not individual measures because projects are tracked at the project level, not at the measure level. To characterize the incremental costs for such projects, Tetra Tech reviewed the project documentation, including estimated costs and invoices for 24 custom projects (Custom Applications and Custom Technology Applications programs). Custom projects of different technologies (e.g. motors, HVAC) tended to have different and characteristic incremental costs per unit of energy savings. The costs for these projects were derived from the costs reported by customers in their application.

Tetra Tech also reviewed the fixture types and counts for 18 lighting projects that were completed under the Custom Technology Applications and Custom Applications programs. These projects were completed through the Custom programs due to the level of M&V rigor, rather than because they could not have gotten the measures through the Commercial Products Efficiency program. Tetra Tech reviewed fixture types and counts for each category of rebate application, rate class, and project scope (as defined by project energy savings). Costs for these lighting projects were developed using specified incremental costs from the lighting program.

TRC costs include evaluation, SWE audit (at the portfolio level only), and implementation costs, which is comprised of design and development, administration, marketing and technical assistance costs.

It should be noted that it may be premature to assess the long-term performance potential of programs based on TRC results to date. This is due to the fact that many of the programs have only been in operation for approximately one year and contain start-up costs that should be spread over a longer term period.

A breakdown of the portfolio finances is presented in Table 1-10.

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

	<b>Category</b>	<b>IQ</b>	<b>PYTD</b>	<b>CPITD</b>
A.1	EDC Incentives to Participants	\$ 3,166,616	\$ 7,173,029	\$ 7,308,422
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs<sup>1</sup></b>	\$ 3,166,616	\$ 7,173,029	\$ 7,308,422
B.1	Design & Development <sup>2</sup>	\$ 21,824	\$ 157,726	\$ 1,708,613
B.2	Administration <sup>3</sup>	\$ 339,802	\$ 1,700,877	\$ 2,426,640
B.3	Management <sup>4</sup>	\$ -	\$ -	\$ -
B.4	Marketing <sup>5</sup>	\$ 439,530	\$ 2,315,795	\$ 3,198,283
B.5	Technical Assistance <sup>6</sup>	\$ 586,911	\$ 1,641,232	\$ 2,897,992
B	<b>Subtotal EDC Implementation Costs</b>	\$ 1,388,067	\$ 5,815,630	\$ 10,231,528
C	<b>EDC Evaluation Costs</b>	\$ 342,322	\$ 825,560	\$ 963,616
D	<b>SWE Audit Costs</b>	\$ 250,208	\$ 750,208	\$ 1,044,242
E	<b>Participant Costs<sup>7</sup></b>	n/a <sup>7</sup>	\$ 6,771,835	\$ 7,173,411
	<b>Total Costs</b>	\$ 5,147,213	\$ 21,336,262	\$ 26,721,219
	<b>Total Costs for TRC<sup>8</sup></b>		\$ 17,940,171	\$ 23,310,518
F	<b>Annualized Avoided Supply Costs<sup>9</sup></b>	n/a <sup>7</sup>	\$ 7,263,493	\$ 7,645,368
G	<b>Lifetime Avoided Supply Costs</b>	n/a <sup>7</sup>	\$ 40,948,224	\$ 42,821,131
	<b>Total Lifetime Economic Benefits<sup>10</sup></b>	n/a <sup>7</sup>	\$ 40,948,224	\$ 42,821,131
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a <sup>7</sup>	2.3	1.8

**NOTES:**

<sup>1</sup>The portion of incentives for measures with no incremental cost, including appliance recycling, LI Sector, and giveaway CFLs are treated as direct costs. For PYTD these total \$3,776,938, and for CPITD \$3,897,721.

<sup>2</sup>Internal labor related to design, development and modeling EE programs.

<sup>3</sup>Internal Labor for EE program implementation and call center representatives, employee expenses, and common costs.

<sup>4</sup>n/a

<sup>5</sup>Costs incurred for CSP provider.

<sup>6</sup>Outside Services for CSP's related to program management.

<sup>7</sup>Participant costs = the sum of incremental costs.

<sup>8</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs generally exclude incentives, but for certain programs the incentives may serve as proxies for incremental costs, in other programs incentives are the direct installation costs (See Note 1)

<sup>9</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>10</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>12</sup> Consistent with the 2011 Total Resource Cost Test Order dated July 28, 2011, Docket No. M-2009-2108601 ("TRC Order"), TRC Benefit-to-Cost Ratios are included in this Annual Report for the first time. TRC tests are performed for each program reflecting verified program costs as shown in each program financial summary excluding allocated costs associated with the Statewide Evaluator, verified savings for each program, estimated incremental measure costs, and a net-to-gross ratio of 1.

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

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

Program	TRC Benefits (\$)	TRC Costs (\$)	TRC Benefit-Cost Ratio 3
Compact Fluorescent Lighting (CFL) Rewards Program	\$ 10,410,087	\$ 1,363,033	7.6
Critical Peak Rebate (CPR) Rate 2	\$ -	\$ 111,657	n/a
Residential Energy Star and High Efficiency Appliance Program	\$ 7,963,942	\$ 6,856,515	1.2
Residential Home Performance Program	\$ 4,832,997	\$ 1,923,706	2.5
Programmable Controllable Thermostat (PCT) Program 2	\$ -	\$ -	n/a
Residential Whole Home Appliance Efficiency Program	\$ 1,515,796	\$ 1,331,380	1.1
Residential Efficiency Rewards Rate 2	\$ -	\$ -	n/a
Pay Ahead (Smart) Service Rate 2	\$ -	\$ -	n/a
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	\$ 2,523,140	\$ 3,331,863	0.8
Residential Low Income Joint Utility Usage Management Program	\$ 41,378	\$ 456,993	0.1
Residential Low Income Room Air Conditioner Replacement Program	\$ -	\$ 178,461	n/a
Governmental/Non-Profit Lighting Efficiency Program	\$ 4,121,566	\$ 1,284,486	3.2
Commercial HVAC Efficiency Program	\$ 1,448	\$ 436,405	0.0
Commercial Products Efficiency Program	\$ 6,600,521	\$ 1,389,307	4.8
Customer Resources Demand Response Program	\$ -	\$ 70,843	n/a
Distributed Generation Program	\$ -	\$ 58,233	n/a
Custom Technology Applications Program 1	\$ 1,400,451	\$ 708,358	2.0
Time of Use (TOU) with Critical Peak Pricing Rate 2	\$ -	\$ 71,182	n/a
Hourly Pricing Option (HPO) Rate 2	\$ -	\$ -	n/a
Custom Applications Program 1	\$ 2,909,292	\$ 1,609,682	1.8
Customer Load Response Program	\$ -	\$ 155,480	n/a
Commercial and Industrial Drives Program	\$ 500,513	\$ 928,692	0.5
<b>Total for Plan</b>	<b>\$ 42,821,131</b>	<b>\$ 22,266,276</b>	<b>1.9</b>
<b>NOTES:</b>			
1. Excludes customer costs due to variability of eligible customer projects. Customer costs are evaluated during project selection process.			
2. Dynamic rate offerings are enabled by Smart Metering Infrastructure			
3. Represents total benefits to total costs ratio over lifetime of all measures installed in the 2009-2012 Plan years.			
4. This total does not include SWE Costs since these are not distributed to the program level, and therefore does not match the TRC from Table 1-10.			
5. This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.			

## 2 Portfolio Results by Sector

The EE&C Implementation Order issued on January 15, 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

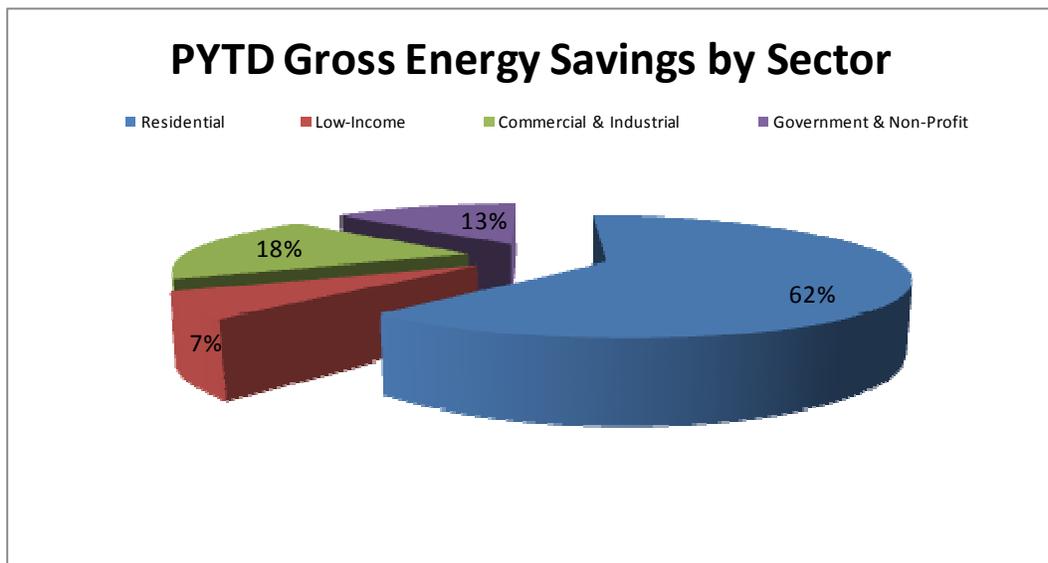
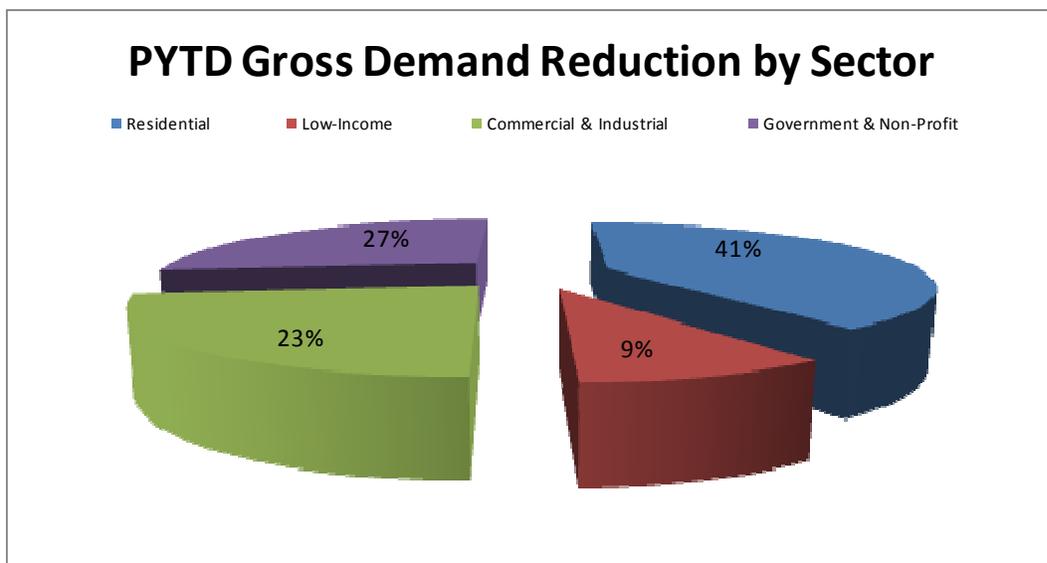


Figure 2-2: PYTD Reported Gross Demand Reduction by Sector



A portfolio summary of results by sector is presented in Table 2-1 and Table 2-2.

Table 2-1: Reported Gross Energy Savings by Sector through the Fourth Quarter, Program Year 2

Market Sector	Reported Gross Impact (MWh)			Projects in Progress	Total Committed	Unverified Ex Post Savings
	IQ	PYTD	CPITD			
Residential EE	25,829	55,744	57,596	317	56,061	0
Residential Low-Income EE	2,060	5,986	6,830	0	5,986	0
Small Commercial & Industrial EE	6,800	12,097	12,285	5,470	17,567	0
Large Commercial & Industrial EE	2,786	4,480	4,480	15,229	19,709	0
Government & Non-Profit EE	2,811	11,953	14,976	793	12,746	0
<b>TOTAL PORTFOLIO</b>	<b>40,285</b>	<b>90,260</b>	<b>96,166</b>	<b>21,809</b>	<b>112,069</b>	<b>0</b>

NOTES: (1) "Unverified Ex Post Savings" are unverified savings pending approval of TRM or Custom Measure Protocol by the Commission.  
 (2) MWh total may differ from sum of individual components due to rounding.

Table 2-2: Reported Gross Demand Reduction by Sector through the Fourth Quarter, Program Year 2

Market Sector	Reported Gross Impact (MW)			Projects in Progress	Total Committed	Unverified Ex Post Savings
	IQ	PYTD	CPITD			
Residential EE	1.9	5.4	5.6	0.1	5.5	0.0
Residential Low-Income EE	0.3	1.2	1.2	0.0	1.2	0.0
Small Commercial & Industrial EE	1.3	2.3	2.3	1.7	3.9	0.0
Large Commercial & Industrial EE	0.6	0.8	0.8	2.5	3.4	0.0
Government & Non-Profit EE	0.8	3.6	4.3	0.3	3.9	0.0
<b>TOTAL PORTFOLIO</b>	<b>4.9</b>	<b>13.3</b>	<b>14.3</b>	<b>4.6</b>	<b>17.9</b>	<b>0.0</b>
<b>TOTAL PORTFOLIO INCLUDING LINE LOSSES</b>	<b>5.2</b>	<b>14.2</b>	<b>15.3</b>	<b>4.9</b>	<b>19.1</b>	<b>0.0</b>

NOTES: (1) "Unverified Ex Post Savings" are unverified savings pending approval of TRM or Custom Measure Protocol by the Commission.  
 (2) MW total may differ from sum of individual components due to rounding.

## 2.1 Residential EE Sector

The sector target for annual energy savings is 51,865 MWh and the sector target for annual peak demand reduction is 6.3 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 Fourth Quarter, Program Year 2**

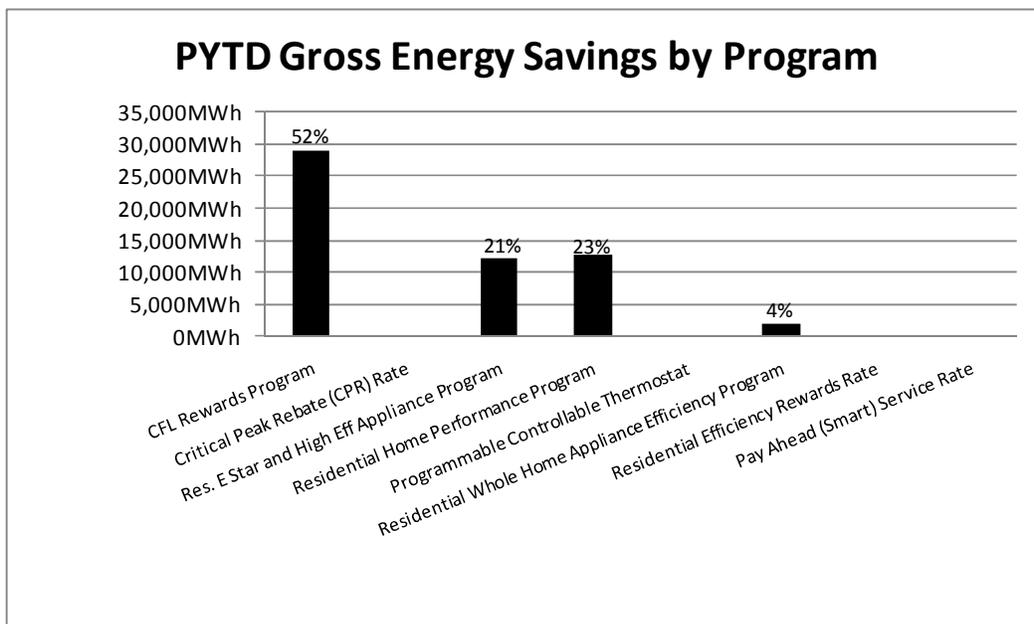
Residential EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Compact Fluorescent Lighting (CFL) Rewards Program	47,561	10,100	0.5
Critical Peak Rebate (CPR) Rate			
Residential Energy Star and High Efficiency Appliance Program	7,686	3,627	0.7
Residential Home Performance Program	35,750	11,792	0.6
Programmable Controllable Thermostat (PCT) Program (Removed from Plan)			
Residential Whole Home Appliance Efficiency Program	241	309	0.1
Residential Efficiency Rewards Rate (Removed from Plan)			
Pay Ahead (Smart) Service Rate (Removed from Plan)			
<b>Total for Residential Programs</b>	<b>91,238</b>	<b>25,829</b>	<b>1.9</b>
<b>NOTES:</b> (1) Absence of data indicates program has not been launched. (2) MW total may differ from sum of individual components due to rounding.			

**Table 2-4: Summary of Residential EE Sector PYTD Impacts by Program through the Fourth Quarter, Program Year 2**

Residential EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Compact Fluorescent Lighting (CFL) Rewards Program	163,155	28,849	1.6
Critical Peak Rebate (CPR) Rate			
Residential Energy Star and High Efficiency Appliance Program	26,116	12,116	2.4
Residential Home Performance Program	42,668	12,670	0.69
Programmable Controllable Thermostat (PCT) Program (Removed from Plan)			
Residential Whole Home Appliance Efficiency Program	1,983	2,109	0.7
Residential Efficiency Rewards Rate (Removed from Plan)			
Pay Ahead (Smart) Service Rate (Removed from Plan)			
<b>Total for Residential Programs</b>	<b>233,922</b>	<b>55,744</b>	<b>5.4</b>
<b>NOTES:</b> (1) Absence of data indicates program has not been launched. (2) MW total may differ from sum of individual components due to rounding.			

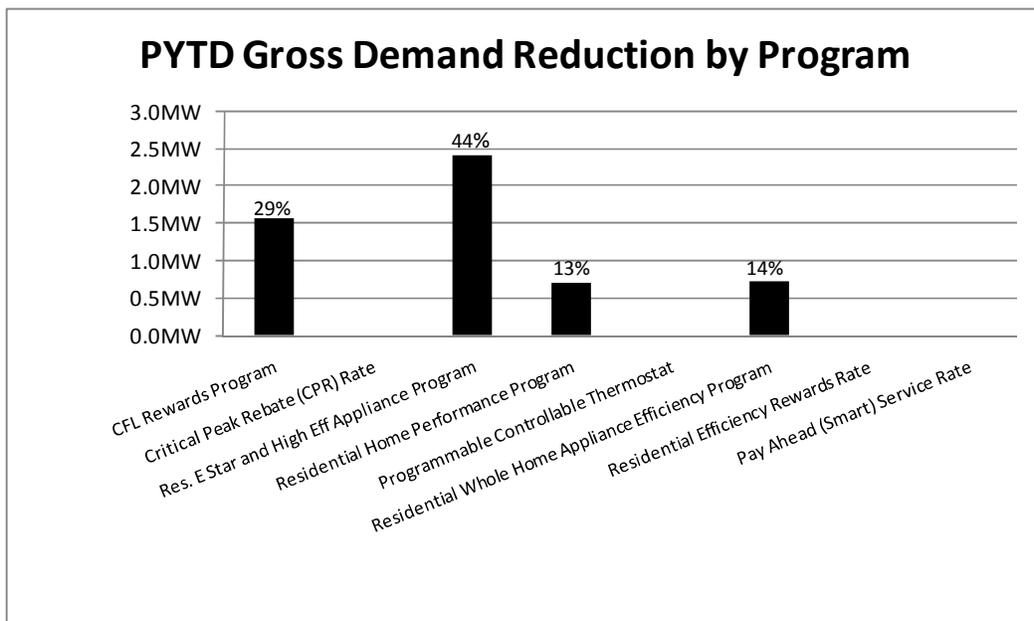
A summary of the sector energy savings by program is presented in Figure 2-3.<sup>13</sup>

**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.<sup>14</sup>

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



<sup>13</sup> Absence of data indicates program has not been launched.

<sup>14</sup> Absence of data indicates program has not been launched.

## 2.2 Residential Low-Income EE Sector

The sector target for annual energy savings is 3,928 MWh and the sector target for annual peak demand reduction is 1.3 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 Fourth Quarter, Program Year 2**

Residential Low Income EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	1,928	2,017	0.3
Residential Low Income Joint Utility Usage Management Program	49	43	0.008
Residential Low Income Room Air Conditioner Replacement Measure (Removed from Plan)			
<b>Total for Low Income Sector</b>	<b>1,977</b>	<b>2,060</b>	<b>0.3</b>

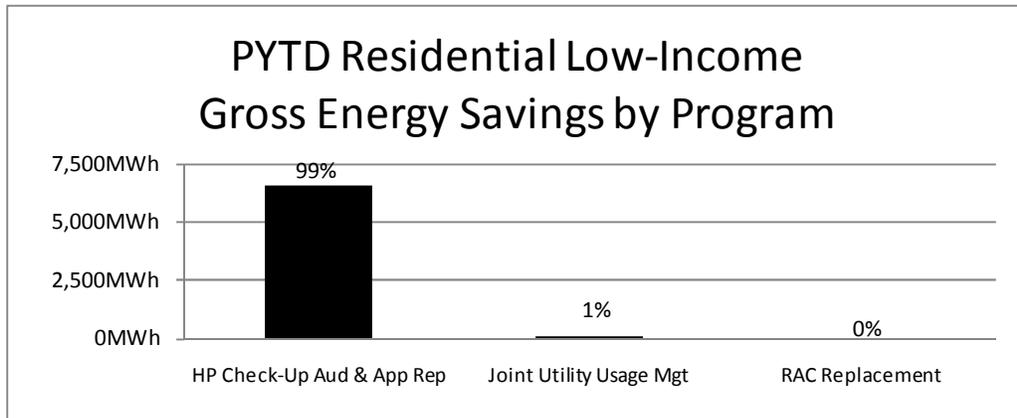
**NOTES:** (1) MW total may differ from sum of individual components due to rounding.  
(2) IQ reflects negative value due to adoption of TRM 2011 per unit savings values for showerheads and faucet aerators. CPITD and PYTD values also reflect this adjustment.

**Table 2-6: Summary of Residential Low-Income EE Sector PYTD Impacts by Program through the Fourth Quarter, Program Year 2**

Residential Low Income EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program	5,381	5,903	1.2
Residential Low Income Joint Utility Usage Management Program	120	83	0.013
Residential Low Income Room Air Conditioner Replacement Measure (Removed from Plan)			
<b>Total for Low Income Sector</b>	<b>5,501</b>	<b>5,986</b>	<b>1.2</b>

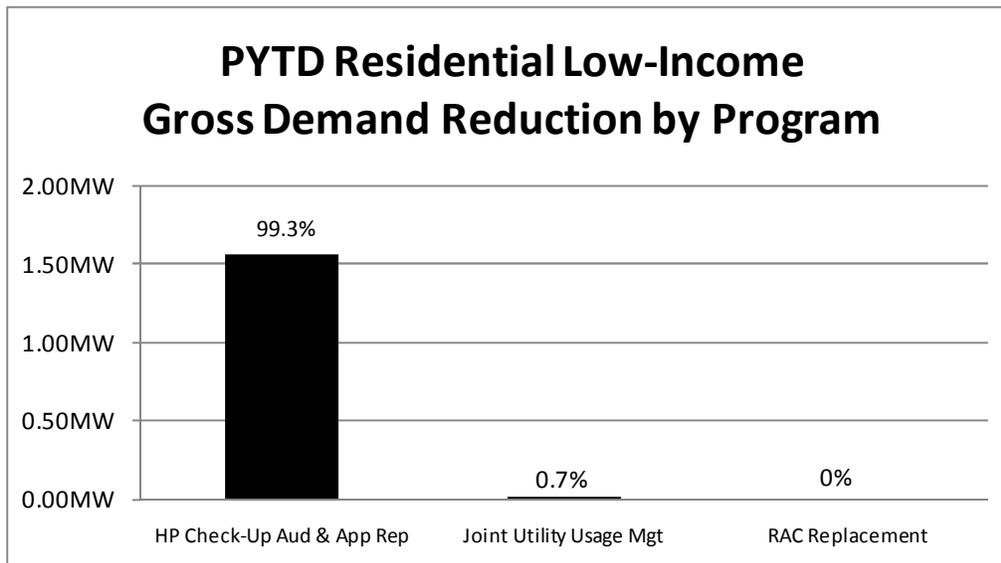
A summary of the sector energy savings by program is presented in Figure 2-5.

**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 2-6.

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



## 2.3 Small Commercial & Industrial EE Sector

The sector target for annual energy savings is 70,804 MWh and the sector target for annual peak demand reduction is 14.4 MW.

A sector summary of results by program is presented in Table 2-7 and Table 2-8.

**Table 2-7: Summary of Small Commercial & Industrial EE Sector Incremental Impacts by Program through the Fourth Quarter, Program Year 2<sup>15</sup>**

		IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
<b>Small Commercial &amp; Industrial EE Sector</b>	<b>IQ Participants</b>		
Commercial HVAC Efficiency Program	0	0	0.0
Commercial Products Efficiency Program	34	5,804	1.2
Customer Resources Demand Response Program			
Custom Technology Applications Program	7	996	0.1
Time of Use (TOU) with Critical Peak Pricing Rate			
Hourly Pricing Option (HPO) Rate (Removed from Plan)			
<b>Total for Small Commercial &amp; Industrial</b>	<b>41</b>	<b>6,800</b>	<b>1.3</b>
<b>NOTES:</b> Absence of data indicates program has not been launched.			

**Table 2-8: Summary of Small Commercial & Industrial EE Sector PYTD Impacts by Program through the Fourth Quarter, Program Year 2<sup>16</sup>**

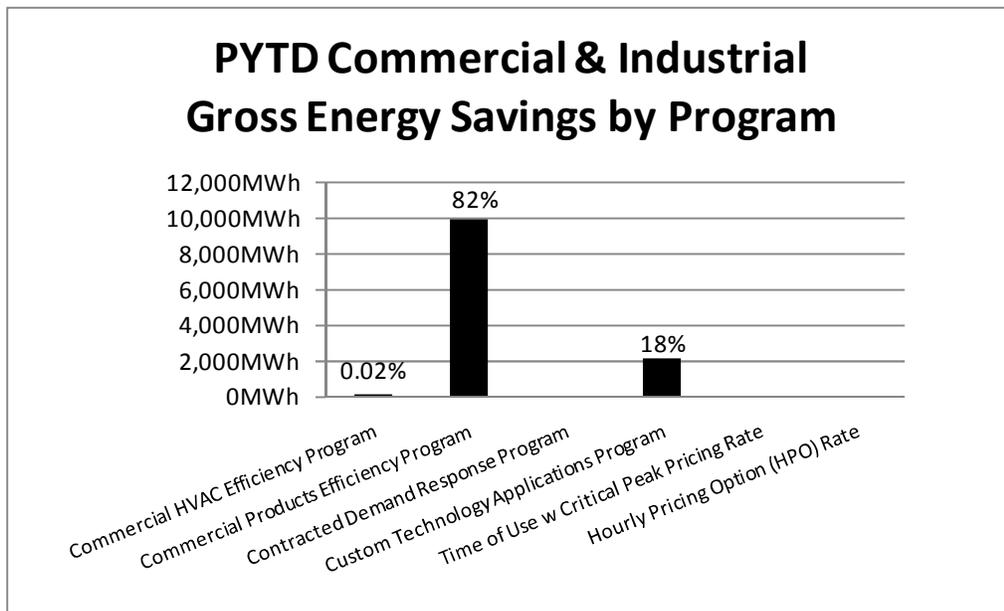
		PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
<b>Small Commercial &amp; Industrial EE Sector</b>	<b>PYTD Participants</b>		
Commercial HVAC Efficiency Program	2	2	0.001
Commercial Products Efficiency Program	131	9,928	2.0
Customer Resources Demand Response Program			
Custom Technology Applications Program	12	2,166	0.3
Time of Use (TOU) with Critical Peak Pricing Rate			
Hourly Pricing Option (HPO) Rate (Removed from Plan)			
<b>Total for Small Commercial &amp; Industrial</b>	<b>145</b>	<b>12,097</b>	<b>2.3</b>
<b>NOTES:</b> Absence of data indicates program has not been launched.			

<sup>15</sup> Table 2-7 reflects an adjustment for Government and non-Profit Sector participation in the Commercial Products Efficiency and Custom Technology Applications Programs.

<sup>16</sup> Table 2-8 reflects an adjustment for Government and non-Profit Sector participation in the Commercial Products Efficiency and Custom Technology Applications Programs.

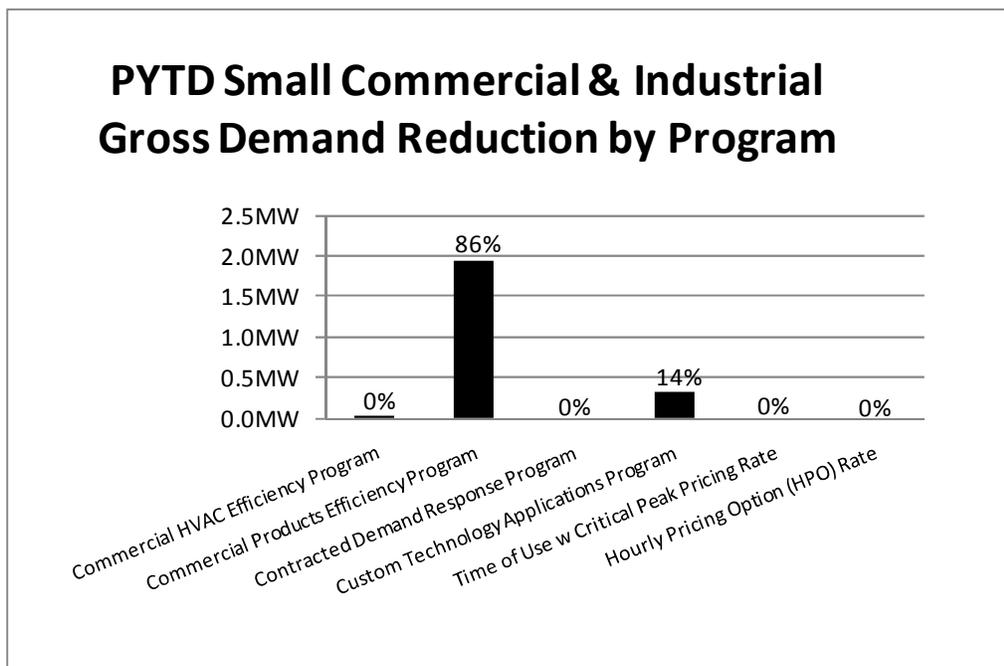
A summary of the sector energy savings by program is presented in Figure 2-7.<sup>17</sup>

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.<sup>18</sup>

Figure 2-8: Summary of Small Commercial & Industrial EE Sector PYTD Reported Demand Reduction by Program



<sup>17</sup> Absence of data indicates program has not been launched.

<sup>18</sup> Absence of data indicates program has not been launched.

## 2.4 Large Commercial & Industrial EE Sector

The sector target for annual energy savings is 29,635 MWh and the sector target for annual peak demand reduction 5.8 MW.

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

**Table 2-9: Summary of Large Commercial & Industrial EE Sector Incremental Impacts by Program through the Fourth Quarter, Program Year 2<sup>19</sup>**

Large Commercial & Industrial EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Custom Applications Program	4	2,786	0.6
Customer Load Response Program			
Distributed Generation Program			
Commercial and Industrial Drives Program	0	0	0.0
<b>Total for Large Commercial &amp; Industrial Sector</b>	<b>4</b>	<b>2,786</b>	<b>0.6</b>
<b>NOTES:</b> Absence of data indicates program has not been launched.			

**Table 2-10: Summary of Large Commercial & Industrial EE Sector PYTD Impacts by Program through the Fourth Quarter, Program Year 2<sup>20</sup>**

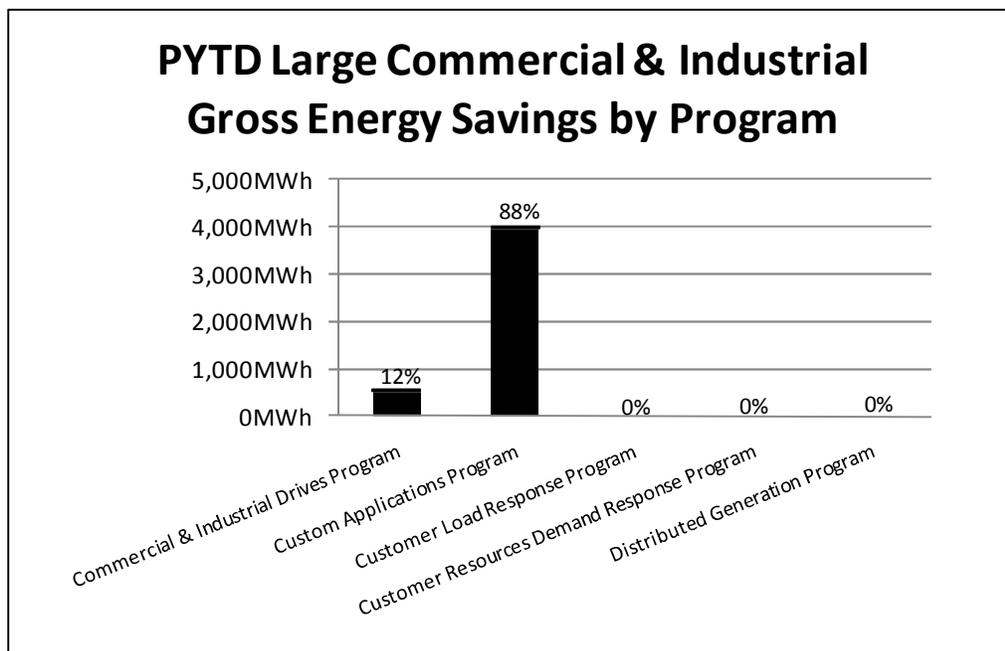
Large Commercial & Industrial EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Custom Applications Program	8	3,961	0.8
Customer Load Response Program			
Distributed Generation Program			
Commercial and Industrial Drives Program	2	519	0.05
<b>Total for Large Commercial &amp; Industrial Sector</b>	<b>10</b>	<b>4,480</b>	<b>0.8</b>
<b>NOTES:</b> (1) Absence of data indicates program has not been launched.			
<b>(2) MW total may differ from sum of individual components due to rounding.</b>			

<sup>19</sup> Table 2-9 reflects an adjustment for Government and non-Profit Sector participation in the Commercial and Industrial Drives Program.

<sup>20</sup> Table 2-10 reflects an adjustment for Government and non-Profit Sector participation in the Commercial and Industrial Drives Program.

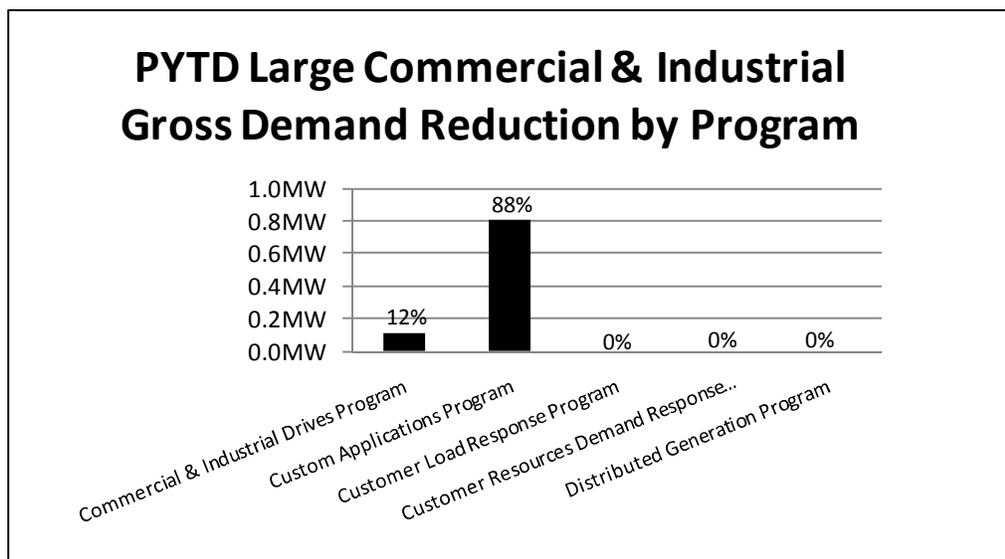
A summary of the sector energy savings by program is presented in Figure 2-9.<sup>21</sup>

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.<sup>22</sup>

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



<sup>21</sup> Absence of data indicates program has not been launched.

<sup>22</sup> Absence of data indicates program has not been launched.

## 2.5 Government & Non-Profit EE Sector

The sector target for annual energy savings is 44,301 MWh and the sector target for annual peak demand reduction is 10.6 MW.

A sector summary of results by program is presented in Table 2-11 and Table 2-12.

**Table 2-11: Summary of Government & Non-Profit EE Sector Incremental Impacts by Program through the Fourth Quarter, Program Year 2<sup>23</sup>**

Gov't. & Non-Profit EE Sector	IQ Participants	IQ Reported Gross Energy Savings (MWh)	IQ Reported Gross Demand Reduction (MW)
Governmental/ Non-Profit Lighting Efficiency Program	175	2,263	0.7
Commercial Products Efficiency Program	9	226	0.1
Custom Technology Applications Program	1	187	0.1
Custom Applications Program	1	29	0.0
Commercial and Industrial Drives Program	1	106	0.0
<b>Total for Gov't and Non-Profit EE Sector</b>	<b>187</b>	<b>2,811</b>	<b>0.8</b>
<b>NOTES:</b> (1) MWh/MW total may differ from sum of individual components due to rounding.			

**Table 2-12: Summary of Government & Non-Profit EE Sector PYTD Impacts by Program through the Fourth Quarter, Program Year 2<sup>24</sup>**

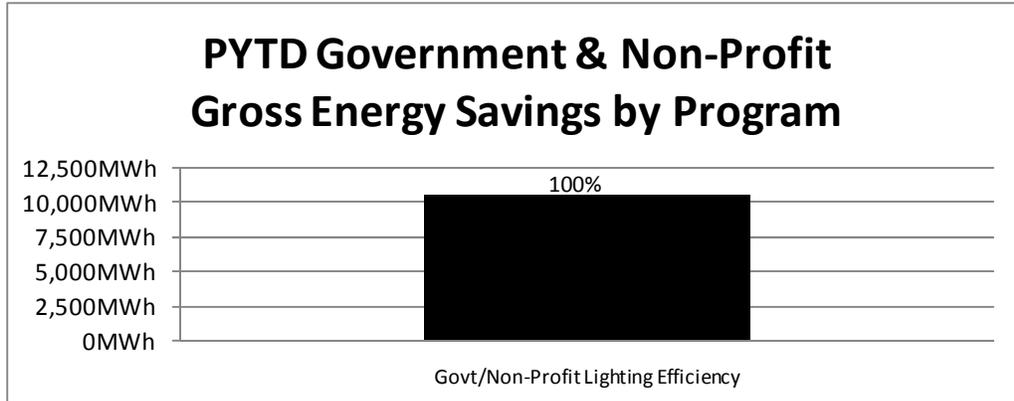
Gov't. & Non-Profit EE Sector	PYTD Participants	PYTD Reported Gross Energy Savings (MWh)	PYTD Reported Gross Demand Reduction (MW)
Governmental/ Non-Profit Portfolio Program	434	10,617	3.3
Commercial Products Efficiency Program	22	510	0.1
Custom Technology Applications Program	3	343	0.1
Custom Applications Program	1	29	0.0
Commercial and Industrial Drives Program	4	453	0.1
<b>Total for Gov't and Non-Profit EE Sector</b>	<b>464</b>	<b>11,953</b>	<b>3.6</b>

<sup>23</sup> Table 2-12 reflects an adjustment for Government and non-Profit Sector participation in the Commercial Products Efficiency, Custom Technology Applications, and Commercial and Industrial Drives Programs.

<sup>24</sup> Table 2-13 reflects an adjustment for Government and non-Profit Sector participation in the Commercial Products Efficiency, Custom Technology Applications, and Commercial and Industrial Drives Programs.

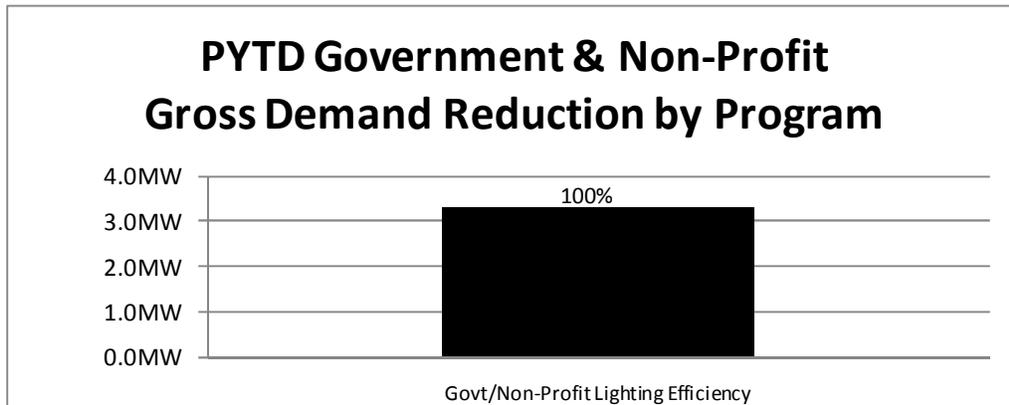
A summary of the sector energy savings by program is presented

**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.

**Figure 2-12: Summary of Government & Non-Profit EE Sector PYTD Reported Demand Reduction by Program**



### **3 Demand Response**

Demand response programs specifically target the reduction of peak demand through various demand-side management strategies. Demand Response programs will be piloted in the summer of 2011. Refer to Section 4 for program specific information.

WPP currently does not have any demand response program results to report in its 100 peak hours as interpreted by the PUC under Act 129.

## **4 Portfolio Results by Program**

### **4.1 Compact Fluorescent Lighting (CFL) Rewards Program**

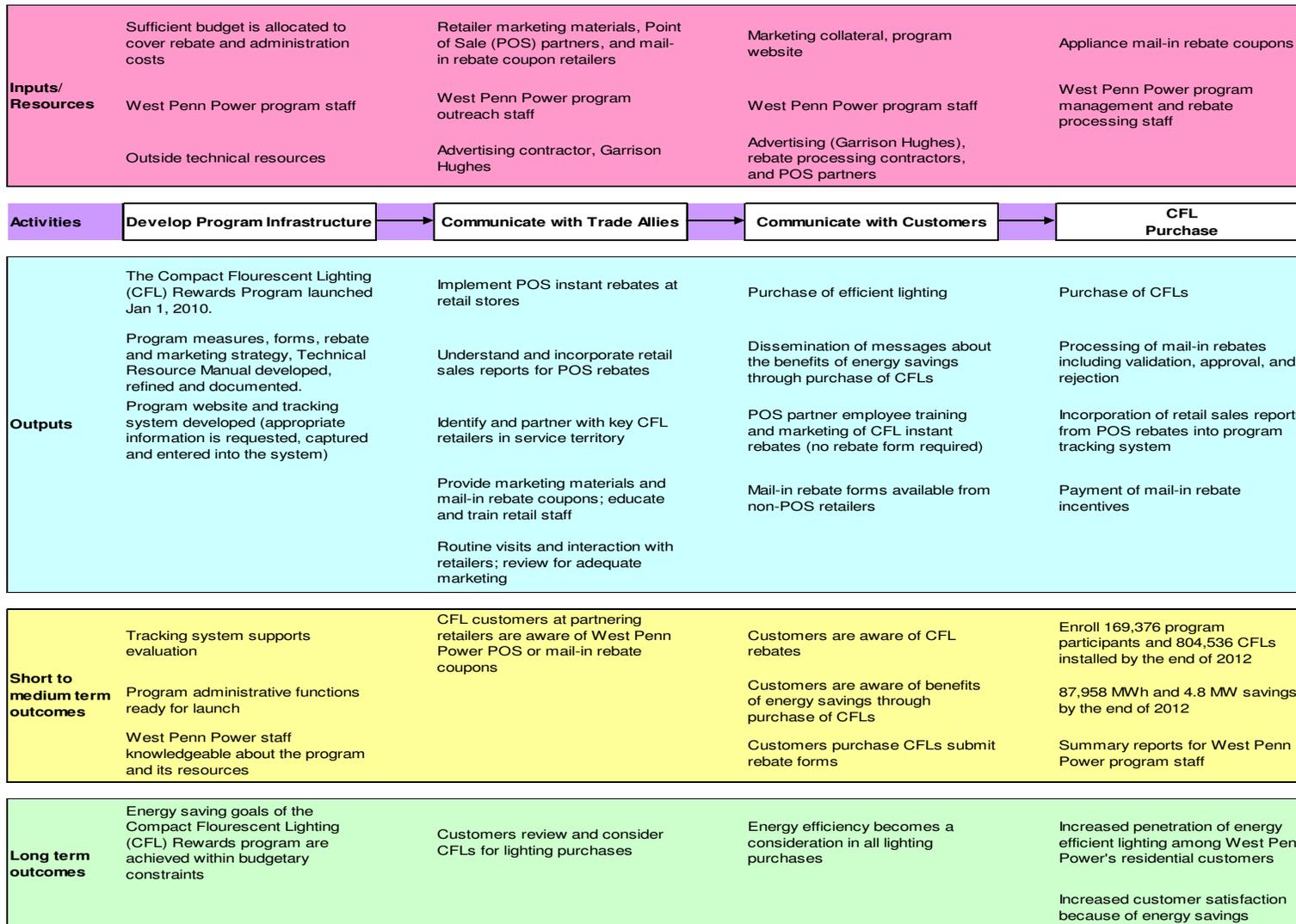
The CFL Rebate Program encourages customers to purchase CFLs instead of incandescent bulbs. To encourage participation and to overcome cost barriers, this program provides mail-in and retailer point-of-sale (POS) rebates.

The CFL rebate design launched in January 2010 and the POS launched in August 2010. West Penn Power partnered with several manufacturers and negotiated buy downs of bulk CFLs which in turn, reduces the purchase price at the retail store, and negates the need for customers to follow through the mail-in rebate process. Participating retail stores include Home Depot, Walmart, Sam's Club, and Lowe's.

#### **4.1.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Residential Compact Fluorescent Lighting Rewards Program Logic Model



### 4.1.2 Program M&V Methodology and Program Sampling

The table below summarizes the PY2 completed EM&V activities

**Summary of Evaluation Activities for the Residential  
Compact Fluorescent Lighting Rewards Program**

Action	Impact	Process	Details
Management and implementation staff interviews		√	Gathered insight into program design, delivery, and interactions with other stakeholders.
Vendor interviews and mystery shopping		√	Gathered qualitative information from participating POS retail stores to assess the levels of program marketing and employee knowledge.
Participant surveys	√	√	Collected process information from a sample of program mail-in rebate participants, and estimated the program realization rate.
Engineering Review	√		Reviewed engineering assumptions, calculations, models used to estimate TRM Deemed Savings (2010-2012).

### 4.1.3 Program Sampling

Refer to Section 4.1.2 above.

### 4.1.4 Process Evaluation

The evaluation research indicates that the PY2 program design changes are actively addressing participation barriers found in PY1. The CFL program strategies are focusing on POS CFL instant rebates. The POS strategy has proven to be a viable, strategic option to reduce the barriers to customer participation for the mail-in rebate program design.

Participants were largely satisfied with the program. When asked to rate their satisfaction with the program overall on a 1 to 10 scale (with 10 being “very satisfied”), 84 percent of participants rated the program as an 8 or above.

### 4.1.5 Program Partners and Trade Allies

Customers benefit from a POS instant rebate when they purchase a single or multi pack of CFL light bulbs at various retailers associated with the WPP POS agreements. The partnerships are with the CFL manufacturers which supply retail stores. See below for a summary of partnerships:

- WPP has a POS Partnership with GE Lighting. The retailers associated with this partnership at this time are Wal-Mart and Sam’s Club.
- WPP has a partnership agreement with Philips Lighting. The retailer associated with this partnership is Home Depot.
- WPP also has an agreement with Lowe’s, which will include multiple manufacturers.

- WPP is securing additional agreements with GE and Osram/Sylvania. The GE agreements will include True Value, Ace Hardware, CVS, and Rite Aid.

#### 4.1.6 Program Finances

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

**Table 4-1: Summary of Compact Fluorescent Lighting (CFL) Rewards Program Finances: TRC Test<sup>25</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 224,444	\$ 489,629	\$ 489,629
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 224,444	\$ 489,629	\$ 489,629
B.1	Design & Development	\$ 1,364	\$ 4,704	\$ 119,465
B.2	Administration	\$ 13,712	\$ 79,305	\$ 116,357
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 5,204	\$ 159,937	\$ 220,450
B.5	Technical Assistance	\$ 51,659	\$ 84,269	\$ 176,857
B	<b>Subtotal EDC Implementation Costs</b>	\$ 71,939	\$ 328,215	\$ 633,129
C	<b>EDC Evaluation Costs</b>	\$ 17,772	\$ 50,788	\$ 55,640
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 672,082	\$ 674,264
	<b>Total Costs</b>	\$ 314,155	\$ 1,540,714	\$ 1,852,662
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 1,051,085	\$ 1,363,033
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 2,381,449	\$ 2,388,110
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 10,379,768	\$ 10,410,087
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 10,379,768	\$ 10,410,087
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	9.9	7.6
<b>NOTES:</b>				
<sup>1</sup> Participant costs = the sum of incremental costs.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.				
<sup>3</sup> Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs * MWh				
<sup>4</sup> Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.				

<sup>25</sup> Definitions for terms in following table are subject to TRC Order.

## **4.2 Critical Peak Rebate Program**

The Critical Peak Rebate Program (CPR) demand response program encourages residential customers to lower their demand during peak load hours by offering a rate discount/rebate based on actual demand reduction. The load reduction must occur during notified peak hours. CPR relies on the installation of a smart meter to measure the customer's demand during peak hours.

A limited deployment was planned for the 3<sup>rd</sup> quarter 2011 with full rollout starting in the 4<sup>th</sup> quarter of 2011.

### **4.2.1 Program Logic**

Program Logic will be provided in PY3.

### **4.2.2 Program M&V Methodology**

Program M&V Methodology will be determined in PY3.

### **4.2.3 Program Sampling**

Program Sampling will be determined in PY3.

### **4.2.4 Process Evaluation**

Process Evaluation will be determined in PY3.

### **4.2.5 Program Partners and Trade Allies**

Program Partners and Trade Allies are to be determined.

#### 4.2.6 Program Finances

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

**Table 4-2: Summary of Critical Peak Rebate Program Finances: TRC Test<sup>26</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ 1,364	\$ 2,760	\$ 2,760
B.2	Administration	\$ 14,331	\$ 28,142	\$ 28,142
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 49,654	\$ 52,882	\$ 52,882
B.5	Technical Assistance	\$ 14,923	\$ 20,856	\$ 20,856
B	<b>Subtotal EDC Implementation Costs</b>	\$ 80,272	\$ 104,640	\$ 104,640
C	<b>EDC Evaluation Costs</b>	\$ 3,370	\$ 7,017	\$ 7,017
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ 83,642	\$ 111,657	\$ 111,657
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 111,657	\$ 111,657
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>				
<sup>1</sup> This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009.				

<sup>26</sup> Definitions for terms in following table are subject to TRC Order.

### **4.3 Residential ENERGY STAR and High Efficiency Appliance Program**

The ENERGY STAR and High Efficiency Appliance Program encourages customers to purchase the most energy-efficient appliances available. To promote participation and to overcome first cost barriers, this program provides rebates (equal to about 50 percent of the appliance's incremental cost in most cases) for the purchase of appliances that meet or exceed ENERGY STAR or other energy efficiency ratings.

Mail-in rebates are offered for clothes washers, clothes dryers, dishwashers, refrigerators, freezers, programmable thermostats, and room air conditioners. Appliance turn-in rebates are also available through the program for refrigerators, freezers, and room air conditioners. Rebates for high efficiency refrigerators and freezers require turn in of the older replaced appliance.

This Program launched in January 2010.

#### **4.3.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Residential ENERGY STAR and High Efficiency Appliance Program Logic Model

<b>Inputs/ Resources</b>	Sufficient budget is allocated to cover rebate and administration costs	Point of sale partners and marketing materials, including mail-in rebate coupons	Marketing collateral, program website	Appliance mail-in rebate and recycling coupons	West Penn Power program staff
	West Penn Power program staff	West Penn Power program outreach staff	West Penn Power program staff	Rebate processor and recycling contractor (JACO)	Evaluation reports
	Outside technical resources	Appliance recycler, JACO	Advertising contractor (Garrison Hughes) and JACO for recycling	West Penn Power program staff	Appliance efficiency standards
<b>Activities</b>	<b>Develop Program Infrastructure</b>	<b>Communicate with Trade Allies</b>	<b>Communicate with Customers</b>	<b>Appliance Purchase/Recycling</b>	<b>Adjust Rebates as Appliance Efficiency Levels Change</b>
<b>Outputs</b>	The ENERGY STAR and High Efficiency Appliances Program launched Jan 1, 2010.	Identify and partner with key appliance retailers in service territory	Coupon distribution in print media and on website	Purchase of qualified efficient appliances	New list of rebated appliances
	Program measures, forms, rebate and marketing strategy, Technical Resource Manual developed, refined and documented.	Provide marketing materials and mail-in rebate coupons; educate and train retail staff	Dissemination of TV, Internet, and newspaper messages about the benefits of energy savings through purchase of efficient appliances	Processing of mail-in rebate forms including validation, approval, and rejection	New marketing collateral
	Program website and tracking system developed (appropriate information is requested, captured and entered into the system)	Retailer aware and promotes additional customer rebates for recycling refrigerators, freezers, and room air conditioners by  Routine visits and interaction with retailers; review for adequate marketing	The Home Performance program will inform potential customers	Recycling of old refrigerator, freezer, and room air conditioner  Timely payment of program incentives by West Penn Power for appliance rebates, and JACO for recycling rebates	
<b>Short to medium term outcomes</b>	Tracking system supports evaluation	Appliance customers at partnering retailers are aware of both West Penn Power purchase and recycling mail-in rebates	Customers are aware of appliance rebates	Enroll 57,344 program participants by the end of Program Year 2012	New energy savings goals
	Program administrative functions ready for launch		Customers are aware of benefits of energy savings through purchase of efficient appliances	51,233 MWh and 12.7 MW savings by the end of 2012	Customers aware of exact rebate amount before installation
	West Penn Power staff knowledgeable about the program and its resources		Customers purchase efficient appliances and submit rebate forms	Summary reports for West Penn Power program staff	
<b>Long term outcomes</b>	Energy saving goals of the ENERGY STAR and High Efficiency Appliances program are achieved within budgetary constraints	Customers review and consider ENERGY STAR rated appliances for all purchases	Energy efficiency becomes a consideration in all appliance purchases	Increased penetration of energy efficient equipment among West Penn Power's residential customers  Increased customer satisfaction because of energy savings	Saturation of efficient technology is avoided because standards are updated.

### 4.3.2 Program M&V Methodology and Program Sampling

The below table summarizes the PY2 EM&V activities.

**Summary of Evaluation Activities for the Residential ENERGY STAR and High Efficiency Appliance Program**

Action	Impact	Process	Details
Management and implementation staff interviews		√	Gathered insight into program design, delivery, and interactions with other stakeholders.
Vendor interviews and mystery shopping	√	√	Gathered qualitative information from participating appliance retail stores to assess the levels of program marketing and employees knowledge.
Participant surveys	√	√	Collected process information from a sample of program participants and estimated realization rates for each of the appliance types.
Engineering Review	√		Reviewed WPP claimed savings and savings calculator.

### 4.3.3 Program Sampling

Refer to Section 4.3.2 above.

### 4.3.4 Process Evaluation

The program uses general advertising campaigns, the Watt Watchers website, and targeted in-store materials to market the program. To date, clothes washers, electric clothes dryers, and refrigerators are doing well, while freezer rebates are lagging.

A key program improvement in PY2 was the addition of promotional partnerships with retailers to promote appliances eligible for the Program. Another notable change is the addition of program qualified recyclers to provide customers with more convenient retailer recycling options.

In February 2011, the evaluator's mystery shopping activities in and around Greensburg, PA assessed the level of marketing and employee program knowledge at participating appliance stores. In general, evaluators found that West Penn Power signage at participating stores is limited. Appliance sales staff were not actively promoting energy efficiency or program rebates. Evaluators did find that store staff are fairly knowledgeable when prompted. Appliance store sales staff did not use energy savings or cost savings as a technique to promote and sell appliances. They possessed a good understanding of energy savings and available rebates, but discussed only when prompted. The recycling rebate and requirement, however, was not as commonly discussed.

Participants reported they are most likely to hear of the program from a retail store, contractor, or newspaper. This finding reflects the importance of the outreach efforts that West Penn Power has

undertaken with retail stores. It also confirms that any additional marketing, including newspaper advertisements, bill inserts, and the West Penn Power Watt Watchers website are encouraging greater participation. Participants are largely satisfied with the program. When asked to rate their satisfaction with the program overall on a 1 to 10 scale (with 10 being “very satisfied”), 85 percent of participants rated the ENERGY STAR and High Efficiency program overall as an 8 or above. In addition, 74 percent of the participants did not have any suggestion for improving the way the program currently operates. In addition, the program rebated appliances are meeting the majority of participants’ energy savings expectations. Sixty-two percent of participants reported that they were satisfied with the energy savings from the new equipment.

Participant surveys were also completed with appliance recycling participants. For this program, participants are most likely to hear of the program from West Penn Power bill inserts followed by newspapers. Participants are also largely satisfied with the recycling program. When asked to rate their satisfaction with West Penn Power’s implementer (JACO) on a 1 to 10 scale (with 10 being “very satisfied”), 92 percent of participants rated the professionalism of JACO staff highly (8 or above). In addition, the time it took to recycle their appliance and the rebate application process were also rated high (by 86 percent of participants). Both the available appliance pickup service and rebate were influential in customer’s decision to participate.

#### **4.3.5 Program Partners and Trade Allies**

WPP identified and worked with key market actors, specifically local appliance retailers and big box retail stores, to market and promote high efficiency appliance options. These marketing efforts are positively affecting program participation. Program marketing begins with identifying and teaming with key market actors; in this case, appliance retailers and big box retail stores. Program marketing and rebate materials are placed with the appliances, with program eligibility decals placed directly on qualifying appliances in some instances. West Penn Power staff educates and trains store management and employees about the program’s offerings. West Penn Power would like to expand the program aggressively by incorporating additional local retail stores.

West Penn Power has expanded the purchase rebate eligibility for customers using recycler’s other than the Company recycling CSP (JACO) to provide customers with more convenient retailer recycling options by adding “program qualified recyclers” to the Program.

The Company is also working with Lowe’s on a pilot initiative to print rebate forms at the time of purchase.

### 4.3.6 Program Finances

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

**Table 4-3: Summary of Residential ENERGY STAR and High Efficiency Appliance Program Finances: TRC Test<sup>27</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 500,032	\$ 1,397,051	\$ 1,421,186
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 500,032	\$ 1,397,051	\$ 1,421,186
B.1	Design & Development	\$ 1,364	\$ 20,746	\$ 135,507
B.2	Administration	\$ 23,355	\$ 121,421	\$ 192,742
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 193,443	\$ 1,500,416	\$ 1,848,725
B.5	Technical Assistance	\$ 93,654	\$ 508,366	\$ 614,911
B	<b>Subtotal EDC Implementation Costs</b>	\$ 311,816	\$ 2,150,949	\$ 2,791,885
C	<b>EDC Evaluation Costs</b>	\$ 79,764	\$ 161,817	\$ 203,769
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 3,388,151	\$ 3,779,566
	<b>Total Costs</b>	\$ 891,612	\$ 7,097,968	\$ 8,196,406
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 5,772,687	\$ 6,856,515
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 1,128,150	\$ 1,229,564
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 7,311,511	\$ 7,963,942
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 7,311,511	\$ 7,963,942
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	1.3	1.2

**NOTES:**  
<sup>1</sup>Participant costs = the sum of incremental costs.  
<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs include incentives for recycling as direct installation costs for this program in the amount of \$71,770 PYTD and \$81,295 CPITD.  
<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh  
<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>27</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.4 Residential Home Performance Program**

The Residential Home Performance Program provides a holistic approach to educating customers on energy efficiency and conservation, and to improve overall home performance, by providing customers with a choice of two energy audit measures including an On-line Audit and an In-Home Audit. WPP is offering a \$50 incentive for an In-Home Audit. The customer will be eligible to receive an additional incentive for the installation of measures recommended by the audit up to the balance of the audit cost. The Consumer Efficiency measure will study customer demographic and perform a bill analysis. The customer will be presented a report containing EE&C efficiency education and opportunities to reduce consumption based on the demographic and bill analysis. The Consumer Efficiency measure will also provide EE&C educational materials for schools.

The measures directly available through this program for electric heat customers are attic insulation and home sealing via qualified In-home Audits.

The On-line Audit and Consumer Efficiency measures have been launched.

Customers participating in the On-line Audit receive eight CFLs (four CFLs were provided prior to March 2011).

The Consumer Efficiency measure includes:

- CFL Event Giveaways: up to 8 bulbs are given to customers attending events held within the WPP service territory;
- CFL School Kits: customers send in post card to receive 4-60W incandescent equivalent CFL bulbs by mail;
- CFL Opt-In Program: customers go on-line or speak to a representative to order a CFL kit that includes 4-60W and 2-100W incandescent equivalent CFL bulbs by mail;
- JACO bulb distribution: JACO provides customers with 4-60W, 2-75W, and 2-100W incandescent equivalent CFL bulbs; and,
- UPMC Kit Mailings (one time): partnered with Duquesne Light to provide employees in WPP service territory with receive 2-60W, 1-75W, and 1-100W incandescent equivalent CFL bulbs, 2 lime lights, and 1 Smart Strip.

The In-Home Audit component has not yet been launched.

##### **4.4.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model, which currently includes the On-line Audit portion of the Home Performance Program. When the In-home audit portion of the program launches, it will be added to the logic model.

**Residential On-line Audit Home Performance Program Logic Model**

<b>Inputs/ Resources</b>	Sufficient budget is allocated	Marketing materials	Online analyzer web tool
	Program Team	Program website	
<b>Activities</b>	<b>Develop Program Infrastructure</b>	<b>Direct marketing</b>	<b>Perform On-line Audits</b>
<b>Outputs</b>	<p>The online audit portion of the program is made available to customers in 2010</p> <p>Program measures, marketing strategy and technical assumptions developed, refined and documented</p> <p>Tracking system developed and appropriate information is requested, captured and entered</p>	<p>Target direct communications to residential customers and other outreach such as bill inserts, direct mail, radio, and inbound call center</p> <p>General Awareness Campaign</p> <p>Snippets from Energy At Home DVD on AP website</p>	<p>Target 19,000 online audit participants in 2010</p> <p>Participants receive four free CFLs (8 Bulbs effective 3/2011)</p> <p>Customers are referred to other West Penn Power programs through the online analyzer</p>
<b>Short to medium term outcomes</b>	<p>Improved energy efficiency program awareness and participation</p> <p>Resources are available to provide services to customers</p>	<p>Customer interest is stimulated by marketing the availability and benefits of audit options</p> <p>AP Call center receives program inquiries</p>	<p>Customer interest in additional energy saving measures is generated by audit recommendations</p> <p>kW, kWh and therm savings are identified</p>
<b>Long term outcomes</b>	<p>Energy saving goals of the program are achieved within budgetary constraints</p>	<p>Residential customers' awareness of and participation in the program increases</p>	<p>Customer interest in additional energy saving measures is generated by audit recommendations</p>

#### 4.4.2 Program M&V Methodology and Program Sampling

Tetra Tech conducted a PY2 survey that included participants from the On-line Audit and CFL event giveaway portions of the Home Performance program. The survey was similar to the one used in PY1 for the first wave of the On-line Audit to (1) verify customer receipt of the CFLs; and (2) evaluate program processes by review of customer experience with energy saving outcomes.

The table below summarizes PY2 EM&V completed activities.

Action	Impact	Process	Details
Management and implementation staff interviews		√	Gathered insight into program design, delivery, and interactions with other stakeholders.
Participant surveys	√	√	Collected information from a random sample of On-line Audit program participants and CFL event giveaway program participants each.
Engineering Review	√		Reviewed engineering assumptions, calculations, models used to estimate equipment/measure savings (2010-2012).

#### 4.4.3 Program Sampling

Refer to Section 4.4.2 above.

#### 4.4.4 Process Evaluation

Evaluators conducted participation customer surveys in June 2011. Participant survey findings show that the On-line Audit tool has been an effective tool for referring customers to other Watt Watchers programs, with almost half of participants mentioning that they learned of other programs through the On-line Audit. The most common programs customers participated in as a result of completing the On-line Audit were the ES Appliances and CFL Rewards programs. In addition to participating in other Watt Watchers programs, over 75 percent of On-line Audit participants reported taking energy savings actions as a result of the recommendations.

General awareness of the Watt Watchers programs was prevalent amongst the CFL event giveaway participants as well. The ENERGY STAR and High Efficiency Appliance program was the most widely mentioned by participants, followed by the CFL Rewards program and the Whole Home Appliance program.

Findings from both the Online Analyzer and CFL event giveaway demonstrated that about 75 percent of the bulbs received through the program are installed in the home. Another 22 percent of Online Analyzer and 21 percent of the CFL event giveaway bulbs are in storage. CFLs installed in the home are primarily installed in high-use areas, such as the living room. About 90 percent of installed CFLs replaced a standard incandescent bulb. Seventy-three percent of the CFLs that replaced standard incandescent bulbs or other bulbs replaced bulbs that were still working, suggesting early replacement.

#### 4.4.5 Program Partners and Trade Allies

Aclara provides the on-line audit tool. Power Direct is administering the CFL Opt-in initiative.

#### 4.4.6 Program Finances

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

**Table 4-4: Summary of Residential Home Performance Program Finances: TRC Test<sup>28</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 561,856	\$ 632,622	\$ 669,923
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 561,856	\$ 632,622	\$ 669,923
B.1	Design & Development	\$ 1,364	\$ 12,008	\$ 126,769
B.2	Administration	\$ 13,923	\$ 74,006	\$ 116,825
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 3,879	\$ 320,197	\$ 721,798
B.5	Technical Assistance	\$ 85,169	\$ 113,499	\$ 206,082
B	<b>Subtotal EDC Implementation Costs</b>	\$ 104,335	\$ 519,710	\$ 1,171,474
C	<b>EDC Evaluation Costs</b>	\$ 19,534	\$ 60,837	\$ 82,309
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>			
	<b>Total Costs</b>	\$ 685,725	\$ 1,213,169	\$ 1,923,706
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 1,213,169	\$ 1,923,706
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 972,196	\$ 1,027,482
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 4,609,485	\$ 4,832,997
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 4,609,485	\$ 4,832,997
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	3.8	2.5

**NOTES:**  
<sup>1</sup>Participant costs = the sum of incremental costs.  
<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. All incentives for this program are included in costs as proxy for direct installation costs.  
<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh  
<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>28</sup> Definitions for terms in following table are subject to TRC Order.

## 4.5 Programmable Controllable Thermostat (PCT) Program

The Company's amended September 10, 2010 EE&C/DR Plan removed this program from the WPP EE&C Plan.

### 4.5.1 Program Logic

Not applicable.

### 4.5.2 Program M&V Methodology

Not applicable.

### 4.5.3 Program Sampling

Not applicable.

### 4.5.4 Process Evaluation

Not applicable.

### 4.5.5 Program Partners and Trade Allies

Not applicable.

### 4.5.6 Program Finances

A summary of the project finances are presented in Table 4-5. Not applicable.

**Table 4-5: Summary of Programmable Controllable Thermostat (PCT) Program Finances: TRC Test**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants			
A.2	EDC Incentives to Trade Allies			
A	<b>Subtotal EDC Incentive Costs</b>			
B.1	Design & Development			
B.2	Administration			
B.3	Management			
B.4	Marketing			
B.5	Technical Assistance			
B	<b>Subtotal EDC Implementation Costs</b>			
C	<b>EDC Evaluation Costs</b>			
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>			
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>				

#### **4.6 Residential Whole Home Appliance Efficiency Program<sup>29</sup>**

The Residential Whole Home Appliance Efficiency Program encourages customers to purchase a high efficiency central air conditioner or heat pump (SEER ratings of 14.5 or greater). To encourage participation and to overcome cost barriers, this program provides rebates (\$100 for SEER of 14.5, \$150 for SEER of 15, and \$200 for SEER of 16 and above) for the purchase of units that exceed the federal energy efficient standard (SEER ratings of 13). To qualify for these rebates under this program, the work must be completed by a certified contractor and a programmable thermostat must be installed. These measures launched in January 2010.

The September 10, 2010 amended EE&C/DR Plan added measures to encourage customers to perform maintenance on existing central air conditioner (CAC) or heat pump (HP) systems. The program also encourages customers to replace electric hot water heaters with new Energy Star domestic hot water storage type units. These additional residential rebate measures were launched in April 2011.

For the Residential Whole Home Appliance Efficiency Program, there were a total of 923 Heat Pumps rebated through the end of PY2. Of the rebated heat pumps, a total of 99 customers indicated that natural gas was available.

##### **4.6.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

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<sup>29</sup> This Program was formally called the Residential ENERGY STAR and High Efficiency Appliance Program.

### Residential Whole Home Appliance Efficiency Program Logic Model

Inputs/ Resources	Sufficient budget is allocated West Penn Power program staff Outside technical resources	Marketing collateral, program website West Penn Power program staff Technical Resource Manual	Marketing materials, program website Rebate coupon packet	West Penn Power program staff Rebate contractor (PFC) Program infrastructure	Project invoices and documentation Rebates Program infrastructure
Activities	<b>Develop Program Infrastructure</b>	<b>Outreach to Trade Allies</b>	<b>Customer Communications</b>	<b>Rebate Application approval</b>	<b>Rebate Measures</b>
Outputs	<p>Program website and West Penn Power tracking system developed (appropriate information is requested, captured and entered into the system)</p> <p>Program measures, forms, rebates and marketing strategy, Technical Resource Manual developed, refined and documented.</p> <p>Changes to the Residential Whole Home Appliance Efficiency Program launched March 15, 2011.</p>	<p>Coordinate with HVAC and hot water heating distributors to obtain contact information for potential trade allies</p> <p>Provide program information, sales training, and marketing support to contractors via direct marketing</p> <p>Participate in energy efficiency fairs and events held by local chapters of HVAC and plumbing associations</p> <p>Involve trade ally feedback to refine program offerings</p>	<p>TV, radio, and print marketing of Residential Whole Home Appliance Efficiency Program on a rotating basis with other efficiency programs</p> <p>Trade allies market program to customers</p>	<p>PFC enters customer application into system</p> <p>PFC validates customer applications, and alerts customer if rebate is rejected</p>	<p>Customers participate in program</p> <p>PFC mails rebate check within six weeks of receipt</p> <p>Quality control conducted, West Penn Power or contractor conducts quality assurance</p>
Short to medium term outcomes	<p>West Penn Power tracking system supports evaluation</p> <p>Program administrative functions ready for launch</p> <p>West Penn Power staff knowledgeable about the program and its resources</p>	<p>Contractors and distributors are knowledgeable about the rebate structure and program guidelines</p> <p>Trade allies provide necessary rebate information to customers and assist with the completion of the application</p> <p>Trade allies regularly communicate the program to customers and include rebate with bids</p>	<p>Program offering is meaningful, clear, and valuable to customers</p> <p>Residential customer's awareness of and participation in the program increases significantly</p>	<p>Customers replace heat pump, central AC, and electric hot water heating equipment with equipment that is higher efficiency than federal standards require</p> <p>Customers conduct maintenance that improves the efficiency of existing HVAC equipment</p> <p>Customers aware of exact rebate amount before installation</p>	<p>12,641 MWh and 4.0 MW savings by the end of 2012</p> <p>Enroll 6,397 participants by the end of 2012</p> <p>Summary reports for West Penn Power program staff</p>
Long term outcomes	<p>Energy saving goals of the Residential Whole Home Appliance Efficiency Program are achieved within budgetary constraints</p>	<p>Increased trade ally stocking and sales of HVAC and water heating equipment with higher efficiency than required by federal standard</p> <p>HVAC contractors more likely to carry equipment necessary for enhanced HVAC tune-up</p> <p>The majority of trade ally population participate and/or recommend energy efficient equipment and services</p> <p>Increased participation of customers in the program</p>	<p>Increased residential customer awareness of, and demand for energy efficiency equipment and services</p>	<p>Ensure that all rebated equipment meets program requirements</p> <p>Increased customer satisfaction with rebate completion process</p>	<p>Increased penetration of energy efficient HVAC and hot water heating equipment among West Penn Power's residential customers</p> <p>Increased frequency of efficiency maintenance on existing HVAC equipment among West Penn Power's residential customers</p>

#### 4.6.2 Program M&V Methodology and Program Sampling

The Residential Whole Home Appliance Efficiency Program was evaluated in PY2. The table below summarizes completed EM&V activities.

**Evaluation Tasks**

Action	Impact	Process	Details
Program Staff Interviews		√	Provided insight into program design and delivery.
Trade Ally Interviews	√	√	Reviewed process-related issues, including program awareness and customers' adoption level of program-qualifying HVAC equipment. Inform the impact evaluation by identifying changes in the HVAC market resulting from program offerings.
Participant Survey (216 customers)	√	√	Gathered process-related data, including program awareness, utility and program satisfaction, and initial barriers to technology adoption. Included a free-ridership and spillover battery.
Engineering Review	√		Reviewed engineering assumptions, calculations, models used to estimate measure claimed savings.
Site Visits	√	√	Conducted site visits of 26 residential homes stratified by central air conditioners and heat pumps to verify installation. Primarily driven by impact efforts, the site visits also identified process issues.

#### 4.6.3 Program Sampling

Refer to Section 4.6.2 above.

#### 4.6.4 Process Evaluation

Key PY2 program improvements included simplifying the HVAC rebate application form and the implementation of an aggressive outreach effort to engage HVAC contractors and allow them to help complete the rebate application.

The program gained momentum in PY2. While the program has made a decisive departure from an early customer-focused marketing approach (which is now limited to rotating program-specific TV, radio, and print awareness campaigns) to recruitment and participation of trade ally contractors, the evaluation research shows the need for a 'push-pull' marketing effort to continue. Both the trade ally interviews and participant surveys indicate that contractors are influential in the customer decision-making process. Interviews with trade allies show that trade allies who are aware of the residential program are effectively marketing the rebates to customers. Most of the trade allies interviewed indicated that they

included the rebates from the utilities as part of their standard sales presentation, which usually included information on paybacks for high efficiency equipment. However, trade allies feel that the program would benefit from utility-specific material that explained the rebates and benefits of high efficiency equipment and also recommended more direct marketing of the program by West Penn Power. Participants reported they were most likely to hear of the program from the contractor that installed the equipment or a West Penn Power utility bill insert.

Participants are largely satisfied with the program. When asked to rate their satisfaction with the program overall on a 1 to 10 scale (with 10 being “very satisfied”), 83 percent of the heat pump participants and 89 percent of central air conditioner participants rated the HVAC Efficiency program overall as an 8 or above. In addition, 81 percent of the participants would not make any changes to the way the program currently operates.

Site visits indicated that while there are variations in installations from what is documented in the program database, the realization rate is likely around 1.0. This finding is consistent with what was found in the customer surveys. However, the data tracking system had some missing information; specifically, there were no entries under the field “Installed Equipment AHRI Certificate.” Furthermore, the “Installed Equipment Indoor Model” field in the tracking database was not entirely consistent. The missing or inconsistent information limited the impact evaluation’s ability to verify indoor model numbers in some cases.

#### **4.6.5 Program Partners and Trade Allies**

Trade ally contractors have been educated over the past several months on the WPP Whole Home Appliance Efficiency Program. This contractor-based strategy centers on outreach with distributors to help identify potential contractors. WPP then implements targeted contractor mailings. Contractors knowledgeable about the program rebates leverage the program rebate to up-sell their customers. In addition, contractors reduce a key customer participation barrier by aiding in the completion of the rebate application form. The form has also been revised since the program’s inception to increase application efficiency, with contractor feedback acknowledging its ease of completion as compared to prior form versions.

The company also partners with Columbia Gas and UGI Utilities to promote the ENERGY STAR Domestic Water Heating measure.

Trade allies interviewed for the evaluation feel that the market for high efficiency equipment is strong in Pennsylvania. Most trade allies stated that demand for high efficiency equipment, including heat pumps and air conditioners with a SEER rating above 14, is strong in Pennsylvania. All reported that they actively promote high efficiency equipment to their customers and many noted that customers have become more informed about the benefits of high efficiency equipment over the course of the last ten to fifteen years. As a whole, the trade allies feel that high efficiency equipment makes sense in Pennsylvania; the climate makes high efficiency equipment practical and cost effective, especially for heat pumps.

Interviewed trade allies also reported that there is a strong correlation between demand for high efficiency HVAC equipment and rebate levels. Nearly all of the trade allies interviewed indicated that 2010 was a good year in the HVAC business in Pennsylvania despite the economic downturn. Most attributed this directly to the federal tax credits and rebates offered by the utilities

#### 4.6.6 Program Finances

A summary of the project finances are presented in Table 4-6.

Table 4-6: Summary of Residential Whole Home Appliance Efficiency Program Finances: TRC Test<sup>30</sup>

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 73,650	\$ 354,700	\$ 354,700
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 73,650	\$ 354,700	\$ 354,700
B.1	Design & Development	\$ 1,364	\$ 4,209	\$ 118,970
B.2	Administration	\$ 14,275	\$ 78,183	\$ 115,297
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 167,939	\$ 196,269	\$ 202,377
B.5	Technical Assistance	\$ 17,063	\$ 46,477	\$ 139,253
B	<b>Subtotal EDC Implementation Costs</b>	\$ 200,641	\$ 325,138	\$ 575,897
C	<b>EDC Evaluation Costs</b>	\$ 30,777	\$ 60,123	\$ 74,910
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 679,294	\$ 680,573
	<b>Total Costs</b>	\$ 305,068	\$ 1,419,255	\$ 1,686,080
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 1,064,555	\$ 1,331,380
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 220,479	\$ 220,829
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 1,513,219	\$ 1,515,796
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 1,513,219	\$ 1,515,796
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	1.4	1.1

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>30</sup> Definitions for terms in following table are subject to TRC Order.

## 4.7 Residential Efficiency Rewards Rate

The Company's amended September 10, 2010 EE&C/DR Plan removed this Smart Meter enabled program to reduce reliance of the Plan on the rapid deployment of Smart Meters.

### 4.7.1 Program Logic

Not applicable.

### 4.7.2 Program M&V Methodology

Not applicable.

### 4.7.3 Program Sampling

Not applicable.

### 4.7.4 Process Evaluation

Not applicable.

### 4.7.5 Program Partners and Trade Allies

Not applicable.

### 4.7.6 Program Finances

A summary of the project finances are presented in Table 4-7. *Not applicable.*

Table 4-7: Summary of Residential Efficiency Rewards Rate Program Finances: TRC Test

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants			
A.2	EDC Incentives to Trade Allies			
A	<b>Subtotal EDC Incentive Costs</b>			
B.1	Design & Development			
B.2	Administration			
B.3	Management			
B.4	Marketing			
B.5	Technical Assistance			
B	<b>Subtotal EDC Implementation Costs</b>			
C	<b>EDC Evaluation Costs</b>			
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>			
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>				

### 4.8 Pay Ahead (Smart) Service Rate

The Company's amended September 10, 2010 EE&C/DR Plan removed this Smart Meter enabled program to reduce reliance of the Plan on the rapid deployment of Smart Meters.

#### 4.8.1 Program Logic

Not applicable.

#### 4.8.2 Program M&V Methodology

Not applicable.

#### 4.8.3 Program Sampling

Not applicable.

#### 4.8.4 Process Evaluation

Not applicable.

#### 4.8.5 Program Partners and Trade Allies

Not applicable.

#### 4.8.6 Program Finances

A summary of the project finances are presented in Table 4-8. *Not applicable.*

Table 4-8: Summary of Pay Ahead (Smart) Service Rate Program Finances: TRC Test

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants			
A.2	EDC Incentives to Trade Allies			
A	<b>Subtotal EDC Incentive Costs</b>			
B.1	Design & Development			
B.2	Administration			
B.3	Management			
B.4	Marketing			
B.5	Technical Assistance			
B	<b>Subtotal EDC Implementation Costs</b>			
C	<b>EDC Evaluation Costs</b>			
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>			
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>				

## **4.9 Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program**

The Program consists of a Home Check-Up Audit along with standard installed measures. The auditors will provide and install standard EE&C measures, with the customer's consent. The installed measures are as follows:

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

Under the Appliance Replacement component, the refrigerator and/or room air conditioner may qualify for replacement.

- Refrigerator – The auditor will determine if the customer's existing refrigerator is eligible for replacement based on the age and operational effectiveness. If eligible, the refrigerator will be replaced with a like-size ENERGY STAR model. In addition, should the customer also have an older, inefficient freezer in use, the customer will be provided the opportunity to replace both the refrigerator and freezer with a larger, more efficient refrigerator, so that the freezer may be removed.
- Room Air Conditioner - The auditor will determine if the customer's existing room air conditioner is eligible for replacement based on the age and operational effectiveness. Up to two existing room air conditioners can be replaced.

This Program launched in January 2010.

### **4.9.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

## Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program Logic Model

Inputs/ Resources	Sufficient budget is allocated	West Penn Power / Dollar Energy	Community action agencies (contractors)	West Penn Power
Activities	<b>Develop Program Infrastructure</b>	<b>Refer and Enroll Customers</b>	<b>Perform Home Performance Check-up</b>	<b>Process Invoices</b>
Resources	West Penn Power program staff Dollar Energy (PA)	Thirteen community action agencies and Dollar Energy	Lowes	Dollar Energy / community action agencies
Outputs	<p>The Low Income Home Performance Check-up Audit and Appliance Replacement Program launched January 1, 2010.</p> <p>Program measures, forms, marketing strategy, Technical Resource Manual developed, refined and documented.</p> <p>Inform contractors and West Penn Power of program requirements and procedures.</p> <p>Centralized on-line tracking system developed and available by program launch date (Dollar Energy)</p>	<p>Identify potentially eligible customers via West Penn Power call center. Customers referred to partnering community action agencies associated with customers' location (by county).</p> <p>Collect household data to confirm eligibility (e.g., rental status, household income at or below 150% FPL)</p> <p>Identify renters in need and obtain approval from landlords. Collect any qualifying information from renters.</p> <p>West Penn Power develops the "Governor's List" of LIHEAP recipients to identify potential LIURP participants based on usage (high is priority). Dollar Energy conducts outbound outreach calls.</p>	<p>Contractor direct installs up to 6 CFLs, 3 faucet aerators, and 1 low flow showerhead. Prioritize high usage faucets/sockets.</p> <p>Identify equipment and service needs in the home that can be funded through LIURP and/or DOE funds.</p> <p>Complete 30 minute walk-through interactive education with customer. Provide and discuss energy usage analysis.</p> <p>Work orders created, documenting measures to be installed and services to be provided through Dollar Energy's online system by contractors.</p> <p>Specifically identify the need for refrigerator replacement (up to 1) and/or room air conditioning replacement (up to 2).</p>	<p>Process invoices for direct installation measures, refrigerators and room air conditioners, and audit services.</p> <p>Receive documentation for all measures that are installed in the home and source of funding for the installation regardless of funding</p> <p>Enter recipient and measure information into Dollar Energy's program database.</p> <p>Date of weatherization is entered into West Penn Power's CIS system for the premise. SAP may in the future include fields for reporting and tracking.</p>
Short to medium term outcomes	<p>Program serves low income customers within annual budget not to exceed \$5.381M through 2012.</p> <p>Program administrative functions ready for launch</p> <p>West Penn Power staff knowledgeable about the program and its resources</p>	<p>Up to 5,085 customers that are in financial need are identified and served through the program through program year 2012</p> <p>Strong communication and referral mechanisms are maintained between West Penn Power and the community action agencies.</p> <p>The program serves multi-family buildings not served through the comprehensive LIURP program.</p>	<p>West Penn Power claims the savings resulting from the audit and direct installation</p> <p>Room air conditioners and refrigerators are properly recycled (West Penn Power contracting with Lowes)</p> <p>Capture energy savings from the multi-unit sector.</p>	<p>6,071 MWh and 1.2 MW savings by the end of 2012</p> <p>LIURP and/or the federal program are able to serve a greater number of households.</p>
Long term outcomes	<p>Energy saving goals of the program are achieved within budgetary constraints</p>	<p>The program serves a higher percentage of low income customers through active identification and enrollment.</p>	<p>Ensure that as many customers as possible receive comprehensive weatherization services.</p> <p>Reduce energy usage and improve customer bill payment behaviors.</p> <p>Customers make behavioral changes based on education provided and reinforced by savings.</p>	<p>Increased penetration of energy efficiency equipment among West Penn Power's low income residential customers</p>

#### 4.9.2 Program M&V Methodology and Program Sampling

The Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program was evaluated in PY2. The table below summarizes completed EM&V activities and sample sizes. For the participant survey effort, households were randomly sampled from participants from PY1 through PY2 Q2.

##### Summary of Evaluation Activities for Residential Low Income Home Performance Check-up and Appliance Replacement Program

Action	Impact	Process	Details
Program manager and implementation staff interviews (3-5)		√	Gathered insight into program design, delivery, and interactions with other stakeholders.
Community action agency (CAA) interviews		√	Gathered process-related data from participating community action agencies. These interviews will address all three low-income programs offered by WPP.
Participant surveys (78)	√	√	Collected information from a random sample of program participants stratified by services received (audit only and direct install only, audit and refrigerator replacement, audit and room air conditioner replacement, audit, refrigerator and room air conditioner replacement).
Engineering Review	√		Reviewed engineering assumptions, calculations used to estimate equipment/measure savings in PY2.

#### 4.9.3 Program Sampling

Refer to Section 4.9.2 above.

#### 4.9.4 Process Evaluation

In PY2, the Low Income Home Performance Check-up Program met program staff expectations; the Low Income Home Performance Check-up Program is increasingly serving multi-family buildings; and outreach and marketing needs for this program is minimized by the synergies between this and other low-income programs offered by West Penn Power (e.g. Low Income Usage Reduction Program).

Evaluators conducted participating customer surveys in April and May 2011. They also spoke with 10 CAAs in May and June 2011. The surveys revealed relatively high satisfaction with the program and West Penn Power. The participant surveys revealed that auditors were providing information as intended and designed by the program.

Participants, for the most part, verified receiving the measures claimed by the program. However, the program would benefit from more consistent direct installation of kit materials. Additionally, focusing on distributing water savings devices to electric water heating homes would improve the in-service rate for the water savings devices.

#### 4.9.5 Program Partners and Trade Allies

Lowe's and Sears provide replacement and recycling of the Refrigerator and Room Air Conditioner component for this program. Dollar Energy Fund staff, private contractors and community action agencies perform in-home energy audits.

#### 4.9.6 Program Finances

A summary of the project finances are presented in Table 4-9.

**Table 4-9: Summary of Residential Low Income Home Performance Check-Up Audit & Appliance Replacement Program Finances: TRC Test<sup>31</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 1,146,684	\$ 2,846,559	\$ 2,869,359
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 1,146,684	\$ 2,846,559	\$ 2,869,359
B.1	Design & Development	\$ 1,364	\$ 13,959	\$ 24,392
B.2	Administration	\$ 12,601	\$ 70,482	\$ 112,804
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 680	\$ 4,921	\$ 8,814
B.5	Technical Assistance	\$ 76,820	\$ 239,456	\$ 288,993
B	<b>Subtotal EDC Implementation Costs</b>	\$ 91,465	\$ 328,818	\$ 435,003
C	<b>EDC Evaluation Costs</b>	\$ 19,782	\$ 21,604	\$ 27,501
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>			
	<b>Total Costs</b>	\$ 1,257,931	\$ 3,196,981	\$ 3,331,863
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 3,196,981	\$ 3,331,863
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 573,833	\$ 596,867
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 2,421,076	\$ 2,523,140
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 2,421,076	\$ 2,523,140
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	0.8	0.8

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. All incentives for this program are included in costs as a proxy for incremental costs.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>31</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.10 Residential Low Income Joint Utility Usage Management Program**

The program consists of a Home Check-Up Audit with Appliance Replacement and/or LIURP Program measures for gas and electric customers in conjunction with partnering gas utilities.

The program consists of a Home Check-Up Audit along with standard installed measures. The auditors provide and install standard EE&C measures, with the customer's consent. The installed measures are as follows:

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

Under the Appliance Replacement component, the refrigerator and/or room air conditioner may qualify for replacement.

- Refrigerator – The auditor will determine if the customer's existing refrigerator is eligible for replacement based on the age and operational effectiveness. If eligible, the refrigerator will be replaced with a like-size ENERGY STAR model. In addition, should the customer also have an older, inefficient freezer in use, the customer will be provided the opportunity to replace both the refrigerator and freezer with a larger, more efficient refrigerator, so that the second freezer may be removed.
- Room Air Conditioner - The auditor will determine if the customer's existing room air conditioner is eligible for replacement based on the age and operational effectiveness.

The program may also fund additional measures, such as electric water heaters. This Program launched in January 2010.

##### **4.10.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Residential Low Income Joint Utility Usage Management Program Logic Model

Inputs/ Resources	Sufficient budget is allocated West Penn Power and gas utility program staff Dollar Energy (PA)	West Penn Power / gas utility Thirteen community action agencies and Dollar Energy	Community action agencies (contractors) Lowe's	West Penn Power, gas utility, and DCED funds Community action agencies	West Penn Power, gas utility, and community action agencies Dollar Energy / community action agencies
Activities	Develop Program Infrastructure	Refer and Enroll Customers	Perform Home Performance Check-up	Weatherize Homes	Process Invoices
<b>Outputs</b>	<p>The Low Income Joint Utility Usage Management Program launched January 1, 2010.</p> <p>Establish relationship and procedures with gas utility (e.g., Columbia Gas) and other interested utilities. Understand utility program requirements.</p> <p>Establish income requirements consistent with gas utility's program eligibility (up to 200% FPL)</p> <p>Inform contractors, West Penn Power staff, and gas utility staff of program requirements and procedures.</p> <p>Centralized on-line tracking system developed and available by program launch date (Dollar Energy)</p>	<p>Potentially eligible customers are identified via West Penn Power or gas utility call center. Customers referred to partnering community action agencies or utility.</p> <p>Household data is collected and documented confirming eligibility (e.g., household income at or below 150% FPL, between 150% to 200% FPL, gas heating customer)</p> <p>Referrals are communicated between gas utility, West Penn Power, Dollar Energy, and participating Community Action agency</p> <p>West Penn Power develops the "Governor's List" of their LIHEAP recipients to identify potential LIURP participants based on usage (high is priority). Dollar Energy conducts outbound outreach calls.</p>	<p>Contractor direct installs up to 6 CFLs, 3 faucet aerators, and 1 low flow showerhead</p> <p>Identify equipment and service needs in the home including refrigerators and room air conditioners. Identify both gas and electric opportunities.</p> <p>Specifically identify the need for refrigerator replacement and/or room air conditioning replacement.</p> <p>Complete 30 minute walk-through interactive education with customer. Provide and discuss energy usage analysis.</p> <p>Work orders created, documenting measures to be installed and services to be provided through Dollar Energy's online system by contractors.</p>	<p>Contractors follow work orders developed through the check-up and holistically weatherize home, addressing both cost-effective gas and electric measures</p> <p>DCED, ARRA, and LIURP (gas and electric utility) funding is leveraged where necessary to ensure holistic weatherization</p> <p>Seamless services are provided to customer; customer time is minimized by coordinating services.</p>	<p>Process invoices for electric measures and audit services funded through West Penn Power's JUUMP program.</p> <p>Receive documentation for all measures that are installed in the home and source of funding for the installation regardless of funding</p> <p>Enter recipient and measure information into program database.</p> <p>Savings resulting from households with incomes between 150%-200% FPL are not counted toward low income portfolio goals but contribute to program goals</p> <p>Date of weatherization is entered into West Penn Power's CIS system for the premise. SAP may in the future include fields for reporting and tracking.</p>
<b>Short to medium term outcomes</b>	<p>Program serves low income customers within annual budget not to exceed \$6.363M through 2012.</p> <p>Program administrative functions ready for launch</p> <p>West Penn Power and gas utility staff establish procedures for processing invoices and serving participants</p>	<p>Up to 11,937 customers that are in financial need are identified and served through the program through program year 2012</p> <p>Strong communication and referral mechanisms are maintained between West Penn Power, gas utility, and the community action agencies.</p> <p>Households with higher income levels not eligible for West Penn Power's low income programs (between 150% to 200% FPL) are served.</p>	<p>West Penn Power claims the savings resulting from the audit and direct installation of electric measures</p> <p>Room air conditioners and refrigerators are properly recycled (West Penn Power contracting with Lowes)</p> <p>Appropriate measures and services are identified (cost-effective, health and safety, etc.)</p>	<p>Services address the house as a system, improving overall household conditions</p> <p>Participants maintain high satisfaction in both gas utility and West Penn Power through the program's streamlined services</p> <p>Participant experiences non-energy benefits (e.g., improved comfort, home appearance).</p>	<p>11,319 MWh and 1.2 MW savings by the end of 2012</p> <p>LIURP and/or the federal program are able to serve a greater number of households.</p> <p>West Penn Power identifies the effectiveness of this program model and whether other partnerships should be formed</p>
<b>Long term outcomes</b>	<p>Energy saving goals are achieved within budgetary constraints</p> <p>Procedures are transferrable to other gas utilities with whom West Penn Power partners</p>	<p>The program serves a higher percentage of low income customers through active identification and enrollment.</p> <p>The enrollment and referral mechanisms are effective, efficient, and transferrable should other partnerships be formed.</p>	<p>Ensure that as many customers as possible receive comprehensive weatherization services.</p> <p>Customers make behavioral changes based on education provided and reinforced by savings.</p>	<p>Holistic services provide sustainable saving and reduce households' overall energy burden</p> <p>Participants have an increased energy usage awareness and reduce energy use through behavioral changes</p>	<p>Increased penetration of energy efficiency equipment among West Penn Power's and gas utility low income residential customers</p> <p>The programs, working in cohort with each other, provide comprehensive services to a high percentage of eligible low to moderate income customers</p>

#### 4.10.2 Program M&V Methodology and Program Sampling

The Residential Low Income Joint Utility Usage Management Program was evaluated in PY2.

The table below summarizes completed PY2 EM&V activities. For the participant survey effort, households were randomly sampled from participants from PY1 through PY2 Q3.

#### Summary of Evaluation Activities for Residential Low Income Joint Utility Usage Management (JUUMP) Program

Action	Impact	Process	Details
Program manager and implementation staff interviews (4)		√	Gathered insight into program design, delivery, and interactions with other stakeholders.  Gathered process-related data from participating community action agencies. These interviews will address all three low-income programs offered by WPP.
Participant surveys (30 based on a census)	√	√	Collected information from a random sample of program participants.
Engineering Review	√		Reviewed engineering assumptions, calculations used to estimate equipment/measure savings in PY2. Due to the low activity, a billing analysis is not feasible for this program.

#### 4.10.3 Program Sampling

Refer to Section 4.10.2 above.

#### 4.10.4 Process Evaluation

Evaluators conducted a second round of residential program manager (PM) and program implementation contractor interviews in November and December 2010 and updated the program logic model first developed in PY 2. A key finding is that the JUUMP Program is experiencing institutional barriers to delivery - in large part inhibited by requirements Columbia Gas must adhere to in their program delivery; however, the program is slowly gaining momentum.

The majority of participants recalled receiving the check-up audit, as well as the refrigerator testing and CFLs. Nearly a third reported receiving a refrigerator. Surprisingly few participants recalled receiving low-flow showerheads and faucet aerators (23 percent and 13 percent, respectively). Additionally, focusing on distributing water saving devices to electric water heating homes would improve the in-service rate for the water savings devices.

The check-up component of the program could provide an opportunity for the program to influence energy conservation behaviors or further energy efficiency purchases. As with the Low-income Home Performance Check-up Audit and Appliance Recycling Program, evaluators found that participants received energy conservation and efficiency information through the audit provided by the program. Audit documentation may provide non-tracked savings that, in time (and if added to the TRM) may be able to be claimed by the program based on auditor information and recommendations.

Participants, for the most part, were very satisfied with the services they received through this program.

#### 4.10.5 Program Partners and Trade Allies

WPP is partnering with Columbia Gas Company for the completion of the Home Check-Up Audit and the installation of full program measures. Lowe's and Sears provide replacement and recycling of the Refrigerator and Room Air Conditioner component for this program. Dollar Energy Fund staff, private contractors, and community action agencies perform in-home energy audits.

#### 4.10.6 Program Finances

A summary of the project finances are presented in Table 4-10.

**Table 4-10: Summary of Residential Low Income Joint Utility Usage Management Program Finances: TRC Test<sup>32</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 26,015	\$ 175,794	\$ 175,794
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 26,015	\$ 175,794	\$ 175,794
B.1	Design & Development	\$ 1,364	\$ 9,797	\$ 20,230
B.2	Administration	\$ 12,601	\$ 73,243	\$ 113,936
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 680	\$ 4,231	\$ 8,124
B.5	Technical Assistance	\$ 51,036	\$ 97,938	\$ 106,075
B	<b>Subtotal EDC Implementation Costs</b>	\$ 65,681	\$ 185,209	\$ 248,365
C	<b>EDC Evaluation Costs</b>	\$ 24,600	\$ 25,855	\$ 32,834
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>			
	<b>Total Costs</b>	\$ 116,296	\$ 386,858	\$ 456,993
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 386,858	\$ 456,993
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 6,582	\$ 6,582
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 41,378	\$ 41,378
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 41,378	\$ 41,378
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	0.1	0.1

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. All incentives for this program are included in costs as a proxy for incremental costs.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>32</sup> Definitions for terms in following table are subject to TRC Order.

## 4.11 Residential Low Income Room Air Conditioner Replacement Measure

The Company's amended September 10, 2010 EE&C/DR Plan removed this program.

### 4.11.1 Program Logic

Not applicable.

### 4.11.2 Program M&V Methodology and Program Sampling

Not applicable.

### 4.11.3 Program Sampling

Not applicable.

### 4.11.4 Process Evaluation

Not applicable.

### 4.11.5 Program Partners and Trade Allies

Not applicable.

### 4.11.6 Program Finances

A summary of the project finances are presented in Table 4-11. Expenses incurred reflect costs charged prior to decommissioning.

Table 4-11: Summary of Residential Low Income Room Air Conditioner Replacement Program Finances: TRC Test

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ -	\$ -	\$ 10,433
B.2	Administration	\$ -	\$ 66,054	\$ 104,377
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ -	\$ (2,011)	\$ 2,007
B.5	Technical Assistance	\$ -	\$ 46,396	\$ 54,533
B	<b>Subtotal EDC Implementation Costs</b>	\$ -	\$ 110,439	\$ 171,350
C	<b>EDC Evaluation Costs</b>	\$ -	\$ 993	\$ 7,111
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ -	\$ 111,432	\$ 178,461
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 111,432	\$ 178,461
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:**

<sup>1</sup>This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009.

## **4.12 Governmental/School/Non-Profit Portfolio Program**

The program encourages government, school, and non-profit customers in WPP's Pennsylvania service territory to upgrade to state-of-the-art energy efficient lighting technologies. The program provides increased incentives and equipment to these customer classes for installing:

- T8 lamps: Replacing T12 lamps;
- LED Exit Signs: Replacing or retrofitting existing incandescent exist signs w/LED (provided to the customer at no upfront cost except shipping cost);
- LED Traffic Signals: Retrofit LED packs into existing incandescent units; and,
- CFLs: Supply CFLs to this customer class via customer application (Provided to the customer at no upfront cost).

This Program launched in April 2010. Changes per the September 10, 2010 filing were launched in the 3<sup>rd</sup> and 4<sup>th</sup> quarters of PY2.

### **4.12.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Government/Non-profit Lighting Efficiency Program Logic Model

Inputs/Resources	Sufficient budget is allocated West Penn Power program staff Statewide Technical Resource Manual (TRM)	Marketing plan and collateral, program website West Penn Power program staff	Marketing materials and campaign, program website Lighting installation contractors Marketing to LDDA's and other local organizations	West Penn Power program staff; Rebate processor Submitted (mail-in) rebate forms	Program rebate processing (vendor) Incentives budget; possible tax credits; other funding Sales receipt (UPC label)
Activities	<b>Develop Program Infrastructure</b>	<b>Outreach to Trade Allies</b>	<b>Customer Communications</b>	<b>Rebate Application approval</b>	<b>Rebate Measures</b>
Outputs	The Govt/Schools/Non-profit Lighting Program launched 4th quarter of 2009  Program measures defined, forms, rebates and marketing strategy developed, refined and documented  Program website and tracking system developed	Work with the Local Development District Associations (LDDA) and other local organizations to market program to Govt/Non-profits  Provide information to lighting contractors for leveraging federal/state funding (stimulus dollars, tax incentives, grants)  Work with Facilities Engineering Institute (FEI) to promote programs to State Agencies.	Key account managers and trade allies refer eligible customers to the program  Targeted direct communications to Govt/Non-profit customers such as direct mailings and bill inserts  Mass marketing activities, including AP website, business customer newsletter, print and radio mass advertising	Program staff validates customer eligibility  Monthly review of participation rates by program manager  Project data entered into program tracking database	West Penn Power validates customer rebate form and all checklist items completed; payment initiated  Data tracking "opportunity" status to "complete," phase to "paid"; Participants receive rebates in timely manner  Necessary EM&V data collected
Short to medium term outcomes	Program Administrative functions can handle expected application numbers  Tracking system supports program processes, reporting requirements, and evaluation efforts  West Penn Power staff knowledgeable about the program and its resources	Trade allies are knowledgeable about the rebate structure and program guidelines  Trade allies regularly communicate the program to customers and include rebate with lighting installation bids  Increase participation of customers in the program	Program offering is meaningful and customers understand benefits/value  Govt/Non-profit customers' awareness of and participation in the program increases  Customers plan for future program participation in their equipment purchase budget cycles	Customers install lighting equipment that has a higher efficiency than federal standards require  Customers aware of exact rebate amount before installation  Minimize customer dissatisfaction with program by managing customer expectations	59,091 MWh and 13.5 MW savings by the end of 2012 for Govt/Non-profit Lighting  Achieve cumulative TRC of 9.6  Summary reports for West Penn Power program staff
Long term outcomes	Energy saving goals of the Watt Watchers program are achieved within budgetary constraints	Increased trade allies' stocking and sales of lighting equipment with higher efficiency than required by federal standard  The majority of trade allies participate and/or recommend energy efficient equipment	Increased awareness of and demand for energy efficiency lighting in all eligible Govt/Non-profit segments	Monitor participation and modify if necessary marketing, incentive levels, lighting measures offered  Increased satisfaction with pre-approval process	Increased penetration of energy efficiency lighting in all targeted Govt/Non-profit businesses

#### 4.12.2 Program M&V Methodology and Program Sampling

The table below summarizes completed PY2 activities.

**Summary of Evaluation Activities for Government/Non-profit Lighting Efficiency Program**

Action	Impact	Process	Details
Program Staff Interviews		√	Provided insight into program design and delivery with opportunities for program improvement and updates to the program logic model. Completed annually and when the program is changed.
Market Channel Actor Interviews	√	√	Examined process-related issues, including program awareness and customers' adoption level of program-qualifying lighting equipment. Conducted 20 in-depth interviews with participating lighting vendors of West Penn Power's nonresidential lighting programs and Local Development District Associations (LDDAs) working with the program.
Participant Survey (136 surveys)	√	√	Gathered process-related data, including program awareness, program satisfaction, and initial barriers to technology adoption. Included a free-ridership and spillover battery to understand program-associated free-ridership and spillover. Sampled a census of PY2 program participants through the second quarter of PY2.
Baseline Non-participant Survey	√	√	Established baseline conditions for customers regarding lighting equipment saturation, age, and other metrics. Examined reasons for not participating in the program.
Engineering Model and Deemed Savings Reviews (on-going)	√		Reviewed engineering assumptions, calculations, inventory forms, models used to estimate equipment/measure savings (2010-2012) for all site visit sample. Reviewed the Energy Savings Calculator used to estimate savings.
Site Visits (26 site visits completed)	√		Gather information to calculate project and program realization rates to determine verified savings. Short-term metering (lighting loggers) were included in many site visits. Sites over 50 KW or with space types outside the TRM are included in Custom Program.
Program Database/Tracking Review (on-going)	√		Ensured appropriate data collected to inform the evaluation. Completed early on and have completed periodic reviews of the Energy Savings Calculator, which tracks savings for each program.

#### 4.12.3 Program Sampling

Refer to Section 4.12.2 above.

#### **4.12.4 Process Evaluation**

Evaluators completed several primary data collection efforts in PY2, including in-depth interviews with program staff, 20 in-depth interviews with trade allies including 16 participating lighting installation contractors and distributors (jointly with the Government/Schools/Nonprofit program) as well as four Local Development District Associations (LDDA) working with the Government/Schools/Nonprofit Lighting program, 26 on-site interviews and inspections and 136 quantitative surveys with customers participating in the program from the start of PY2 thru PY2 Q2.

In PY2, the program has successfully built relationships with lighting trade allies, which should continue and expand in PY3. Trades reported very positive interactions with West Penn Power program staff, with emphasis on their knowledge base and responsiveness to questions and concerns. The program has been particularly successful in engaging LDDAs to help promote program offerings, especially the initial CFL and LED exit sign campaign. LDDAs in particular expressed interest in becoming more involved with the program, and felt that the program could more fully leverage their relationships with institutional customers to promote rebated measures. In PY2 the program primarily focused its outreach efforts to the lighting trade on major distributors, and did not widely engaged installation contractors. Expanding outreach to installation contractors is one area for growth, as several installation contractors called for increased communications from the program.

Feedback from all trade allies suggested that budget constraints and the struggling economy remain among the most pressing barriers to participating. In addition, several trades reported that while many institutional customers were aware that the West Penn Power rebate programs exist, a general lack of knowledge of program requirements is a barrier to participation. Finally, trades discussed specific barriers that may be more pressing among institutional customers than commercial customers, including lower prioritization of energy use due to low energy bills, the timing of budget cycles, and reaching decision-makers. Customers' budget constraints and internal decision-making processes were also two of the most common barriers to participation mentioned by participating customers.

Participating customers and trade allies expressed high satisfaction overall, especially regarding their interactions with program staff. Participating customers were also highly satisfied with the performance of program equipment. All participants who purchased rebated measures reported that the equipment is currently installed and operating. In addition, the participant survey identified some evidence of spillover, with several customers reporting the program having influenced their decision to install additional energy efficient equipment. Feedback from trade ally interviewees suggested that the program's rebate requirements are reasonable and in-line with other utility programs.

Overall, the program's realization rate is acceptable compared to the EM&V team's experience for similar programs nationwide. The main drivers of the downward verified savings adjustments were based on the accuracy of verified fixture codes, pre and post installed fixture counts, applied interactive factors, building space types in which bulbs were installed, and stored (rather than installed) fixtures, as well as, lower installation rates for the free giveaway component of the program.

#### 4.12.5 Program Partners and Trade Allies

WPP is leveraging the Local Development District Associations (LDDA) of Pennsylvania to market this program to this customer sector. These associations have established relationships with this target market. The Company is also working with the Facilities Engineering Institute (FEI) to market to PA State entities such as PennDOT, LCB, etc., as they are the contracted energy consultants for these entities by the State of PA.

#### 4.12.6 Program Finances

A summary of the project finances are presented in Table 4-12.

**Table 4-12: Summary of Government/School/Non-Profit Measure Portfolio Program Finances: TRC Test<sup>33</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 131,081	\$ 356,223	\$ 407,380
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 131,081	\$ 356,223	\$ 407,380
B.1	Design & Development	\$ 1,364	\$ 13,095	\$ 105,500
B.2	Administration	\$ 39,103	\$ 215,245	\$ 299,330
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 518	\$ 11,629	\$ 17,595
B.5	Technical Assistance	\$ 15,096	\$ 45,216	\$ 119,508
B	<b>Subtotal EDC Implementation Costs</b>	\$ 56,081	\$ 285,185	\$ 541,933
C	<b>EDC Evaluation Costs</b>	\$ 74,757	\$ 155,001	\$ 172,151
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 469,052	\$ 469,052
	<b>Total Costs</b>	\$ 261,919	\$ 1,265,461	\$ 1,590,516
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 959,431	\$ 1,284,486
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 672,213	\$ 852,550
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 3,391,175	\$ 4,121,566
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 3,391,175	\$ 4,121,566
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	3.5	3.2

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs include incentives for free CFLs and exit signs as a proxy for participant costs for this program in the amount of \$50,193 PYTD and \$101,350 CPITD.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>33</sup> Definitions for terms in following table are subject to TRC Order.

### **4.13 Commercial HVAC Efficiency Program**

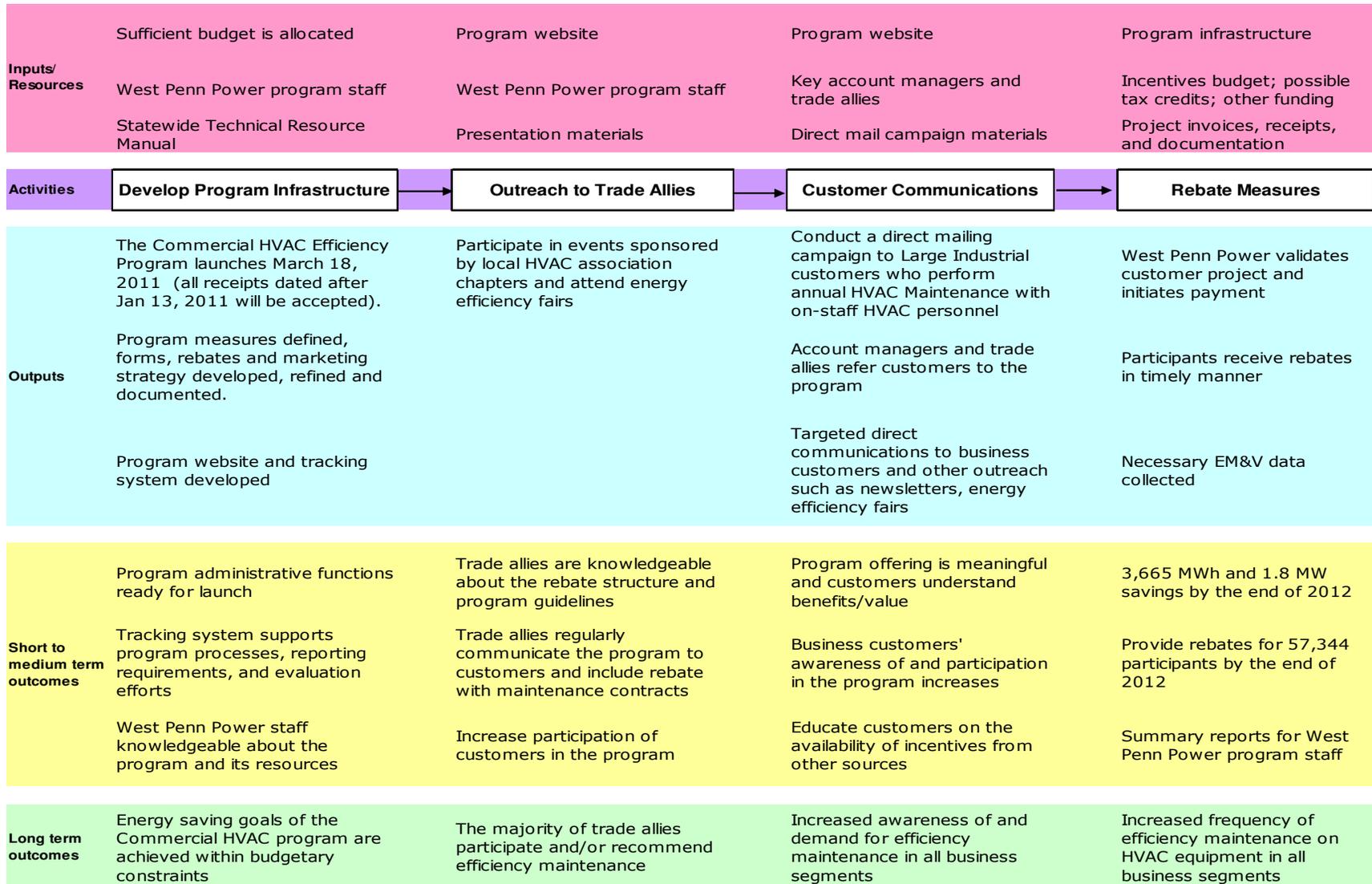
The September 10, 2010 Amended EE&C/DR Plan replaces the incentive for the commercial installation of new energy efficient HVAC units with a \$25 rebate per unit incentive for the annual maintenance of existing HVAC units.

The revised Program was soft launched in June 2011.

#### **4.13.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model capturing approved changes. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Commercial HVAC Efficiency Program Logic Model



### 4.13.2 Program M&V Methodology and Program Sampling

The Commercial HVAC Efficiency Program was evaluated in PY2. Currently, there is very limited participation in the Program – only two projects were completed through the third quarter of PY2, at which time the equipment portion of the program was discontinued. A desk review of the calculated savings was conducted for both projects. The table below summarizes completed activities.

**Summary of Evaluation Activities for Commercial HVAC Program**

Action	Impact	Process	Details
Program Staff Interviews		√	Provided insight into program design and delivery and opportunities for improvement.
Trade Ally Interviews	√	√	Uncovered process-related issues, including program awareness and customers’ adoption level of program-qualifying HVAC equipment. Informed the impact evaluation by identifying any changes in the HVAC market resulting from program offerings.
Participant Survey	√	√	Gathered process-related data, including program awareness, program satisfaction, and initial barriers to technology adoption. Included a free-ridership and spillover battery to understand program-associated free-ridership and spillover. Completed survey with the only program participant through the second quarter of PY2.
Baseline Non-participant Survey	√	√	Established baseline conditions for customers regarding HVAC equipment saturation, age, and other metrics, as well as barriers to participation.
Site Visits	√		Only two HVAC projects were reported for PY2, through the third quarter, so site-visits were not conducted. Instead, a thorough desk review of the savings inputs and calculations was conducted.
Program Database Review	√	√	Ensured appropriate data collected to inform the evaluation, conducted a review of the Energy Savings Calculator (ESC).
Engineering Model and Deemed Savings Reviews	√		Reviewed engineering assumptions, calculations, models used to estimate equipment/measure savings. Only two projects were completed for energy efficient HVAC equipment. A desk review of the savings calculations was conducted for both projects.

### 4.13.3 Program Sampling

Refer to Section 4.13.2 above.

### 4.13.4 Process Evaluation

Interviews with HVAC trade allies indicate the need for program outreach to support the PY3 HVAC program offering. Interviewed trade allies were not aware of West Penn Power HVAC commercial offerings.

#### 4.13.5 Program Partners and Trade Allies

WPP is jointly working with Westmoreland County and ALL Facilities Inc to provide Energy Efficiency & Conservation seminars to all classes of commercial and industrial customers in the county. We have started working on a similar partnership with Fayette County and PennTAP to promote the Act 129 Programs to all commercial and industrial customers in the county. In addition, we are providing Act 129 presentations to local Chambers of Commerce throughout our service territory.

The Company is developing a network of HVAC distributors/dealers through the Residential Programs that will also be used to promote/implement the Commercial HVAC Maintenance Program as well.

#### 4.13.6 Program Finances

A summary of the project finances are presented in Table 4-13.

**Table 4-13: Summary of Commercial HVAC Efficiency Program Finances: TRC Test<sup>34</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ 225	\$ 225
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ 225	\$ 225
B.1	Design & Development	\$ 1,364	\$ 2,740	\$ 89,680
B.2	Administration	\$ 12,719	\$ 111,894	\$ 173,682
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 991	\$ 8,024	\$ 29,334
B.5	Technical Assistance	\$ 15,096	\$ 45,216	\$ 115,085
B	<b>Subtotal EDC Implementation Costs</b>	\$ 30,170	\$ 167,874	\$ 407,781
C	<b>EDC Evaluation Costs</b>	\$ (4,064)	\$ 20,010	\$ 27,188
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 1,436	\$ 1,436
	<b>Total Costs</b>	\$ 26,106	\$ 189,545	\$ 436,630
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 189,320	\$ 436,405
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 221	\$ 221
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 1,448	\$ 1,448
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 1,448	\$ 1,448
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	0.0	0.0

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>34</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.14 Commercial Products Efficiency Program<sup>35</sup>**

The Commercial Products Efficiency Program encourages small and large, commercial, and industrial customers to upgrade to state-of-the-art energy efficient lighting technologies. The Company's September 10, 2010 amended EE&C/DR Plan revised the Commercial Lighting Efficiency Program, and renamed Commercial Products Efficiency Program to expand the eligible lighting measures, including CFLs , by leveraging the June 2010 Technical Reference Manual update. This provides the opportunity for more customers to participate in the program and for additional energy and demand savings due to the addition of different lighting types and sizes that are contained in Appendix C of the Technical Reference Manual.

The program provides rebates to Commercial & Industrial customers for installing:

- T8 lamps: Replacing T12 lamps and other efficiency lighting;
- T5 lights: Replacing high-intensity discharge high bay style lights;
- Occupancy Sensors (wall-plate style sensors to replace conventional switches);
- Power Strips (controlling lights and appliances);
- LED Exit Signs: Replacing incandescent exit signs; and,
- CFLs: Replacing incandescent bulbs and/or fixtures.

The Program launched in February 2010. Program changes were implemented in PY2 Q4

##### **4.14.1 Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model capturing approved changes. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

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<sup>35</sup> This Program was previously called the Commercial Lighting Efficiency Program.

### Commercial Products Efficiency Program Logic Model

<b>Inputs/ Resources</b>	Sufficient budget is allocated  West Penn Power program staff  Statewide Technical Resource Manual (TRM)	Marketing plan and collateral, program website  West Penn Power program staff	Marketing materials and campaign, program website  Lighting installation contractors  POS Rebate packet	West Penn Power program staff; Rebate processor  Submitted (mail-in) rebate forms	Program rebate processing (vendor)  Incentives budget; possible tax credits; other funding  Sales receipt (UPC label)
<b>Activities</b>	<b>Develop Program Infrastructure</b>	<b>Outreach to Trade Allies</b>	<b>Customer Communications</b>	<b>Rebate Application approval</b>	<b>Rebate Measures</b>
<b>Outputs</b>	The Commercial Lighting Efficiency Program was launched 1st quarter of 2010. Smart Strips and CFL components will be launched on March 18, 2011 (rebates will be retroactive back to Jan 13, 2011)  Program measures defined, forms, rebates and marketing strategy developed, refined and documented.  Program website and tracking system developed	Key account managers work with lighting installers to market program to eligible customers  Information to lighting contractors for leveraging federal/state funding (stimulus dollars, tax incentives, grants)	Key account managers and trade allies refer customers to the program  Targeted direct communications to business customers such as seminars, workshops, bill inserts, and direct mailings  Mass marketing activities, including AP website, business customer newsletter, print and radio mass advertising	Program staff validates customer eligibility  Monthly review of participation rates by program manager  Project data entered into program tracking database	West Penn Power validates customer rebate form and all checklist items completed; payment initiated  Data tracking "opportunity" status to "complete," phase to "paid"; Participants receive rebates in timely manner  Necessary EM&V data collected
<b>Short to medium term outcomes</b>	Program Administrative functions can handle expected application numbers  Tracking system supports program processes, reporting requirements, and evaluation efforts  West Penn Power staff knowledgeable about the program and its resources	Trade allies are knowledgeable about the rebate structure and program guidelines  Trade allies regularly communicate the program to customers and include rebate with lighting installation bids  Increase participation of customers in the program	Program offering is meaningful and customers understand benefits/value  Business customers' awareness of and participation in the program increases  Customers plan for future program participation in their equipment purchase budget cycles	Customers install equipment that has a higher efficiency than federal standards require  Customers aware of exact rebate amount before installation  Minimize customer dissatisfaction with program by managing customer expectations	256,837 MWh and 51.6 MW savings by the end of 2012 for Commercial Lighting  Achieve cumulative TRC of 6.2  Summary reports for West Penn Power program staff
<b>Long term outcomes</b>	Energy saving goals of the program are achieved within budgetary constraints	Increased trade allies' stocking and sales of lighting equipment with higher efficiency than required by federal standard  The majority of trade allies participate and/or recommend energy efficient equipment	Increased awareness of and demand for energy efficiency lighting in all eligible business segments	Monitor participation and modify if necessary marketing, incentive levels, measures offered  Increased satisfaction with pre-approval process	Increased penetration of energy efficient lighting and power management in all targeted business

#### 4.14.2 Program M&V Methodology and Program Sampling

The Commercial Products Efficiency Program was evaluated in PY2. The table below summarizes completed PY2 EM&V activities and program sampling.

**Summary of Evaluation Activities for Commercial Products Program**

Action	Impact	Process	Details
Program Staff Interviews		√	Provided insight into program design and delivery, including opportunities for program improvement and development of the program logic model. Completed annually and when the program is changed.
Market Channel Actor Interviews (20 surveys completed)	√	√	Examined process-related issues, including program awareness and customers' adoption level of program-qualifying lighting equipment. Conducted in-depth interviews with participating lighting vendors.
Participant Survey	√	√	Gathered process-related data, including program awareness, program satisfaction, and initial barriers to technology adoption. Included a free-ridership and spillover battery to understand program-associated free-ridership and spillover. Sampled a census of PY2 program participants through the second quarter of PY2. Conducted 34 surveys with program participants.
Baseline Non-participant Survey	√	√	Established baseline conditions for customers regarding lighting equipment saturation, age, and other metrics, as well as barriers to participation.
Inventory Forms and Deemed Savings Reviews	√		Reviewed engineering assumptions, inventory forms (when required), calculations, models used to estimate equipment/measure savings (2010-2012) for all projects in the site visit sample.
Site Visits (in progress; 40 on-sites completed representing 47 projects)	√		Gather information to calculate project and program realization rates to determine verified savings. Short-term metering (lighting loggers) were included in many site visits. Sites over 50 KW or with space ties outside the TRM are included in Custom Program.
Program Database/Tracking Review	√		Ensured that appropriate data collected to inform the evaluation. Conducted periodic reviews of the Energy Savings Calculator (ESC), which tracks project savings for the programs.

#### 4.14.3 Program Sampling

Refer to Section 4.14.2 above.

#### **4.14.4 Process Evaluation**

Evaluators completed several primary data collection efforts in PY2, including in-depth interviews with program staff, 16 in-depth interviews with trade allies including participating lighting installation contractors (jointly with the Government/Schools/Nonprofit program), 40 on-site interviews and inspections representing 47 projects and 34 quantitative surveys with customers participating in the program from the start of PY2 thru PY2 Q2.

In PY2 the program has successfully built relationships with major lighting distributors, but there remain opportunities for the program to expand outreach to trade allies in PY3, especially to lighting installation contractors. Trades reported very positive interactions with West Penn Power program staff, with emphasis on their knowledge base and responsiveness to questions and concerns. In PY2 the program primarily focused its outreach efforts to the lighting trade on major distributors, and did not widely engaged installation contractors. Expanding outreach to installation contractors is one area for growth, as several installation contractors called for increased communications from the program. Also, several participating customers reported first hearing about the program from a contractor and participants were highly satisfied with their interactions with lighting vendors. These findings emphasize the importance of engaging contractors as valuable trade partners.

Feedback from all trade allies suggests that budget constraints and the struggling economy remain amount the most pressing barriers to participating. In addition, several trades reported that while many commercial customers are aware that the West Penn Power rebate programs exist, a general lack of knowledge of program requirements is a barrier to participation. Finally, trades generally agree that West Penn Power's Commercial Lighting rebate levels, specifically for linear fluorescents and occupancy sensors were too low when compared to other Pennsylvania EDCs. It should be noted that the program has since restructured how rebates are calculated for linear fluorescents.

Participating customers and trade allies expressed high satisfaction overall, especially regarding their interactions with program staff. Participating customers were also highly satisfied with the performance of program equipment. Almost all participants who purchased rebated measures reported that the equipment is currently installed and operating. In addition, the participant survey identified some evidence of spillover, with several customers reporting the program having influenced their decision to install additional energy efficient equipment. Feedback from interviewees suggests that the program's rebate requirements are reasonable and in-line with other utility programs.

Despite the Realization Rates for PY2 being close to 1.0, evaluators identified some opportunities for improvement and issues to be made aware of to ensure good realization rates continue going forward. There were more issues with smaller projects and also measure categories such as Occupancy Sensors and LED Exit Signs that represented only three percent of the calculated savings for the projects in the site visit sample. Positive or negative adjustments to savings through the verification process resulted from inaccurate fixture codes, counts of fixtures or controls, applied interactive factors, applied ELFH or CF, as well as, fixtures that could not be found or were not retrofit and inconsistencies of data in tracking systems.

#### **4.14.5 Program Partners and Trade Allies**

WPP has established partnerships with Fayette County, PennTAP, ALL Facilities, and the Hite Company to promote the Act 129 Programs to commercial and industrial customers. In addition, the Company is providing Act 129 presentations to local Chambers of Commerce throughout its service territory.

#### 4.14.6 Program Finances

A summary of the project finances are presented in Table 4-14.

**Table 4-14: Summary of Commercial Products Efficiency Program Finances: TRC Test<sup>36</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 186,949	\$ 342,933	\$ 342,933
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 186,949	\$ 342,933	\$ 342,933
B.1	Design & Development	\$ 1,364	\$ 19,076	\$ 106,016
B.2	Administration	\$ 42,650	\$ 225,139	\$ 300,017
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 937	\$ 7,619	\$ 14,893
B.5	Technical Assistance	\$ 15,476	\$ 45,653	\$ 115,522
B	<b>Subtotal EDC Implementation Costs</b>	\$ 60,427	\$ 297,487	\$ 536,448
C	<b>EDC Evaluation Costs</b>	\$ 63,934	\$ 172,065	\$ 181,069
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 665,091	\$ 671,790
	<b>Total Costs</b>	\$ 311,310	\$ 1,477,576	\$ 1,732,240
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 1,134,643	\$ 1,389,307
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 775,272	\$ 790,066
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 6,468,909	\$ 6,600,521
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 6,468,909	\$ 6,600,521
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	5.7	4.8

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>36</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.15 Custom Technology Applications Program**

This program is targeted to improve the efficiency of customer operations through the application of custom measures that will result in energy usage reduction and improved operating efficiency identified and verified through an onsite energy audit. The program also encourages government customers to pursue whole facility energy savings opportunities by providing an incentive for the completion of a qualified energy audit and an increased incentive to the selected projects under the program for the governmental customers to be eligible to participate in the Guaranteed Energy Savings Agreements (“GESAs”) and other funding sources for whole facility projects.

The program focuses on improving the energy efficiency for specific processes and applications such as: lighting systems, compressed air, chillers, refrigeration, variable speed drives, motors, energy management systems, fan and pump systems, renewable energy, LED, and combined heat-power systems, for which there are no current prescriptive measures offered.

The Custom Technology Applications Program is focused on reducing energy use and demand in the small and large, commercial and industrial and governmental/non-profit customers with usage of 1 million to 2.5 million kWh / year. Customers are eligible for up to 25% of the capital investment, and up to \$100,000 of the project cost to obtain the energy and demand savings.

This program along with the Custom Applications Program absorbed the Commercial and Industrial Drives Program effective January 2011 for all new approved customer applications.

This program launched in March 2010.

##### **4.15.1 Program Logic**

A program logic model is a visual representation of the program’s theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model capturing approved changes. Tetra Tech updates logic models annually to capture changes in the programs as they develop.

### Custom Technology Applications Program Logic Model

<b>Inputs/ Resources</b>	Sufficient budget is allocated.  West Penn Power program staff.  Statewide Technical Resource Manual.	Marketing materials and campaign, program website.  Key account managers.  Rebate packet.	West Penn Power program staff.  Submitted pre-qualification form.	Program infrastructure.  Incentives budget; possible tax credits; other funding.  Project invoices, receipts, and documentation.
<b>Activities</b>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; background-color: #d1ecf1;"><b>Develop Program Infrastructure</b></div> <span>→</span> <div style="border: 1px solid black; padding: 5px; background-color: #d1ecf1;"><b>Customer Communications</b></div> <span>→</span> <div style="border: 1px solid black; padding: 5px; background-color: #d1ecf1;"><b>Rebate Application Pre-approval</b></div> <span>→</span> <div style="border: 1px solid black; padding: 5px; background-color: #d1ecf1;"><b>Rebate Measures</b></div> </div>			
<b>Outputs</b>	<p>The Custom Technology Apps Program launched March 1, 2010. Program measures defined, forms, rebates and marketing strategy developed, refined and documented.</p> <p>Rebate levels developed (25% of capital investment not to exceed \$100,000).</p> <p>Program website and tracking system developed.</p>	<p>Account managers identify customers for the program and solicit applications.</p>	<p>West Penn Power approves customer applications with dollar limit.</p> <p>Site visits at Program Manager's direction.</p> <p>Project data entered into program tracking database.</p>	<p>West Penn Power validates customer project and initiates payment.</p> <p>Participants receive rebates in timely manner.</p> <p>Necessary EM&amp;V data collected.</p>
<b>Short to medium term outcomes</b>	<p>Program administrative functions ready for launch.</p> <p>Tracking system supports program processes, reporting requirements, and evaluation efforts.</p> <p>West Penn Power staff knowledgeable about the program and its resources.</p>	<p>Program offering is meaningful and customers understand benefits/value.</p> <p>Business customers' awareness of and participation in the program increases.</p> <p>Customers decides to participate and submits pre-qualification forms for approval.</p> <p>Educate customers on the availability of incentives from other sources.</p>	<p>Customer installs measures outlined in application.</p> <p>Customers aware of exact rebate amount before installation.</p> <p>Minimize customer dissatisfaction with program by managing customer expectations.</p>	<p>19,910 MWh and 3.5 MW savings by the end of 2012.</p> <p>Provide rebates for 57 participants by the end of 2012.</p> <p>Rebate reduces the payback period for customers.</p> <p>Summary reports for West Penn Power program staff.</p>
<b>Long term outcomes</b>	<p>Energy saving goals of the Custom Tech Apps program are achieved within budgetary constraints.</p>	<p>Increased awareness of and demand for energy efficiency equipment in all business segments.</p>	<p>Insure that incentivized equipment meets program requirements.</p>	<p>Increased penetration of energy efficiency equipment in all business segments.</p>

#### 4.15.2 Program M&V Methodology and Program Sampling

The Custom Technology Applications Program was evaluated in PY2. Commercial and government/not-for-profit lighting projects over 50 kW are included in this program by WPP. The M&V and on-site data collection identified in this section apply to the non-TRM projects that were intended for a census of data collection. The table below summarizes completed and planned activities and program sampling.

##### Summary of Evaluation Activities for Custom Technology Applications Program

Action	Impact	Process	Details
Market Channel Actor Surveys (including Design Team Members)		√	Gathered process-related data from participating and nonparticipating market actors and identify spillover. Will be implemented once sufficient participation warrants.
Participant Interviews (census of non-TRM sites)	√	√	Collected information from a census of program participants through the second quarter of PY2 for process, free ridership and spillover. Completed survey with the only participant through the second quarter of PY2.
Engineering Review (census)	√		Review engineering assumptions, calculations, models used to estimate equipment/measure savings for all projects.
On-site Verification (census sample, completed for 8 projects)	√		Results of on-sites were used to develop more accurate estimates of energy savings, leading to an overall program-level realization rate.
On-site Data Collection and/or Metering (census)	√		Metering was installed on an as needed basis. Ideally, data will be available from the energy management systems and/or advanced power meters in use at the sites.

#### 4.15.3 Program Sampling

Refer to Section 4.15.2 above.

#### **4.15.4 Process Evaluation**

Commercial program process evaluation activities have largely focused on program documentation review and program manager interviews to understand the program's design and implementation, several tracking system review sessions to ensure the correct data is tracked for EM&V efforts and interviews to coordinate the EM&V process to ensure a robust impact evaluation effort in PY2 and participant surveys and on-sites.

The evaluation team conducted interviews with West Penn Power staff involved in planning and developing, implementing, tracking, and overseeing the evaluation of C&I programs.

The Custom Technologies Applications Program is picking up a number of the large commercial lighting projects that were expected to be covered under the Commercial Products Efficiency Program. The decision was made to include them as Custom Programs due to M&V requirements of the SWE. In general, the requirement to not shift funds between programs has caused issues for Program Managers and for evaluation budgets that were based on a much smaller number of Custom projects.

Finally, the biggest issue has been the SWE requirements for on-site data collection. A third-party M&V implementation contractor is used by the program manager to conduct any on-site data collection to meet SWE requirements. These have typically only included pre-installation, particularly for larger commercial projects. Given that all of these projects are included in the Custom Program category because of the use of the M&V contractor, there is additional burden on the program budget.

Despite the preliminary Realization Rates for PY2 being close to 1.0, there were some issues found across projects that affected the Realization Rate. Since all of the activity under Custom Tech was lighting, all of the evaluation adjustments made in Custom Tech also occurred in the Commercial & Industrial Lighting and Government/Non-Profit Lighting programs. To summarize, data adjustments were primarily made based on the accuracy of verified fixture codes, fixture counts, and applied interactive factors.

#### **4.15.5 Program Partners and Trade Allies**

WPP has joined the Pennsylvania Rural Water Association and Pennsylvania Municipal Authority Association to help promote and advertise this program.

#### 4.15.6 Program Finances

A summary of the project finances are presented in Table 4-15.

**Table 4-15: Summary of Custom Technology Applications Program Finances: TRC Test<sup>37</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 47,610	\$ 154,010	\$ 154,010
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 47,610	\$ 154,010	\$ 154,010
B.1	Design & Development	\$ 1,364	\$ 9,917	\$ 96,857
B.2	Administration	\$ 19,608	\$ 119,482	\$ 184,494
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 558	\$ 16,841	\$ 23,671
B.5	Technical Assistance	\$ 18,847	\$ 48,967	\$ 118,836
B	<b>Subtotal EDC Implementation Costs</b>	\$ 40,377	\$ 195,207	\$ 423,858
C	<b>EDC Evaluation Costs</b>	\$ 1,044	\$ 25,376	\$ 26,441
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 258,059	\$ 258,059
	<b>Total Costs</b>	\$ 89,031	\$ 632,652	\$ 862,368
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 478,642	\$ 708,358
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 166,703	\$ 166,703
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 1,400,451	\$ 1,400,451
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 1,400,451	\$ 1,400,451
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	2.9	2.0

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>37</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.16 Time of Use (TOU) with Critical Peak Pricing Rate**

TOU encourages commercial, industrial, government, school, and non-profit customers under 500 kW to lower their demand and energy consumption during on-peak periods by charging a higher price that reflects the higher cost of serving customers, and charging lower prices during off-peak periods that reflects the lower cost of serving customers. TOU also includes critical peak pricing that is designed to address the short-term need to reduce demand at the time of the system peak by charging prices significantly higher than on-peak periods. Critical peak pricing periods will vary in frequency and duration using predefined or notified peak hours, but will balance the need to keep the period as short as possible to effectively allow customers to reduce demand or shift usage to lower cost periods. TOU is voluntary and is only available to customers that are receiving utility-provided default service. TOU relies on a smart meter to measure the customer's demand and energy usage during the various TOU periods.

A limited deployment is planned for the 3<sup>rd</sup> quarter 2011 with full rollout starting in the 4<sup>th</sup> quarter of 2011.

##### **4.16.1 Program Logic**

Program Logic will be determined in PY3.

##### **4.16.2 Program M&V Methodology**

Program M&V Methodology will be determined in PY3.

##### **4.16.3 Program Sampling**

Program Sampling will be determined in PY3.

##### **4.16.4 Process Evaluation**

Process Evaluation will be determined in PY3.

##### **4.16.5 Program Partners and Trade Allies**

Program Partners and Trade Allies are to be determined.

#### 4.16.6 Program Finances

A summary of the project finances are presented in Table 4-16.

Costs associated with this program in CPITD reflect initial administrative cost.

**Table 4-16: Summary of Time of Use (TOU) with Critical Peak Pricing Rate Program Finances: TRC Test<sup>38</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ 1,364	\$ 2,299	\$ 2,572
B.2	Administration	\$ 14,940	\$ 28,171	\$ 28,171
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 10,397	\$ 13,752	\$ 13,752
B.5	Technical Assistance	\$ 15,096	\$ 21,741	\$ 21,741
B	<b>Subtotal EDC Implementation Costs</b>	\$ 41,797	\$ 65,963	\$ 66,236
C	<b>EDC Evaluation Costs</b>	\$ 1,300	\$ 4,946	\$ 4,946
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ 43,097	\$ 70,909	\$ 71,182
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 70,909	\$ 71,182
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>				
<sup>1</sup> This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009.				

<sup>38</sup> Definitions for terms in following table are subject to TRC Order.

### 4.17 Hourly Pricing Option (HPO) Rate

The Company's amended September 10, 2010 EE&C/DR Plan removed this Smart Meter enabled program to reduce reliance of the Plan on the rapid deployment of Smart Meters.

#### 4.17.1 Program Logic

Not applicable.

#### 4.17.2 Program M&V Methodology

Not applicable.

#### 4.17.3 Program Sampling

Not applicable.

#### 4.17.4 Process Evaluation

Not applicable.

#### 4.17.5 Program Partners and Trade Allies

Not applicable.

#### 4.17.6 Program Finances

A summary of the project finances are presented in Table 4-17. Not applicable.

Table 4-17: Summary of Hourly Pricing Option (HPO) Rate Program Finances: TRC Test

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants			
A.2	EDC Incentives to Trade Allies			
A	<b>Subtotal EDC Incentive Costs</b>			
B.1	Design & Development			
B.2	Administration			
B.3	Management			
B.4	Marketing			
B.5	Technical Assistance			
B	<b>Subtotal EDC Implementation Costs</b>			
C	<b>EDC Evaluation Costs</b>			
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>			
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>				

#### **4.18 Custom Applications Program**

This program encourages energy and demand reductions for commercial and industrial customers by providing custom rewards for highly specialized processes and applications. The program will focus on improving the energy efficiency for specific processes and applications, such as: lighting systems, compressed air, chillers, refrigeration, variable speed drives, motors, energy management systems, fan and pump systems, combined heat-power systems, and other relevant measures, for which there are no current prescriptive measures offered.

The customer is eligible for up to 50% of the customer's total capital project cost, with a per project cap of \$500,000. Awards will be based on a review of kWh savings per project's cost.

This program along with the Custom Technology Applications Program absorbed the Commercial and Industrial Drives Program effective January 2011 for all new approved customer applications.

This Program launched in March 2010.

##### **4.18.1 Program Logic**

A program logic model is a visual representation of the program's theory that illustrates a set of interrelated program activities that combine to produce a variety of outputs that lead to key short-, mid- and long-term outcomes. Below is the PY2 Program Logic Model. Tetra Tech will update logic models annually to capture changes in the programs as they develop.

**Custom Applications Program Logic Model**

<b>Inputs/ Resources</b>	Sufficient budget is allocated .  West Penn Power program staff.  Statewide Technical Resource Manual.	Marketing materials and campaign, program website.  Key account managers.  Rebate packet.	West Penn Power program staff.  Submitted pre-qualification form.	Program infrastructure.  Incentives budget; possible tax credits; other funding.  Project invoices, receipts, and documentation.
<b>Activities</b>	<b>Develop Program Infrastructure</b> →	<b>Customer Communications</b> →	<b>Rebate Application Pre-approval</b> →	<b>Rebate Measures</b>
<b>Outputs</b>	The C&I Custom Apps Program launched March 1, 2010.  Program measures defined, forms, rebates and marketing strategy developed, refined and documented.  Program website and tracking system developed.	Account managers identify customers for the program and solicit bids.  Pre-qualified customers receive a detailed audit from an ESCO.	West Penn Power approves customer applications with dollar limit.  Site visits at Program Manager's direction.  Project data entered into program tracking database.	West Penn Power validates customer project and initiates payment.  Participants receive rebates in timely manner.  Necessary EM&V data collected.
<b>Short to medium term outcomes</b>	Program administrative functions ready for launch.  Tracking system supports program processes, reporting requirements, and evaluation efforts.  West Penn Power staff knowledgeable about the program and its resources.	Program offering is meaningful and customers understand benefits/value.  Business customers' awareness of and participation in the program increases.  Customers decides to participate and submits pre-qualification forms for approval.  Educate customers on the availability of incentives from other sources.	Customer installs measures outlined in application.  Customers aware of exact rebate amount before installation.  Minimize customer dissatisfaction with program by managing customer expectations.	74,261 MWh and 14.6 MW savings by the end of 2012.  Provide rebates for 21 participants by the end of 2012.  Rebate reduces the payback period for customers.  Summary reports for West Penn Power program staff.
<b>Long term outcomes</b>	Energy saving goals of the C&I Custom Applications program are achieved within budgetary constraints.	Increased awareness of and demand for energy efficiency equipment in all business segments.	Insure that incentivized equipment meets program requirements.	Increased penetration of energy efficiency equipment in all business segments.

#### 4.18.2 Program M&V Methodology and Program Sampling

The Custom Applications Program will be evaluated in PY2. The table below summarizes completed and planned activities and program sampling.

**Summary of Evaluation Activities for C&I Custom Applications Program**

Action	Impact	Process	Details
Market Channel Actor Surveys (including Design Team Members)		√	Not scheduled yet due to low number of participants.
Participant Surveys (census)	√	√	Sampled a census of program participants through the second quarter of PY2 for process, free ridership and spillover. Included in commercial program participant surveys. There were three participating customers, accounting for one lighting project and three VFD projects (formerly under the C&I Drives program), through the second quarter of PY2. Completed one participant survey in 2010.
Engineering Review (census)	√		Reviewed engineering assumptions, calculations, models used to estimate equipment/measure savings for census of projects completed in PY2.
On-site Verification (census sample, completed for 6 projects)	√		All sites were visited with metering as needed to confirm savings.
On-site Data Collection and/or Metering (as needed)	√		Metering was be installed on an as needed basis. In some cases, data was available from the energy management systems and/or advanced power meters in use at the sites.

#### 4.18.3 Program Sampling

Refer to Section 4.18.2 above.

#### 4.18.4 Process Evaluation

Commercial program process evaluation activities have largely focused on program documentation review and program manager interviews to understand the program's design and implementation, several tracking system review sessions to ensure the correct data is tracked for EM&V efforts and interviews to coordinate the EM&V process to ensure a robust impact evaluation effort in PY2 and participants surveys and on-sites. The evaluation team conducted interviews with West Penn Power

staff involved in planning and developing, implementing, tracking, and overseeing the evaluation of C&I programs.

The Custom programs are picking up a number of the large commercial lighting projects that were expected to be covered under Commercial Lighting. The decision was made to include them as Custom Programs due to M&V requirements of the SWE. In general, the requirement to not shift funds between programs has caused issues for Program Managers and for evaluation budgets that were based on a much smaller number of Custom projects.

Finally, the biggest issue has been the SWE requirements for on-site data collection. A third-party M&V contractor is used by the marketing manager to conduct any on-site data collection to meet SWE requirements. These have typically only included pre-installation, particularly for larger commercial projects. Given that all of these projects are included in the Custom Program category because of the use of the M&V contractor, there is additional burden on the program budget.

Despite the Realization Rates for PY2 being close to 1.0, evaluators identified some opportunities for improvement that resulted in data adjustments. These include inconsistent use of data-logging results, incorrect wattage values in the Appendix C lighting calculator, incorrect application of coincidence factors, and incorrect application of TRM methodologies.

#### **4.18.5 Program Partners and Trade Allies**

WPP has joined the Pennsylvania Rural Water Association and Pennsylvania Municipal Authority Association to help promote and advertise this program.

#### 4.18.6 Program Finances

A summary of the project finances are presented in Table 4-18.

**Table 4-18 Summary of Custom Applications Program Finances: TRC Test<sup>39</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ 268,295	\$ 412,933	\$ 412,933
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ 268,295	\$ 412,933	\$ 412,933
B.1	Design & Development	\$ 1,364	\$ 14,653	\$ 338,071
B.2	Administration	\$ 43,898	\$ 188,674	\$ 258,439
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 2,891	\$ 9,711	\$ 16,518
B.5	Technical Assistance	\$ 61,301	\$ 156,405	\$ 417,684
B	<b>Subtotal EDC Implementation Costs</b>	\$ 109,454	\$ 369,443	\$ 1,030,712
C	<b>EDC Evaluation Costs</b>	\$ (3,763)	\$ 22,291	\$ 23,065
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 555,905	\$ 555,905
	<b>Total Costs</b>	\$ 373,986	\$ 1,360,572	\$ 2,022,615
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 947,639	\$ 1,609,682
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 316,423	\$ 316,423
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 2,909,292	\$ 2,909,292
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 2,909,292	\$ 2,909,292
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	3.1	1.8

**NOTES:**

<sup>1</sup>Participant costs = the sum of incremental costs.

<sup>2</sup>The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.

<sup>3</sup>Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs \* MWh

<sup>4</sup>Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.

<sup>39</sup> Definitions for terms in following table are subject to TRC Order.

#### **4.19 Customer Load Response Program**

West Penn Power will assist customers by providing load management services by actively educating and providing assistance with the transition to market prices, load shaping, participation in PJM energy and capacity markets, and advanced metering technology. Contracting with customers for load reduction as well as assisting customers with entry into the real time energy markets will help control the demand during peak hours.

This program marketing was launched in April 2011 with a limited number of events planned to begin in July 2011. This pilot will test predictive modeling developed to determine the top 100 peak hours as well as customers' acceptance of the program.

##### **4.19.1 Program Logic**

Program Logic will be determined in PY3.

##### **4.19.2 Program M&V Methodology**

Program M&V Methodology will be determined in PY3.

##### **4.19.3 Program Sampling**

Program Sampling will be determined in PY3.

##### **4.19.4 Process Evaluation**

Process Evaluation will be determined in PY3.

##### **4.19.5 Program Partners and Trade Allies**

This program is being implemented by WPP.

#### 4.19.6 Program Finances

A summary of the project finances are presented in Table 4-19. Charges incurred to date are associated with design and development as well as program start-up costs.

**Table 4-19 Summary of Customer Load Response Program Finances: TRC Test<sup>40</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ 1,364	\$ 23,950	\$ 84,160
B.2	Administration	\$ 15,380	\$ 29,699	\$ 29,699
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 512	\$ 1,698	\$ 1,698
B.5	Technical Assistance	\$ 15,096	\$ 30,741	\$ 30,741
B	<b>Subtotal EDC Implementation Costs</b>	\$ 32,352	\$ 86,088	\$ 146,298
C	<b>EDC Evaluation Costs</b>	\$ 9,182	\$ 9,182	\$ 9,182
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ 41,534	\$ 95,270	\$ 155,480
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 95,270	\$ 155,480
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>				
<sup>1</sup> This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009.				

<sup>40</sup> Definitions for terms in following table are subject to TRC Order.

## **4.20 Customer Resources Demand Response Program**

The Customer Resources Demand Response Program is focused on reducing kW demand by deploying customer load and generation resources. PJM Curtailment Service Providers will provide services to register and dispatch customer curtailable load during targeted hours of WPP's 100 hours of highest demand. WPP has contracted with a PJM Curtailment Service Provider to deliver a contracted amount of curtailable load. The PJM Curtailment Service Providers will structure individual contracts with customers to respond to curtailment event notices issued by WPP to the customer's CSP. PJM Curtailment Service Providers and customers will have flexibility in selecting how many hours that they can participate with 50 hours being typical.

WPP will pay the PJM Curtailment Service Providers based on the actual load reduction that occurred during the curtailment events, based on the contracted rate established through an RFP process. A customer who participates in this program will be provided an incentive by their Curtailment Service Provider according to the Curtailment Service Provider's contract with the customer for each hour the customer's load is dispatched under this program. All payments to the customer will be from the customer's Curtailment Service Provider. In order for the customer to realize the maximum benefits from participating in WPP's demand response programs, the customer's Curtailment Service Provider must also register the customer's load in the available PJM load response programs.

The program marketing was launched in April 2011 with a limited number of events planned to begin in July 2011. This pilot will test predictive modeling developed to determine the top 100 peak hours as well as customers' acceptance of the program. A third party curtailment service provider is under contract to register, recruit, and dispatch load curtailments.

### **4.20.1 Program Logic**

Program Logic will be determined in PY3.

### **4.20.2 Program M&V Methodology**

Program M&V Methodology will be determined in PY3.

### **4.20.3 Program Sampling**

Program Sampling will be determined in PY3.

### **4.20.4 Process Evaluation**

Process Evaluation will be determined in PY3.

### **4.20.5 Program Partners and Trade Allies**

A third party curtailment service provider, Energy Connect, Inc., is under contract to register, recruit, and dispatch load curtailments.

#### 4.20.6 Program Finances

A summary of the project finances are presented in Table 4-20. Charges incurred to date are associated with design and development as well as program start-up costs.

**Table 4-20 Summary of Customer Resources Demand Response Program Finances: TRC Test<sup>41</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ 1,364	\$ 2,192	\$ 2,192
B.2	Administration	\$ 16,001	\$ 32,426	\$ 32,426
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 512	\$ 1,698	\$ 1,698
B.5	Technical Assistance	\$ 15,096	\$ 21,741	\$ 21,741
B	<b>Subtotal EDC Implementation Costs</b>	\$ 32,973	\$ 58,057	\$ 58,057
C	<b>EDC Evaluation Costs</b>	\$ 12,786	\$ 12,786	\$ 12,786
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ 45,759	\$ 70,843	\$ 70,843
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 70,843	\$ 70,843
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>				
<sup>1</sup> This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009.				

<sup>41</sup> Definitions for terms in following table are subject to TRC Order.

## **4.21 Commercial and Industrial Drives Program**

The Company's amended September 10, 2010 EE&C/DR Plan removed this program and instead provides for the installation of energy efficient drives through the Company's existing Custom Technology Applications and Custom Applications Programs.

### **4.21.1 Program Logic**

Not applicable.

### **4.21.2 Program M&V Methodology and Program Sampling**

A census of projects completed prior to the program's discontinuation, were sampled for on-site measurement and verification. Evaluators were able to complete on-site M&V for 7 projects.

For projects where baseline data was available, daily and hourly average values were calculated from the pre and post monitoring. From these profiles, the peak demand savings were calculated according to the TRM peak demand calculation procedure. For applications without seasonal variation, the annual kWh savings was estimated using the same hourly profiles and based on the 2011 calendar.

### **4.21.3 Program Sampling**

Not applicable.

### **4.21.4 Process Evaluation**

The realization rate (ratio of calculated to verified savings) for the program are decent. The realization rate is primarily being driven downward by one project that had incorrectly calculated reported savings relative to TRM procedures.

### **4.21.5 Program Partners and Trade Allies**

Not applicable.

#### 4.21.6 Program Finances

A summary of the project finances are presented in Table 4-21. Expenses reflected include costs for customer approved applications received prior to approval to decommission received in January 2011.

**Table 4-21 Summary of Commercial & Industrial Drives Program Finances: TRC Test<sup>42</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ 10,350	\$ 10,350
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ 10,350	\$ 10,350
B.1	Design & Development	\$ -	\$ -	\$ 323,418
B.2	Administration	\$ 12,822	\$ 126,138	\$ 186,729
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 223	\$ 6,283	\$ 12,249
B.5	Technical Assistance	\$ 10,387	\$ 46,554	\$ 307,833
B	<b>Subtotal EDC Implementation Costs</b>	\$ 23,432	\$ 178,975	\$ 830,229
C	<b>EDC Evaluation Costs</b>	\$ (8,453)	\$ 14,869	\$ 15,697
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs<sup>1</sup></b>		\$ 82,766	\$ 82,766
	<b>Total Costs</b>	\$ 14,979	\$ 286,960	\$ 939,042
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 276,610	\$ 928,692
F	<b>Annualized Avoided Supply Costs<sup>3</sup></b>	n/a	\$ 52,751	\$ 52,751
G	<b>Lifetime Avoided Supply Costs</b>	n/a	\$ 500,513	\$ 500,513
	<b>Total Lifetime Economic Benefits<sup>4</sup></b>	n/a	\$ 500,513	\$ 500,513
	<b>Portfolio Benefit-to-Cost Ratio</b>	n/a	1.8	0.5
<b>NOTES:</b>				
<sup>1</sup> Participant costs = the sum of incremental costs.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009. The costs exclude incentives for this program.				
<sup>3</sup> Annualized Avoided Supply Costs = Report Year-end Avoided Supply Costs * MWh				
<sup>4</sup> Total Economic Lifetime Costs assumed to equal Lifetime Avoided Supply Costs for this exercise.				

<sup>42</sup> Definitions for terms in following table are subject to TRC Order.

## **4.22 Distributed Generation Program**

Customers will contract with a Distributed Generation (DG) Manager to provide the customer with operation and maintenance services on the customer's generator. The DG Manager will dispatch the generator up to 100 hours in response to curtailment event notices issued by WPP during the targeted hours of WPP's 100 hours of highest demand. A customer who participates in this program will be provided an incentive on a \$/MWh basis for each hour that their generator is dispatched to target WPP's hours of highest demand.

In order for the customer to realize the maximum benefits from participating in WPP's demand response programs, the customer's Curtailment Service Provider must also register the customer's load in the PJM load response programs. The customer can choose any registered Curtailment Service Provider and WPP will provide potential customers with a list of the PJM Curtailment Service Providers that can register their load in the PJM markets. To assist with marketing and customer recruitment, WPP will provide a list of the potential customer generators to PJM Curtailment Service Providers.

The program marketing was launched in April 2011 with a limited number of events planned to begin in July 2011. This pilot will test predictive modeling developed to determine the top 100 peak hours as well as customers' acceptance of the program. A third party distributed generation manager is under contract to dispatch load curtailments.

### **4.22.1 Program Logic**

Program Logic will be determined in PY3.

### **4.22.2 Program M&V Methodology**

Program M&V Methodology will be determined in PY3.

### **4.22.3 Program Sampling**

Program Sampling will be determined in PY3.

### **4.22.4 Process Evaluation**

Program Evaluation will be determined in PY3.

### **4.22.5 Program Partners and Trade Allies**

A third party distributed generation manager, Power Secure, is under contract to dispatch load curtailments.

#### 4.22.6 Program Finances

A summary of the project finances are presented in Table 4-22. Charges incurred in CPITD reflect a market assessment study cost along with initial program design and development as well as program startup costs.

**Table 4-22 Summary of Distributed Generation Program Finances: TRC Test<sup>43</sup>**

	Category	IQ	PYTD	CPITD
A.1	EDC Incentives to Participants	\$ -	\$ -	\$ -
A.2	EDC Incentives to Trade Allies	\$ -	\$ -	\$ -
A	<b>Subtotal EDC Incentive Costs</b>	\$ -	\$ -	\$ -
B.1	Design & Development	\$ 1,364	\$ 1,621	\$ 1,621
B.2	Administration	\$ 17,883	\$ 33,173	\$ 33,173
B.3	Management	\$ -	\$ -	\$ -
B.4	Marketing	\$ 512	\$ 1,698	\$ 1,698
B.5	Technical Assistance	\$ 15,096	\$ 21,741	\$ 21,741
B	<b>Subtotal EDC Implementation Costs</b>	\$ 34,855	\$ 58,233	\$ 58,233
C	<b>EDC Evaluation Costs</b>	\$ -	\$ -	\$ -
D	<b>SWE Audit Costs</b>			
E	<b>Participant Costs</b>			
	<b>Total Costs</b>	\$ 34,855	\$ 58,233	\$ 58,233
	<b>Total Costs for TRC<sup>2</sup></b>		\$ 58,233	\$ 58,233
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>				
<sup>1</sup> This program was not yet implemented at the end of PY2; therefore, TRC results were not calculated.				
<sup>2</sup> The total costs and benefits for TRC calculations are net present values at 2009.				

<sup>43</sup> Definitions for terms in following table are subject to TRC Order.