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File #: 140069

February 2, 2012

Rosemary Chiavetta, Secretary  
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Harrisburg, PA 17105-3265


**RE: Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan - Docket No. M-2009-2093216**

Dear Secretary Chiavetta:

Enclosed for filing please find the Petition of PPL Electric Utilities Corporation for Approval of Changes to its Act 129 Energy Efficiency and Conservation Plan in the above-referenced proceeding.

Copies have been provided to the persons as indicated on the Certificate of Service.

Respectfully Submitted,

  
Andrew S. Tubbs

AST/jl  
Enclosures  
cc: Certificate of Service

## CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the **Petition of PPL Electric Utilities Corporation for Approval of Changes to its Act 129 Energy Efficiency and Conservation Plan** has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

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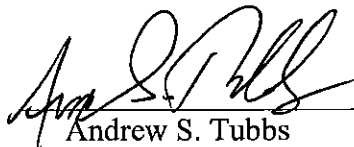
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Date: February 2, 2012

  
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Andrew S. Tubbs

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**Petition of PPL Electric Utilities  
Corporation for Approval of its Energy  
Efficiency and Conservation Plan**

**Docket No. M-2009-2093216**

**PETITION OF PPL ELECTRIC UTILITIES CORPORATION  
FOR APPROVAL OF CHANGES TO ITS  
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## **I. INTRODUCTION**

PPL Electric Utilities Corporation (“PPL Electric” or the “Company”), by and through its attorneys, hereby petitions the Pennsylvania Public Utility Commission (“Commission”), pursuant to Section 5.41 of the Commission’s Rules of Administrative Practice and Procedure, 52 Pa. Code § 5.41, to modify its Energy Efficiency and Conservation Plan (“EE&C Plan”) approved by the Commission on January 28, 2011, in the above-captioned proceeding. *Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan*, Docket No. M-2009-2093216 (Order Entered January 28, 2011) (“*January 28, 2011 Order*”).

By this Petition, PPL Electric requests Commission approval for both minor and non-minor changes to its EE&C Plan. First, as discussed in Section IV.A. below, the Company proposes 56 minor changes to its Commission-approved EE&C Plan. The minor changes set forth in this section fall into at least one of three categories identified by the Commission in its June 10, 2011 Final Order at Docket No. M-2008-2069887 (“*Expedited Process Order*”): (1) the elimination of a measure; (2) a transfer of funds within the same customer class; or (3) the addition of a measure or a change in the conditions of a measure.

Second, in Section IV.B. below, PPL Electric requests Commission approval for six (6) “non-minor” modifications to its EE&C Plan: (1) eliminating the Time of Use Rates program<sup>1</sup> (“TOU Program”); (2) eliminating the ENERGY STAR New Homes Program (“New Homes Program”); (3) adding the use of a conservation service provider (“CSP”) for the Commercial and Industrial (“C&I”) Efficient Equipment Incentive and C&I Custom Incentive Programs; (4) adjusting the projected common costs; (5) increasing the projected cost of the Direct Load

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<sup>1</sup> By this Petition, PPL Electric is requesting Commission approval to eliminate the TOU Program from the Company’s EE&C Plan. However, the Company, consistent with Section 2807(f)(5) of Act 129, will continue to offer time-of-use rates to all customers that have been provided with a smart meter. 66 Pa. C.S. § 2807(f)(5).

Control Program and changing the projected participation between customer sectors; and (6) increasing participation and costs for the residential portion of the Renewable Energy Program. PPL Electric discussed a majority of these proposed changes to the EE&C Plan at the stakeholder meeting on October 18, 2011. In support of this Petition, PPL Electric states as follows:

## **II. BACKGROUND**

On July 1, 2009, PPL Electric filed its EE&C Plan with the Commission pursuant to Act 129 of 2008<sup>2</sup> (“Act 129”) and various related Commission orders. PPL Electric’s EE&C Plan includes a broad portfolio of energy efficiency, conservation practices and peak load reductions, and energy education initiatives. PPL Electric’s portfolio of programs is designed to provide customer benefits and to meet the energy saving and peak load reduction goals set forth in Act 129. The EE&C Plan includes a range of energy efficiency and demand response programs that include every customer segment in PPL Electric’s service territory. These programs are the key components of a comprehensive electric energy efficiency initiative designed to achieve the 1,146,000 MWh of reduced energy consumption and 297 MW of peak demand reductions required by Act 129.

The PPL Electric EE&C Plan proceeding was docketed by the Commission at Docket No. M-2009-2093216. The Commission approved PPL Electric’s EE&C Plan, with modifications, on October 26, 2009<sup>3</sup> and further revisions were approved on February 17, 2010.<sup>4</sup> On September 15, 2010, PPL Electric filed a petition seeking approval to change certain aspects

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<sup>2</sup> Act 129 of 2008, P.L. 1592, 66 Pa.C.S. §§ 2806.1 and 2806.2.

<sup>3</sup> *Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan*, Docket No. M-2009-2093216 (Order Entered October 26, 2009) (“October 2009 Order”).

<sup>4</sup> *Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan*, Docket No. M-2009-2093216 (Order Entered February 17, 2010).



of the previously approved EE&C Plan. On January 28, 2011, the Commission approved certain modifications to the EE&C Plan, but deferred action on other proposed modifications subject to the Company filing a black-line EE&C Plan illustrating all of the proposed changes.

Pursuant to the *January 28, 2011 Order*, on February 28, 2011, PPL Electric submitted a compliance filing that included the required black-line version of the EE&C Plan. After reviewing comments and reply comments filed in response to the Company's compliance filing, the Commission approved PPL Electric's petition on May 6, 2011.<sup>5</sup>

### **III. COMMISSION PROCESSES FOR MODIFYING AN EE&C PLAN**

By order entered on April 1, 2011, the Commission issued for comment a proposed expedited process for approval of minor changes to electric distribution companies' ("EDCs") EE&C Plans.<sup>6</sup> Following a public comment period, the Commission, through its *Expedited Process Order*, established an expedited review process to approve minor EE&C Plan changes. Through its *Expedited Process Order*, the Commission delegated authority to Commission staff to review and approve minor EE&C Plan changes. *Expedited Process Order*, p. 18.

The Commission defined "minor changes" as:

1. Eliminating a measure that is under performing, no longer viable for reasons of cost effectiveness, savings or market penetration or has met its approved budgeted funding, participation level or amount of savings;
2. Transferring funds from one measure or program to another measure or program within the same customer class; and
3. Adding a measure or changing the conditions of a measure, such as its eligibility requirements, technical description, rebate structure or amount, projected savings, estimated incremental costs, projected number of participants, or other conditions so long as the change does not increase the overall costs to that customer class.

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<sup>5</sup> *Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan*, Docket No. M-2009-2093216 (Order Entered May 6, 2011).

<sup>6</sup> *Energy Efficiency and Conservation Program*, Docket No. M-2008-2069887 (Tentative Order Entered April 11, 2011).

*Id.*, p. 20. In the *Expedited Process Order*, the Commission established the following procedural schedule for the review of minor EE&C Plan changes: (a) petitions shall be served on the Office of Consumer Advocate, the Office of Small Business Advocate, the Office of Trial Staff and all parties of record; (b) all interested parties shall file comments on the proposed minor EE&C Plan changes within 15 days after the proposed minor EE&C Plan changes have been filed; (c) reply comments are due within 25 days after the proposed minor EE&C Plan changes have been filed; and (d) the Commission Staff shall issue a Secretarial Letter approving, denying, or transferring to the Office of Administrative Law Judge for hearings, some or all of the proposed minor EE&C Plan changes, within 35 days after the proposed minor EE&C Plan changes have been filed.

In addition, the Commission directed that EDCs seeking approval of changes that do not fit within the minor EE&C Plan change criteria identified above must file a petition requesting that the Commission rescind and amend its prior order approving the plan in accordance with 52 Pa. Code §§ 5.41 (relating to petitions generally) and 5.572 (relating to petitions for relief). Also, the Commission's *Expedited Process Order* directs that such "non-minor" petitions should explain the specific reasons supporting the requested modifications, provide evidence supporting the modifications to the plan and the cost recovery mechanism. Further, the Commission established the following procedural schedule for "non-minor" petitions: (a) petition shall be served on all parties, who will have 30 days to file comments, an answer or both; (b) all parties will then have 20 days to file replies; and (c) following the allotted reply period, the Commission will determine whether to rule on the changes or refer the matter to an Administrative Law Judge for hearings and a recommended decision. *Expedited Process Order*, p. 20.

Although the Commission established a bifurcated process for approving minor and non-minor EE&C Plan modifications, PPL Electric is submitting both its proposed minor and non-minor modifications in a single petition. The Company is submitting a single petition to ensure that the Commission and any interested parties have a complete representation of all the proposed changes in a single black-line EE&C Plan<sup>7</sup> and a single supporting petition. A single petition and black-line EE&C Plan better illustrates the collective impacts of all of the changes proposed by the Company. Further, PPL Electric's use of a single petition will avoid the situation where two petitions were filed, one addressing the minor modifications and one addressing non-minor modifications, with two different black-line EE&C Plans, *i.e.*, one showing the minor and one showing the non-minor changes. The perceived risk is that the two step process would not present an all inclusive representation of the proposed modifications.

Therefore, because PPL Electric has filed a single petition which includes both minor and non-minor changes, the Company is not requesting expedited review of the minor changes. Instead, PPL Electric requests that this Petition and the proposed EE&C Plan modifications be reviewed under the procedural schedule established in the *Expedited Process Order* for "non-minor" EE&C Plan changes – comments, and answers or both are to be filed within 30 days of service and all parties will have 20 days to file replies. However, since time is of the essence and given the compressed time frame in which to achieve its Act 129 requirements, the Company respectfully requests that the Commission resolve issues, if possible, on the basis of comments and replies to comments on the proposed modifications.<sup>8</sup> To the extent no party opposes a

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<sup>7</sup> The black-line EE&C Plan is attached to this Petition as Appendix A. As required by the Commission's August 18, 2011 Order in Docket No. M-2009-2093215, included with the appended black-line EE&C Plan is a total resource cost test analysis for each program and for its entire EE&C plan portfolio to ensure that the Act 129 mandates are being fulfilled in a cost effective manner.

<sup>8</sup> See *Petition of West Penn Power Company for Amendment of the Orders Approving Energy Efficiency and Conservation Plans and Petition for Approval of its Amended Energy Efficiency and Conservation Plans*, Docket

proposed change or the comments fail to raise any legitimate issues of law or fact with regard to the modifications discussed herein, such changes should be approved by the Commission and not referred to an Administrative Law Judge for hearings and a recommended decision, consistent with the Commission's actions in a similar EDC EE&C Plan proceeding.<sup>9</sup> For all changes that cannot be resolved based upon comments and replies, PPL Electric respectfully requests, in order to be in a position to comply with its Act 129 requirements, that the Commission approve the proposed changes to the EE&C Plan as quickly as is practically possible.

#### **IV. PROPOSED MODIFICATIONS TO THE EE&C PLAN**

PPL Electric met its May 2011 compliance targets.<sup>10</sup> However, the Company cannot achieve its overall 2012 and 2013 compliance targets within the mix of measures, programs, and the proportion of savings and costs for each customer sector estimated in the current EE&C Plan. Therefore, the Company is proposing with this Petition, various minor and non-minor changes to the EE&C Plan.<sup>11</sup> The proposed modifications are both reasonable and necessary for PPL Electric's EE&C Plan to successfully meet its 2012 and 2013 Act 129 overall compliance targets and to more reasonably project the mix of measures, programs, and the proportion of savings and costs for each customer sector to meet those compliance targets.

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No. M-2009-2093218 (Interim Order and Opinion Entered October 28, 2011) (The Commission stated that any delay in ruling on the proposed EE&C Plan changes would further limit the time the company had to implement the revisions. The Commission approved some elements of petition and referred the remaining elements to the Office of Administrative Law Judge for the issuance of a Recommended Decision on an expedited basis).

<sup>9</sup> *Id.*

<sup>10</sup> The Company reported that it had met its May 2011 compliance targets to the Commission and to interested parties in its November 15, 2011 Final Annual Report for Year 2 of PPL Electric Utilities Corporation's Act 129 Plan.

<sup>11</sup> PPL Electric is not proposing any changes to its existing Act 129 Compliance Rider in this Petition.

PPL Electric, therefore, proposes to modify its EE&C Plan with the 56 minor and six (6) non-minor changes<sup>12</sup> set forth in this Petition. Appended to this Petition is a black-line version of the EE&C Plan which illustrates all of the modifications proposed in this Petition. All of the changes, discussed herein, were identified by the Company through its experience and actual results from the first 2 ½ years of administering the EE&C Plan; input from stakeholders, CSPs, trade allies, and program participants; Process Evaluation recommendations from PPL Electric’s independent evaluator; and through its ongoing coordination activities with other Pennsylvania EDCs. PPL Electric discussed the majority of the proposed changes to the EE&C Plan at the stakeholder meeting on October 18, 2011.

The Commission-approved EE&C Plan is based on estimates because actual data was limited when the EE&C Plan was last revised in 2010. The estimates include various quantities (for each of the four program years) such as the estimated number of participants for each measure, the estimated savings for each measure, the estimated cost (program cost, incentive, and incremental Total Resource Cost (“TRC”) test related items) for each measure, measure delivery details, roles of CSPs, *etc.* Estimates and projections tend to shift as actual experience is gained and none of the projections in the EE&C Plan can be expected to predict with 100% accuracy the final results. All of the projections and estimates are constantly changing as PPL Electric administers its programs. Periodic adjustments or “true-ups” to the EE&C Plan are required to reflect current conditions and to ensure the Company is likely to achieve its compliance targets, within budget, and with an equitable distribution of programs (savings and

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<sup>12</sup> The Company notes that it views some of the non-minor changes set forth in this Petition to be non-substantive changes to the EE&C Plan. However, these non-substantive changes do not fall within the definition of “minor” changes identified by the Commission in its *Expedited Process Order*. For example, the Company’s proposal to add a CSP for the C&I and Institutional portions of the Efficient Equipment Incentive and Custom Incentive Programs is a very minor change to a program that has no impact on cost or savings but does not meet the Commission’s definition of “minor” changes.

costs) to all customer sectors. The proposed minor changes are a necessary “true-up” to the EE&C Plan, so that the Company can:

- Change measure eligibility requirements to conform to Technical Reference Manual (“TRM”) changes;
- Discontinue measures that are fully subscribed, have negligible participation, or have negligible savings;
- Add measures to the EE&C Plan that were recently added to the TRM and will expand options for customers;
- Adjust rebates and eligibility requirements of measures to better align them to the savings provided by the measure, to increase or decrease participation levels, or to reflect market transformation;
- Adjust the estimated participation levels, savings, and costs for measures/programs to reflect Program Years 1 and 2 actual results that differed from estimates in the current EE&C Plan;
- Adjust the estimated participation levels, savings, and costs for measures/programs for Program Years 3 and 4 to better reflect actual progress and market conditions that differed from estimates in the current EE&C Plan;
- Change the classification of costs for direct install measures in the Winter Relief Assistance Program (“WRAP”) and the E-Power Wise program from “Incentives” to “CSP Direct Program Costs” to comply with the Commission’s 2011 TRC Order;<sup>13</sup> and
- Update the general text in the EE&C Plan.

**Aggregate Impact of the Proposed Changes.** The collective impacts of the changes proposed by the Company in this Petition to modify its EE&C Plan include the following:<sup>14</sup>

- The total projected cost of the EE&C Plan decreased by approximately \$5 million (2%).<sup>15</sup> This \$5 million decrease includes an approximate \$6 million decrease in projected costs due to the removal of the TOU Program and an approximate \$1 million increase in the projected costs of items not subject to the two percent cost

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<sup>13</sup> *Implementation of Act 129 of 2008 – Total Resource Cost (TRC) Test 2011 Revisions*, Docket No. M-2009-2108601 (Order Entered August 2, 2011).

<sup>14</sup> Tables 5a-1, 5a-2 and 5a-3 included in Appendix B to summarize the aggregate impact of changes.

<sup>15</sup> See Tables 5a-1, 5a-2, and 5a-3 in Appendix B. See Black-line EE&C Plan Tables 5, 5a, and 109. This projected decrease includes items that are not subject to the cost cap such as Statewide Evaluator (“SWE”) and Net-to-Gross (“NTG”) studies.

cap, *i.e.*, SWE and NTG costs. The sum of all other changes essentially nets to zero.

- The projected energy savings for the EE&C Plan decreased approximately 91,000 MWh/yr (6.6%) and the projected peak load reductions for the EE&C Plan decreased approximately 61 MW (16%). However, with the proposed changes PPL Electric is still projected to meet its compliance targets because the decrease in the projected energy savings and the reduction in the projected peak load only reduce the compliance cushion that the Company built into the EE&C Plan to account for uncertainties.
- The direct cost per kWh/yr savings stayed the same for the portfolio (approximately \$0.16 per kWh/yr); however most customer sectors improved:
  - Residential improved from \$0.115 to \$0.10.
  - Low Income improved from \$1.59 to \$1.15.
  - Small C&I improved from \$0.123 to \$0.212.
  - Large C&I improved from \$0.210 to \$0.126.
  - Institutional improved<sup>16</sup> from \$0.169 to \$0.142.
- The projected savings from the Residential sector increased approximately 92,000 MWh/yr (20%) with a projected cost increase of \$3 million (5%) which is much less than the percentage increase in savings. Approximately \$800,000 is an increase in direct program costs and approximately \$2 million is an increase in common cost allocation for the Residential sector. *See* Black-line EE&C Plan Table 5a and Table 109.
- The projected savings from the Large C&I sector increased approximately 92,000 MWh/yr (66%) with a projected cost increase of approximately \$900,000 (2%) which is much less than the percentage increase in savings. *See* Black-line EE&C Plan Table 5a, Table 109, and Table 110. The projected direct program costs for the Large C&I sector decreased approximately \$76,000 and the Large C&I sector's share of EE&C Plan common costs increased approximately \$975,000 due to an increase in projected common costs and a slight increase in the percentage of common costs that are assigned to the Large C&I sector.
- The projected savings from the Small C&I sector decreased approximately 267,000 MWh/yr (44%) and the projected costs decreased approximately \$1 million (1%). Direct program costs decreased approximately \$3 million and the Small C&I sector's allocation of common costs increased approximately \$2 million. *See* Black-line EE&C Plan Table 5a, Table 109, and Table 110.

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<sup>16</sup> Institutional customers include federal, state, and local governments, schools, and nonprofit entities.

- The projected savings from the Institutional (government, schools, and non profit) sector decreased approximately 13,000 MWh/yr (10%) and the projected costs decreased approximately \$6 million (22%). Direct program costs decreased approximately \$5.5 million and the Institutional sector's allocation of common costs decreased approximately \$400,000. *See* Black-line EE&C Plan Table 5a, Table 109, and Table 110.
- The projected savings from the low-income sector (includes participation in low-income programs only, not participation in non low-income programs) increased approximately 5,600 MWh/yr (28%) and the projected cost decreased approximately \$1.5 million. Direct program costs decreased approximately \$2 million and the Low-Income sector's allocation of common costs increase approximately \$600,000. *See* Black-line EE&C Plan Table 5a, Table 109, and Table 110.

If the minor and non-minor changes are not implemented, the Company will not likely achieve its overall 2012 and 2013 projections, as illustrated in the example below<sup>17</sup>

• Projected energy savings in the current EE&C Plan:	1,366,972 MWh/yr
• Reduction in projected Small C&I savings:	- 267,000 MWh/yr
• Reduction in projected Appliance Recycling savings:	- 40,223 MWh/yr
• Total Projected Energy Savings:	1,059,749 MWh/yr
• May 2013 3% Compliance Target:*	1,146,000 MWh/yr
• Shortfall (minimum):*	86,251 MWh/yr

\* PPL Electric wants to exceed the compliance target to allow a reasonable cushion for uncertainties such as a realization rate that is worse than expected or changes to savings in the TRM.

By proposing the minor and non-minor modifications to its EE&C Plan, the Company will increase the likelihood of achieving its overall Act 129 compliance targets. As noted above, the Company is also proposing to revise its estimates for the savings to be achieved within the

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<sup>17</sup> This example shows the expected EE&C Plan shortfall if the proposed changes are not implemented to make-up for the Small C&I and Appliance Recycling Program reductions. Many of the proposed changes such as increasing savings for Large C&I, increasing savings for the Compact Fluorescent Lighting Campaign Program, and increasing savings in the residential portion of the Efficient Equipment Incentive Program are required to compensate for the large reductions in Small C&I and Appliance Recycling Program savings. The proposed elimination of the TOU Program and ENERGY STAR New Homes programs do not materially impact energy savings.



mix of measures, programs, costs, customer sector projections (savings and costs), and program delivery and management functions (Evaluation, Measurement, and Verification (“EM&V”), CSPs, direct discount, *etc.*) contained in the current EE&C Plan. These changes will ensure that the Company’s EE&C Plan more accurately reflects the estimated operation of the EE&C Plan at completion.

The revised EE&C Plan continues to provide measures equitably to all customer classes. Act 129 and the Commission require that each EDC EE&C Plan include a variety of measures and that each plan provides the measures equitably to all customer classes.<sup>18</sup> In the *Implementation Order*, the Commission explained that EDCs should develop plans to achieve the most energy savings per expenditure and that the driving principle should be the most cost effective use of resources so that benefits can accrue to all customers, even if only by virtue of reduced energy market prices. *Implementation Order*, p. 22. The Commission further explained that “equitable,” in the context of 66 Pa. C.S. § 2806.1(a)(5), does not mean “pro rata,” especially when cost-effectiveness is factored into the process and that it is entirely possible that the most cost effective energy efficiency and demand response programs may not come proportionally from each customer class. *Id.*

As required by the Commission, PPL Electric offered a well-reasoned and balanced set of measures that were tailored to usage and to the potential for savings and reductions for each customer class. *Implementation Order*, p. 22; *October 2009 Order*, p. 18.<sup>19</sup> In addition, the Company included in its Commission-approved EE&C Plan estimated savings to be achieved by

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<sup>18</sup> See 66 Pa. C.S. § 2806.1(a)(5); *Energy Efficiency and Conservation Program Implementation Order*, at Docket No. M-2008-2069887, pp. 3, 22 (Order Entered January 16, 2009) (“*Implementation Order*”).

<sup>19</sup> Consistent with the requirements of 66 Pa. C.S. § 2806.1(b)(1)(i)(B), PPL Electric’s EE&C Plan is also designed to achieve a minimum of ten percent (10%) of all consumption reduction requirements from federal, state and local governments, including municipalities, school districts, institutions of higher education and nonprofit entities (collectively, the “Institutional sector”).

the various customer sectors, including the Act 129 target for the Institutional sector. Specifically, Table 4 in Section 1 of the EE&C Plan includes a summary of the portfolio energy and demand savings for the Residential, Residential low-income, Small C&I, Large C&I, and the Institutional sectors, and Table 7 includes a budget and parity analysis summary for the aforementioned sectors. As discussed below, PPL Electric proposes to reduce the projected participation, savings, and costs for the Small C&I sector for most measures in the Efficient Equipment Incentive Program and the C&I Custom Incentive Program which necessitates a revision to the estimated proportional savings to be achieved by the various customer sectors.

Based upon the operation of the EE&C Plan for the past 2 ½ years, PPL Electric is making a downward adjustment to the estimated MWh/yr savings for the Small C&I sector. Although the anticipated savings to be achieved by the Small C&I sector are lower than the Company's original estimates, the Residential and Large C&I customer sectors have shown much more interest in energy efficiency programs than expected.

As of December 2011, the Large C&I sector already exceeded the savings estimated in the EE&C Plan for the entire 4-year program (through May 2013), significantly more savings from that sector is committed on a reservation list, and more Large C&I customers have requested to be added to a waiting list should additional funding become available or if committed projects drop off the reservation list.

As of December 2011, the Residential sector achieved 87% of its total savings estimated in the EE&C Plan (through May 2013) even though the programs are only 58% complete in terms of time (23 of 40 months have been completed). However, as set forth in this Petition regarding the approval of non-minor changes, the reduced Small C&I savings estimate will

require an adjustment in the estimated savings and cost contribution from the Small C&I sector to the Residential and Large C&I sector.

If the Company's proposed changes are implemented, the resulting distribution of programs, costs, and savings to customer sectors continues to be reasonable and equitable.<sup>20</sup> Upon implementation of the proposed changes, the estimated percentages of savings and costs for each sector will be as shown in the table below.

	% of EE&C Plan Energy Savings	% of EE&C Plan Energy Savings (excluding Instit.)	% of EE&C Plan Costs	% of EE&C Plan Costs (excluding Instit.)	% of PPL EU Load <sup>21</sup>	% of PPL EU Total Revenue in 2008 <sup>22</sup>	% of EE&C Plan Peak Savings
<b>Residential &amp; Low-Income</b>	46	51	42	48	38	45	24
<b>Small C&amp;I</b>	26	29	35	36	37	32	15
<b>Large C&amp;I</b>	18	20	14	16	24	23	49
<b>Institutional</b>	10	-	9	-	included in sectors above	included in sectors above	12

The EE&C Plan, as revised by the changes proposed herein, continues to meet the standard required in 66 Pa. C.S. § 2806.1(a)(5) and the *Implementation Order*. The EE&C Plan, as revised, offers each customer class at least one energy efficiency and one demand response program and the EE&C Plan contains a reasonable mix of energy efficiency and demand response programs for all customers. Furthermore, as illustrated by the table above, the

<sup>20</sup> See *October 2009 Order*, pp. 16-20. The Commission's EE&C Program must include "standards to ensure that each plan includes a variety of energy efficiency and conservation measures and will provide the measures equitably to all classes of customers." 66 Pa. C.S. § 2806.1(a)(5). Each EDC is required to demonstrate that its plan "provides a diverse cross section of alternatives for customers of all rate classes." 66 Pa. C.S. § 2806.1(b)(1)(i)(i). According to the Commission, it was evident that the Company had filed a variety of energy efficiency and conservation programs that are equitably distributed among all classes of customers. *October 2009 Order*, p. 18.

<sup>21</sup> PPL Electric Utilities Consumption Forecast and Peak Load Data filed with Commission on February 9, 2009 for the period of June 1, 2009 through May 31, 2010.

<sup>22</sup> 2008 was the last year without significant shopping. Subsequent years have significant shopping and much of the EGS revenue from C&I customers is billed directly by EGSs and is not known by the Company.

proportion of the EE&C Plan's energy savings and budget for each customer sector are reasonably comparable to each sector's share of total PPL Electric revenue and total PPL Electric load (kWh/yr).<sup>23</sup> Each sector also has a meaningful proportion of estimated peak load reductions available.<sup>24</sup>

As described in Section 7.5 of the EE&C Plan, PPL Electric's EE&C Plan has certain common costs that are applicable to more than one customer sector or program. Common costs include EM&V, tracking systems, EE&C Plan development and revisions, advertising and marketing, general administration, general management, and the SWE. Common costs are allocated to customer sectors at the completion of the EE&C program based on the percentage of the EE&C costs directly assigned to each customer class to the total of EE&C costs directly assigned to all customer classes. Some of the minor changes in this Petition are changes to measures which reduce the projected overall direct program cost for a customer sector. The reduction in direct costs for one customer sector will change the common cost allocation percentages for all customer sectors. Similarly, changes that increase direct costs for one customer sector will change the common cost allocation percentages for all customer classes. As a result, the common cost allocation percentage could increase for some sectors and decrease for others. The changes in common costs are discussed in Section IV.B.6., below.

#### **A. PROPOSED MINOR MODIFICATIONS**

As discussed above, PPL Electric proposes to modify its EE&C Plan with 56 minor changes. As defined by the Commission, there are three categories of "minor changes," *i.e.*, elimination of a measure, certain fund transfers, and adding a measure or changing the conditions

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<sup>23</sup> Furthermore, the revised EE&C Plan also is projected to achieve the specific compliance target for Institutional sector. See 66 Pa. C.S. § 2806.1(b)(1)(i)(B).

<sup>24</sup> Since PPL Electric and the Commission has not conducted a market potential study to estimate the energy savings that is technically and economically achievable from each sector, PPL Electric cannot conclude whether the proportion of EE&C Plan savings is consistent with the market potential for each sector.

of a measure. For ease of identification and review, the proposed minor changes are presented below by category. In situations where a change fits multiple categories, such as the elimination of a measure that also exceeded participation levels estimated in the EE&C Plan, the change has been split into the multiple categories. As described above and detailed below, the proposed minor changes to the Company's EE&C Plan are both reasonable and necessary.

### **1. Elimination of a Measure**

The Commission's *Expedited Process Order* defined a minor change as one where the EDC proposes to eliminate (discontinue) a measure which is under performing, is no longer viable for reasons of cost effectiveness, savings or market penetration or has met its approved budgeted funding, participation level or amount of savings. *Expedited Process Order*, p. 20.

The following changes fall into this minor change category:<sup>25</sup>

- 1. Discontinue Rebate for Dehumidifiers** - PPL Electric proposes to discontinue the rebate for dehumidifiers in the Efficient Equipment Incentive Program. PPL Electric proposes to discontinue this measure because it has exceeded the estimated participation levels in the EE&C Plan (2,140 estimated; 5,354 actuals as of December 2011). In addition, there is no reason to continue it further because the savings are relatively low (approximately 200 kWh/yr per measure) and it costs \$8 to process a \$10 rebate. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. See Black-line EE&C Plan at Section 3.2.
- 2. Discontinue Rebate for ENERGY STAR Light Fixtures** - PPL Electric proposes to discontinue the rebate for ENERGY STAR light fixtures in the Efficient Equipment Incentive Program due to low participation levels, high costs, and low savings. As approved, PPL Electric's EE&C Plan estimated 42,000 units; however, there have been only 700 rebates as of December 2011. In addition, the per-unit savings is very low (44 kWh, the equivalent of one (1) compact fluorescent light ("CFL")) and its costs are high, \$8 to process a \$10 rebate. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another

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<sup>25</sup> Actual quantities will remain in the EE&C Plan for Program Years 1, 2, and part of 3. In some cases, the actual quantity of a discontinued measure exceeds the quantity estimated in the EE&C Plan. That situation is handled as a separate change later in this Petition.

measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. *See* Black-line at Section 3.2.

3. **Discontinue Rebate for Scanners, Printers and All Other Office Equipment -** PPL Electric proposes to discontinue the rebate for office equipment in the Efficient Equipment Incentive Program because it has exceeded its estimated participation level in the EE&C Plan. There is no reason to expand it further because ENERGY STAR reduced the estimated savings for these measures subsequent to the Company's initial EE&C Plan and there are little to no savings associated with the measures, it costs \$10 to process rebates that are generally \$3 to \$15, it is costly to verify the measures meet eligibility requirements, and the market is sufficiently transformed. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. *See* Black-line EE&C Plan at Section 3.3.
4. **Close Residential Portion of Renewable Energy Program Earlier than Expected -** PPL Electric proposes to close the residential photovoltaic ("PV") and residential ground source heat pump ("GSHP") portions of the Renewable Energy Program earlier than expected as each is fully subscribed. There is no reason to continue offering this measure because of low cost-effectiveness. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. *See* Black-line EE&C Plan at Section 3.3.
5. **Close Government, Non-Profit, Institutional ("GNI") Portion of Renewable Energy Program Earlier than Expected -** PPL Electric proposes to close the GNI portion of the Renewable Energy Program earlier than expected as the program is fully subscribed and reached its budget limit. The Company stopped accepting applications for GNI PV in August 2010 and stopped accepting applications for GNI GSHP in December 2011. There is no reason to continue offering this measure because of low cost-effectiveness. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. *See* Black-line EE&C Plan at Section 3.5.
6. **Discontinue Rebate for Dishwashers and Clothes Washers -** PPL Electric proposes to discontinue the rebate for dishwashers and clothes washers in the Efficient Equipment Incentive Program because the actual number of measures installed exceeds the estimates contained in the EE&C Plan and there is no reason to continue it further. The EE&C Plan estimated 7,170 dishwashers and there have been over 25,000 actuals as of December 2011. The EE&C Plan estimated 1,800 clothes washers and there have been over 44,000 as of December 2011. Furthermore, savings from these measures are not significant (105 kWh/hr and 258 kWh/yr respectively if the customer has electric hot water or zero if the

customer has gas/oil/propane hot water). It is difficult and costly for PPL Electric to verify if customers have electric hot water before issuing a rebate and, if the customer has non-electric hot water, the Company would pay a rebate and get no savings. Site visits to verify a customer has electric hot water heat would likely exceed \$100 each which is not cost-effective for a measure with relatively low savings. In addition, the market for these ENERGY STAR appliances is fairly well transformed thus negating the need to continue to offer rebates. Also, if the Company allows this measure to continue, the number of measures will continue to increase and that would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. *See* Black-line EE&C Plan at Section 3.2.

7. **Discontinue Rebate for Time Clocks** - PPL Electric proposes to discontinue time clocks as an eligible measure in the Efficient Equipment Incentive Program. This change is being proposed because time clocks are the baseline for recent code changes and, therefore, would have no Act 129 EE&C savings. Also, it is unclear if the time clocks reduce Equivalent Full Load Hours (“EFLH”) below the default value for the building/space type in the TRM. *See* Black-line EE&C Plan at Section 3.3.
8. **Discontinue Some Efficiency Levels for Heat Pumps and Central Air Conditioners** - PPL Electric proposes to discontinue the rebate for Seasonal Energy-Efficiency Rating (“SEER”) 14.5 heat pumps and SEER 14 and 15 central air conditioning in the Efficient Equipment Incentive Program. To date, the Company has received few applications for SEER 14 heat pumps and SEER 14 and 15 central air conditioners. The lack of activity suggests that the market is transformed for these lower SEER ratings. In addition, central air conditioning has limited savings, especially for SEER 14.5 and 15 which have less than 230 kWh/yr savings. Therefore, PPL Electric wants to encourage customers to strive for higher SEERs than 14 and 15. *See* Black-line EE&C Plan at Section 3.3.
9. **Discontinue Demand Control Defrost** - PPL Electric proposes to discontinue demand control defrost (commercial refrigeration) as an eligible measure in the Efficient Equipment Incentive Program. The measure is not common (no rebates requested as of December 2011) and there is not an approved TRM savings protocol. Instead of providing a prescriptive rebate for this measure in the Efficient Equipment Incentive Program, this measure will be eligible in the C&I Custom Incentive Program. *See* Black-line EE&C Plan at Section 3.3.
10. **Discontinue Rebate for Chiller Pipe Insulation** - PPL Electric proposes to discontinue the rebate for chiller pipe insulation in the Efficient Equipment Incentive Program. The savings are negligible because heating, ventilation, and air conditioning (“HVAC”) codes now require this insulation. Furthermore, no TRM protocol exists. If customers want to exceed minimum insulation levels required by code, this measure would be eligible in the C&I Custom Incentive Program. *See* Black-line EE&C Plan at Section 3.3.

11. **Discontinue Rebate for Cooling Tower Two-Speed Fan Motor** - PPL Electric proposes to discontinue the rebate for Cooling Tower Two-Speed Fan Motor in the Efficient Equipment Incentive Program due to the fact that there is no customer participation and relatively low savings for a commercial measure. Savings specified in the TRM are only 6% of the savings assumed for this measure in the original EE&C Plan. This measure would be eligible in the C&I Custom Incentive Program. *See* Black-line EE&C Plan at Section 3.3.
12. **Discontinue Rebate for Programmable Thermostats** - PPL Electric proposes to discontinue the rebate for residential and commercial programmable thermostats in the Efficient Equipment Incentive Program. For commercial thermostats, the SWE did not approve PPL Electric's proposed TRM savings protocol. Therefore, the savings are zero unless treated as a custom measure in the C&I Custom Incentive Program. For residential thermostats, the existing TRM protocol applies only to central air conditioning (84 kWh/yr) and electric resistance heat (1126 – 1203 kWh/yr, depending on city). Thermostats are not currently eligible in PPL Electric's program for central air conditioning because savings are negligible. Furthermore, there is limited demand for programmable thermostats on electric resistance heat and verification would be costly and intrusive to customers. Verification would require PPL Electric to conduct site visits in homes, before committing to pay a rebate, to confirm the thermostat controls resistance heat and to confirm the resistance heat is the primary heat in that room/house (not supplemental heat). Otherwise, PPL Electric could pay significant rebates for installations that have no savings. Site visits would likely exceed \$100 each which is not cost-effective for a measure that costs less than \$100.

In addition, adding air-source heat pumps ("ASHP") to this TRM protocol would be challenging and would require costly verification that would also be intrusive to customers. PPL Electric would have to require professional installation by a HVAC contractor and/or would have to conduct site visits or other quality assurance to verify the proper type of thermostat was installed. Otherwise, there is a very high likelihood that a customer would select an incorrect thermostat (*i.e.*, one that is not designed specifically for the auxiliary heat circuit in an air source heat pump) which could increase electricity use instead of reduce it. *See* Black-line EE&C Plan at Sections 3.2 and 3.3.

13. **Revise Bonus Rebate Structure for Energy Assessment & Weatherization Program** - The Company proposes to discontinue the rebate (up to \$100) for air infiltration sealing in the Energy Assessment & Weatherization Program because it has limited savings and would require costly pre- and post-blower door tests, at a cost of approximately \$250 to \$500 per test, to determine the savings. *See* Black-line EE&C Plan at Section 3.3.



## **2. Transfers of Funds**

The Commission's *Expedited Process Order* also defines minor changes as those that transfer funds from one measure or program to another measure or program within the same customer class. The following changes fall into this minor change category:

- 14. Consolidate Cost Categories in EE&C Plan** - PPL Electric proposes to consolidate the CSP cost estimate breakdown in the EE&C Plan from two (2) items (CSP Labor; CSP Material/Supplies) to one (1) item (CSP Costs) because PPL Electric manages each CSP budget at the aggregate level, not at the labor and material component level. As long as the total CSP cost is within budget, the mix of costs between CSP labor and CSP non-labor (materials, supplies, expenses, *etc.*) does not warrant tracking, reporting, and requesting Commission approval of changes. As a result of this minor change, there will be no impact on costs, only on the way it is listed in the EE&C Plan. *See* Black-line EE&C Plan Table 109.
- 15. Transfer Funds from the Large C&I Portion of the Efficient Equipment Incentive Program to the Large C&I Portion of the C&I Custom Incentive Program** - PPL Electric proposes to reallocate approximately \$10 million of Large C&I direct program costs from the Efficient Equipment Incentive Program to the Custom Incentive Program. This has no net impact on Large C&I sector costs. The reallocation tends to increase savings (allows more projects and savings per dollar of program funding) because custom projects tend to provide greater savings than prescriptive projects (such as lighting) and rebates are capped. Therefore, PPL Electric also proposes to increase total projected savings for the Large C&I sector as described in minor change number. 39. Based upon PPL Electric's experience in operating these programs, the Company has determined that Large C&I customers have a stronger than expected interest in both programs. However, participation and expenditures are more heavily weighted toward the Custom Incentive Program. *See* Black-line EE&C Plan Table 5a, Section 3.4, and Table 109.
- 16. Transfer Funds from the Small C&I Portion of the C&I Custom Incentive Program to the Small C&I Portion of the Efficient Equipment Incentive Program** - PPL Electric proposes to reallocate approximately \$13 million Small C&I program costs from the C&I Custom Incentive Program to the Efficient Equipment Incentive Program. This has no net impact on Small C&I sector costs, but it likely will reduce savings because the savings per dollar are lower in the Efficient Equipment Incentive Program as compared to the Custom Incentive Program.<sup>26</sup> Although Small C&I customer participation is much less than estimated, Small C&I customers have much more interest in the type of measures in the Efficient Equipment Incentive Program than the C&I Custom Incentive Program and PPL Electric plans to emphasize measures such as the Direct

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<sup>26</sup> The reduction in savings is discussed with the non-minor changes in Section IV.B. of this Petition.

Discount (lighting and refrigeration) in the Efficient Equipment Incentive Program in order to achieve the revised Small C&I sector savings. Measures in the Efficient Equipment Incentive Program are typically much simpler, quicker, and less costly for Small C&I customers to implement. Those attributes significantly increase the likelihood that Small C&I customers will take advantage of prescriptive rebates, PPL Electric will achieve the desired savings from this sector, and PPL Electric will achieve its overall 2012 and 2013 compliance targets. See Black-line EE&C Plan Table 5a, Section 3.3 and Table 109.

### **3. Adding a Measure or Changing the Conditions of a Measure**

The Commission's *Expedited Process Order* further defines a minor change as those that add a measure or change the conditions of a measure, such as its eligibility requirements, technical description, rebate structure or amount, projected savings, estimated incremental costs, projected number of participants, or other conditions so long as the change does not increase the overall cost to that customer class. The following changes either add a measure or change the conditions of an existing measure:

- 17. Reduce Projected Participation, Savings, and Costs for the Small C&I Sector** - PPL Electric proposes to reduce the projected participation and savings for the Small C&I sector for most measures (lighting, HVAC, motors, appliances, water heating, *etc.*) in the Efficient Equipment Incentive Program and the C&I Custom Incentive Program. The overall Small C&I savings reduction is approximately 267,000 MWh/yr (44%) and 37 MW (44%). The overall Small C&I cost reduction is approximately \$1 million (1%). The cost did not decrease the same proportion as savings because it requires increased incentives and costs to reach and encourage this sector to participate, including a shift from custom measures (Custom Incentive Program) to prescriptive measures (Efficient Equipment Incentive Program). As discussed above, the savings per dollar are lower in the Efficient Equipment Incentive Program than in the Custom Incentive Program. Therefore, the direct cost per kWh/yr savings increased for the Small C&I sector from \$0.123 to \$0.212.

Based upon its analysis of the operation and actual performance to date of its EE&C Plan and conclusions of the Company's independent evaluator<sup>27</sup>, it is necessary to significantly reduce previously approved estimates of participation and savings for Small C&I measures in the Efficient Equipment Incentive Program and C&I Custom Incentive Program.

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<sup>27</sup> See Program Year Process Evaluation.

In preparing its EE&C Plan, PPL Electric estimated the savings contribution from the Small C&I sector was approximately 44%, largely based on that sector's percentage of total system load, because there was insufficient time to conduct a market potential study to estimate the potential savings from each customer sector. However, based on actual results from Program Years 1 and 2 and current projections, it will not be possible to achieve the 603,000 MWh/yr in savings contained in the Company's previously approved EE&C Plan for the Small C&I sector. Therefore, a downward adjustment to the estimated savings to be achieved from the Small C&I sector is required.

Based upon the current performance of the Small C&I sector, PPL Electric proposes to reduce the projected Small C&I savings from approximately 603,000 MWh/yr to approximately 335,000 MWh/yr. Almost all of these savings are in the Efficient Equipment Incentive and C&I Custom Incentive Programs.

Despite aggressive marketing, hiring a C&I CSP, adding a direct discount mechanism, and recruiting trade allies, savings from the Small C&I sector is projected to be approximately half of the Company's original estimate. As of November 30, 2011 (Program Year 3, Quarter 2 Report), PPL Electric's reported energy savings for the Small C&I sector are 167,000 MWh/yr which is approximately 21% of the total portfolio reported savings (all sectors) of 780,000 MWh/yr (compared to 44% estimated in the EE&C Plan). Although actual savings from the Small C&I sector are much lower than PPL Electric estimated in its EE&C Plan, the actual savings from this sector seems to be relatively consistent with the actual results of other PA EDCs. Indeed, through Program Year 2, no other EDC achieved more than 19% of its savings from the Small C&I sector. *See, e.g.,* Metropolitan Edison Company, Program Year 2, Annual Report to the Pennsylvania Public Utility Commission, available at [www.puc.state.pa.us/electric/Act129/Act129\\_EDC\\_Reporting.aspx](http://www.puc.state.pa.us/electric/Act129/Act129_EDC_Reporting.aspx).

The current EE&C Plan projects 602,782 MWh/yr in savings from the Small C&I sector and 1,367,000 MWh/yr for the entire portfolio at the conclusion of the EE&C Plan programs in 2013. Therefore, PPL Electric would have to achieve 436,000 MWh/yr from the Small C&I sector over the remaining 18 months to equal the Small C&I projections in the current EE&C Plan. This amount is equivalent to approximately 25,000 participants (a 33% approximate penetration rate of the Small C&I sector, excluding "unoccupied" accounts such as cable TV amplifiers, security cameras, cell phone towers, pedestrian crossing signs, *etc.*) and would be 71% of the total remaining portfolio savings. It does not appear possible to meet this goal since PPL Electric obtained only 167,000 MWh/yr (8,000 participants and 21% of portfolio savings) from this sector in the first 23 months of the EE&C Plan. Therefore, the Company proposes to revise the EE&C Plan to correct the overestimate of Small C&I savings which is contained in the current EE&C Plan. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.3.

- 18. Reduce the Projected Cost of the Large C&I Load Curtailment Program -** PPL Electric proposes to decrease the projected cost of the Large C&I Load Curtailment Program from approximately \$15 million to approximately \$11 million. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.4. The change is due to estimating accuracy and removal of an allowance for calling additional peak load hours. The cost in the current EE&C Plan is an estimate that was prepared before PPL Electric awarded the contract for this program's turnkey CSP. The contract price for the Load Curtailment Program is less than estimated in the current EE&C Plan. Also, PPL Electric has removed an allowance of approximately \$2 million for calling additional hours of load curtailment. That allowance was for additional hours to replace previously called events that likely will not be in the top 100 hours because they were replaced by higher loads later in the summer. PPL Electric deleted this allowance because it would have increased direct program costs for the Large C&I customer sector above the current EE&C Plan estimate and PPL Electric is diligently trying to keep those costs within the current budget for that sector. However, PPL Electric notes that calling additional hours during the summer of 2012 remains a cost exposure for this program. Since the 100 actual peak load hours are not known until after-the-fact (when the summer 2012 peak load reduction period ends on September 30, 2012), PPL Electric will not know the likelihood and magnitude of this cost exposure until September 2012.

PPL Electric also reduced the estimated energy savings from this peak load reduction program from 15,000 MWh/yr to 0 because it is not clear if these types of programs provide energy reductions. Until PPL Electric enrolls customers in the Load Curtailment Program and better understands the specific actions customers take to reduce peak load during each hour of a peak load reduction event, PPL Electric cannot determine which customers will merely shift energy consumption (from peak periods to off-peak periods) and which customers will permanently reduce energy consumption (such as shutting off lights during the peak period).

- 19. Re-forecast HVAC Tune-up and Revise Incentives -** PPL Electric proposes to adjust savings and cost assumptions between program years for the HVAC Tune-Up Program to reflect actual experience and reduce the projected total savings and costs of this program. This program will not realize material savings. PPL Electric has stopped payments to the program CSP, but will allow HVAC contractors to provide measures to customers and to receive rebates, albeit very few are expected in Program Years 3 and 4. Also, based upon input from the CSP, PPL Electric proposes to revise three (3) measures in the HVAC Tune-Up Program in order to better align incentives with attainment of savings targets and to increase flexibility by allowing customers to self-implement measures. These changes are: (1) change the incentive for the Thermostat Modification with Lockout from \$75 to \$50; (2) delete the Thermostat Replacement with Lockout measure; (3) delete the Economizer Control Package measure; and (4) allow customers to self-implement HVAC tune-up measures and receive the incentive directly. Total projected savings decreased from 22,176 MWh/yr to 2,046

MWh/yr. Total projected cost decreased from \$1.3 million to approximately \$985,000. *See* Black-line EE&C Plan Table 5a and Section 3.3.

- 20. Adjust Participant Level and Savings for Behavior & Education Program -** PPL Electric proposes to increase the participation levels and savings for the behavior program with no additional cost. PPL Electric proposes to reduce the measure life to one year and, therefore, the savings count only in one program year and do not compound over multiple years. PPL Electric did not know the measure life would be this short when it prepared the current EE&C Plan. *See* Black-line EE&C Plan Table 5a and Section 3.2.
- 21. Change Projected Participation & Savings for Appliance Recycling Program; Reduce Total Projected Program Savings and Costs -** PPL Electric proposes to revise the projected number of recycled refrigerators, freezers and window air conditioners in the Appliance Recycling Program to reflect more realistic targets. The Company also proposes to reduce the per-unit savings to conform to 2011 and 2012 TRM changes. The estimated quantity of refrigerators is reduced because the penetration level (harvest rate) estimated in the EE&C Plan was overestimated. In addition, the per-unit savings for a recycled refrigerator/freezer are lower due to changes in the 2011 and 2012 TRMs. Savings for a recycled refrigerator/freezer decreased from 1728 kWh/yr to 1205 kWh/yr if replaced with an ENERGY STAR unit and to 1125 kWh/yr if replaced with a non-ENERGY STAR unit. Savings for recycled refrigerator/freezers that are not replaced decreased from 1728 kWh/yr to 1659 kWh/yr. These TRM changes also cause changes in program rules/eligibility, tracking system programming, will increase EM&V costs (because more information is required to verify), and significantly reduced cost effectiveness. As a result of this proposal, the program savings are reduced by approximately 40,000 MWh/yr, and the program costs are reduced approximately \$1.8 million for the Residential sector. *See* Black-line EE&C Plan Table 5a and Section 3.2.
- 22. Add Ductless Heat Pumps -** PPL Electric proposes to add residential and commercial ductless heat pumps as an eligible measure in the Efficient Equipment Incentive Program because they were approved by the Commission in the 2011 TRM (residential) and approved by the SWE in an interim TRM (commercial) that was also approved in the 2012 TRM. This proposal provides more options for customers and allows savings to be determined in accordance with the TRM instead of a more costly custom protocol. *See* Black-line EE&C Plan at Section 3.2.
- 23. Add and Modify Measures in Compact Fluorescent Lighting Campaign Program and Rename the Program -** PPL Electric proposes to expand the eligible products in the Compact Fluorescent Lighting Campaign program to include residential light-emitting diodes (“LEDs”) and other efficient lighting technologies to stimulate their use and to expose customers to those technologies. The Company also proposes to change the name of the program to “Residential

Lighting.”<sup>28</sup> This proposal does not increase the cost of this program. *See* Black-line EE&C Plan at Section 3.2.

24. **Add C&I LED Lighting** - LEDs for C&I were added to the 2011 TRM and PPL Electric proposes to add LED lighting to the Efficient Equipment Incentive Program. Savings will be determined in accordance with the TRM, *i.e.*, retrofit or new construction lighting, and rebates will be \$0.10 kWh/yr processed through PPL Electric’s C&I Custom Incentive Program or as a new prescriptive rebate (also at \$0.10/ kWh/yr) through the Efficient Equipment Incentive Program. This will add more choices for customers and allows savings to be determined in accordance with the TRM instead of a more costly custom protocol. *See* Black-line EE&C Plan at Section 3.3.
25. **Add Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps** - PPL Electric proposes to add packaged terminal air conditioners and packaged terminal heat pumps as eligible measures in the Efficient Equipment Incentive Program because these were added to the TRM. This will add more choices for customers and allows savings to be determined in accordance with the TRM instead of a more costly custom protocol. *See* Black-line EE&C Plan at Section 3.3.
26. **Add Heat Pump Water Heaters to WRAP and adjust WRAP Projected Savings and Participation** - PPL Electric proposes to add heat pump water heaters as an eligible measure for low-income WRAP. This, along with revised savings estimates for other WRAP measures (projects), will increase projected Program Year 3 savings (deemed values based on a billing analysis of 2009 WRAP projects which did not include heat pump water heaters) to more accurately reflect savings in Program Year 3. Program Year 4 savings per project (based on a billing analysis of 2010 WRAP projects, some of which may include HPWH) are also expected to increase compared to the estimate in the current EE&C Plan. This proposal will result in an increase in WRAP savings from approximately 18,695 MWh/yr to approximately 21,000 MWh/yr. PPL Electric also proposes to reduce the projected participant levels from approximately 23,590 to 14,590. Notably, these updated projections are based on Program Year 1 and Program Year 2 actual participation, actual savings per project, and actual cost per project data. Savings and costs per project are higher than originally estimated so the number of jobs (participants) is reduced to stay on budget. There is no change in forecasted total program cost as a result of this modification. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.2.1.
27. **True-Up Projections of Peak Load Reductions from Energy Efficiency Measures** - PPL Electric proposes to adjust the projected peak load reduction from energy efficiency measures/programs to reflect current results, trends, and changes to the TRM. As a result, the Compact Fluorescent Lighting Campaign

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<sup>28</sup> *See* minor change no. 40 in this Petition for a separate change to increase the projected participation, increase the savings, and decrease the estimated cost of this program.

program's peak load reduction decreases (MW per CFL are lower than previously estimated); the Efficient Equipment Incentive Program's peak load reduction decreases (MW per measure are lower than previously estimated); and the Appliance Recycling Program increases its peak load reduction slightly (despite a decrease in the estimated number of measures and the energy saving per measure) at the program level because the mix of appliances is more heavily weighted toward measures with a higher peak load contribution (window air conditioning). In addition, the total peak load reduction from energy efficiency measures decreased approximately 10 MW because of changes to the TRM (resulting in lower savings) and because of differences between planning estimates and actual performance, such as quantities of measures. *See* Black-line EE&C Plan Table 5a, Section 3.2, Section 3.3, Section 3.4 and Section 3.5.

28. **Change Rebate and Estimated Participation Level for ENERGY STAR Refrigerators** - PPL Electric proposes to reduce the rebate from \$50 to \$25 and increase the expected number of units in the Efficient Equipment Incentive Program from 21,860 to approximately 56,000. As of December 2011, there were approximately 40,000 rebates for refrigerators. The lower rebate reflects the fact that the market for energy efficient refrigerators is well established and helps to slow participation by the Residential sector as it approaches its projected total savings and cost budget. It is necessary to maintain some type of rebate because it helps to identify refrigerators for recycling which keeps refrigerators from becoming secondary units or from being disposed of improperly. *See* Black-line EE&C Plan at Section 3.2.
29. **Change Eligibility Requirements for LED Traffic Lights** - PPL Electric proposes to streamline rebates and change the eligibility requirements for LED traffic lights in the Efficient Equipment Incentive Program. The proposed changes include: red and green lights will have the same rebate for the same size light; rebates for yellow LED traffic lights are discontinued because they have no savings; and eligibility is limited to replacements of incandescent traffic lights, *i.e.*, no rebate if LED traffic light/bulb replaces another LED traffic light/bulb because there would be no savings. *See* Black-line EE&C Plan at Section 3.5.
30. **Change Eligibility Requirements for Lighting Power Density Reduction (New Construction Lighting)** - PPL Electric proposes to change the minimum required lighting power density ("LPD") reduction versus code from 15% to 5% in the Efficient Equipment Incentive Program. This threshold is more consistent with practices of other Pennsylvania EDCs and in other states. The 5% threshold is sufficient to ensure the customer affirmatively decides to exceed code requirements, and not simply exceed them by accident by an incidental amount (such as 0.1%). The Company proposes to cap the rebate at 50% of equipment cost to prevent excessive incentives. To conform with changes to the 2011 TRM, PPL Electric also proposes to allow the American Society of Heating, Refrigeration and Air Conditioning Engineers ("ASHRAE") whole building method as an alternative to the space-type method of determining savings. *See* Black-line EE&C Plan at Section 3.3.

- 31. Change Estimated Participation Level for Room Air Conditioners -** PPL Electric proposes to reduce the expected number of rebates for room air conditioners in the Efficient Equipment Incentive Program from approximately 38,000 to approximately 9,000 to reflect current performance. There is no reason to increase incentives or promote this measure more aggressively to increase participation because savings are minimal. Also, if the Company allows this measure to achieve 38,000 units, it would require a reduction in another measure to prevent exceeding the budget target for the program, sector, or EE&C Plan. PPL Electric considered discontinuing the rebate because per-unit savings is very low (59 kWh/yr per air conditioner, which is slightly more than one 1 CFL). However, PPL Electric will continue this rebate because it benefits low-income customers who are likely to continue to buy room air conditioners, and PPL Electric wants to encourage customers to buy ENERGY STAR rated units. *See* Black-line EE&C Plan at Section 3.2.
- 32. Change Eligible Motor Efficiencies & Rebates -** PPL Electric proposes to increase the minimum motor efficiencies in the Efficient Equipment Incentive Program to align to revised industry standards that became effective December 2010 and were updated in the TRM. As a result, some efficiency levels are no longer eligible for a rebate. *See* Black-line EE&C Plan at Section 3.3.
- 33. Change Residential LED Lighting Eligibility -** The Company proposes to clarify that the prescriptive rebate for LED fixtures or retrofit kits in the Efficient Equipment Incentive Program applies to residential use only. C&I LED lighting will be covered in the Company's C&I Custom Incentive Program or through C&I lighting rebates at \$0.10 per kWh/yr in the Efficient Equipment Incentive Program. PPL Electric proposes this change because savings for residential and C&I lighting are determined differently per the TRM. Moreover, a specific TRM protocol was developed for the residential fixture so a residential customer does not have to complete the complex Pennsylvania Lighting Spreadsheet for an LED fixture. *See* Black-line EE&C Plan at Section 3.2.
- 34. Clarify Rebates Caps -** PPL Electric proposes a general clarification for all programs and measures, except for the C&I Custom Incentive Program. Specifically, the Company clarifies that rebates paid cannot exceed the cost of the measure. This limitation was implied, but was not specifically mentioned in the EE&C Plan. In the C&I Custom Incentive Program, the rebate cap is unchanged and cannot exceed 50% of the project cost. *See* Black-line EE&C Plan at Sections 3.2, 3.3, 3.4, and 3.5.
- 35. Change Projected Participation for Heat Pump Water Heaters -** PPL Electric proposes to increase the projected number of rebates for heat pump water heaters from 230 to 3,200 in the Efficient Equipment Incentive Program because actual participation has exceeded expectations. This measure contributes significant per unit savings (1,884 kWh/yr), and the market is still developing and will benefit by increasing the number of rebates. Therefore, it is appropriate to expand this measure. Furthermore, PPL Electric proposes to restrict heat pump water heaters



rebates to residential use and certain types of commercial use as recently specified in the TRM. *See* Black-line EE&C Plan at Section 3.2.

- 36. Change Rebate for C&I Custom Incentive Program Technical Studies and Add Expiration Dates to Ensure Customers Can Implement the Project by May 2013** - PPL Electric proposes to change the rebate and eligibility requirements for C&I Custom Incentive Program technical studies. Rebates for technical studies will be calculated at the lesser of the following values:

If the study is a comprehensive audit of an entire facility, the reimbursement will be calculated as 10 cents per square foot;

For a feasibility study that addresses specific equipment or system, the reimbursement will be calculated as 0.5 cents per kWh/yr;

Studies will be capped at 25% of the potential custom incentive, 100% of the study cost, or \$50,000, whichever is less.

These proposed changes will ensure that reimbursements are within the limitations set by the EE&C Plan, but still encourage customers to evaluate their facilities in a manner that leads to viable, eligible custom projects. The Company also proposes to clarify that, for purposes of determining the rebate cap for custom projects, the incremental cost of custom projects will include only the customer's external costs (internal costs, such as the customer's staff, are excluded). *See* Black-line EE&C Plan at Section 3.3.

- 37. Change Rebate for De-Lamping** - PPL Electric proposes to change the rebate structure in the Efficient Equipment Incentive Program for lighting retrofits that include de-lamping. Instead of one (1) de-lamping measure, the Company proposes five (5). This will better align rebates with the savings, *i.e.*, the specific number of lamps removed. *See* Black-line EE&C Plan at Section 3.3.
- 38. Change Eligibility Requirements for Maximum Number of Air Conditioners in Appliance Recycling Program** - PPL Electric proposes to increase the maximum number of recycled air conditioners per customer from two (2) to four (4) in the Appliance Recycling Program. This change is being proposed because, based on experience and information received from customers, customers often have more than two (2) air conditioners. In select situations, such as multi-family housing units with master metering, the Company will allow more than four room air conditioners. These proposed changes will encourage recycling in an environmentally responsible manner and will increase peak load reductions. This change should also assist PPL Electric to make-up certain peak load reductions that were decreased in other measures. *See* Black-line EE&C Plan at Section 3.2.
- 39. Increase Projected Participation/Savings for Large C&I** - PPL Electric proposes to increase projected Large C&I savings (by approximately 91,000 MWh/yr) within the current budget to reflect actual participation and anticipated projects as of June 1, 2011 - the date when trade allies and customers were

notified of the project reservation requirements. The increased savings is mostly in the C&I Custom Incentive Program. Projects are overcommitted compared to the projections in the EE&C Plan and the Company does not want to cancel any current reservations. Furthermore, the additional savings will help to offset reductions in the Small C&I sector. The revised estimated average cost per kWh/yr of Large C&I savings has decreased from approximately \$0.21/kWh per year to approximately \$0.126/kWh per year, allowing the Company to fund more projects within the current budget.<sup>29</sup> *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.4.

- 40. Increase Projected Participation and Savings for Compact Fluorescent Lighting Program; Reduce Projected Cost** - PPL Electric proposes to increase projected savings in the Compact Fluorescent Lighting Campaign program by approximately 100,000 MWh/yr within the current budget. Customer demand is high for this program, CFLs are very cost-effective, and the additional savings will help to offset reductions in the Small C&I sector. PPL Electric proposes to decrease the projected cost of this program approximately \$2.5 million. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.2.
- 41. Change Rebate Structure for T5, T8, High Performance T8 Lighting** - PPL Electric proposes to change the rebate structure from per fixture to per lamp for T5, T8, and high performance T8 lighting in the Efficient Equipment Incentive Program. The proposed per lamp rebates are better aligned to actual savings than the existing per fixture rebates. *See* Black-line EE&C Plan at Section 3.3.
- 42. Change Occupancy Sensor Rebate** - PPL Electric proposes to change the rebate for an occupancy sensor (“OS”) from “up to \$45” to “up to \$45 or up to \$25 if coupled with daylighting controls” in the Efficient Equipment Incentive Program. The rebate for an OS coupled with daylighting controls (“DL”) is lowered because the customer would still receive a separate rebate for the daylighting control. Also, the savings for lighting simultaneously controlled by an occupancy sensor and daylighting controls are less than the individual savings (OS and DL separately). Therefore, lowering the rebate better aligns the incentive with the savings. *See* Black-line EE&C Plan at Section 3.3.
- 43. Change Eligibility Requirement for C&I Wall & Ceiling Insulation** - PPL Electric proposes to change the eligibility requirement in the Efficient Equipment Incentive Program for C&I Wall and Ceiling Insulation for existing structures from “current ASHRAE standard + R11” to “a minimum of R11 and must meet or exceed ASHRAE.” This more closely aligns with the eligibility in Section 3.16.1 of the 2011 TRM. PPL Electric also proposes to revise eligible space conditioning types in the Efficient Equipment Incentive Program and the Audit & Weatherization Program to align with the HVAC baseline efficiencies in Table 3-21 of the 2011 TRM. This change ensures that proper baseline data are collected

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<sup>29</sup> *See* related minor change no. 15 in this Petition.

to determine savings in accordance with the 2011 TRM. *See* Black-line EE&C Plan at Sections 3.2 and 3.3.

- 44. Change Eligibility Requirement for T5 and T8 Light Fixtures -** PPL Electric proposes to change the eligibility requirement in the Efficient Equipment Incentive Program for T5 and T8 light fixtures from “Must replace T12 (lamp & electronic ballast)” to “Replace fixture with T5 or T8 lamps and ballast.” This change will make qualification less restrictive for this measure, especially the Small C&I sector, so that customers wishing to replace other types of inefficient fixtures can also participate. *See* Black-line EE&C Plan at Section 3.3.
- 45. Clarify Eligibility Requirement for Display Cases -** PPL Electric proposes to clarify the eligibility requirement for Display Cases in the Efficient Equipment Incentive Program. The proposed modification includes changing “ENERGY STAR” on the rebate chart to “See incentive application for details” and updating the application to align with requirements of 2011 TRM. PPL Electric also proposes to add “open air units” to the list of case types that do not qualify for an incentive in the Efficient Equipment Incentive Program. This aligns the program eligibility requirements with the 2011 TRM. *See* Black-line EE&C Plan at Section 3.3.
- 46. Clarify Eligibility for Energy Assessment & Weatherization Audit Rebate -** PPL Electric proposes to clarify eligibility for Residential Energy Assessment & Weatherization Program. The proposed modification includes changing the language for the audit rebate eligibility requirement from “air conditioning or electric heat” to “central air conditioning or main source electric heat.” This change is proposed because savings for measures implemented as a result of audit recommendations are negligible in the absence of central air conditioning or electric primary heating systems. Savings are negligible when individual spaces are conditioned with room air conditioners, electric baseboards or space heaters. *See* Black-line EE&C Plan at Section 3.2.
- 47. Change Classification of WRAP and E-Power Wise Measure Costs and Incentives -** In accordance with the Commission’s *2011 Total Resource Cost Test Order*, Docket No. M 2009-2108601 (Order Entered August 2, 2011), the cost of direct install measures for WRAP and E-Power Wise should be classified as “CSP Direct Program Costs,” not “incentives.” Previously, PPL Electric classified these as “incentives” in its quarterly and annual reports. PPL Electric will make this proposed change effective in Program Year 3 and will not adjust the prior costs in its accounting systems, tracking systems, or reports. *See* Black-line EE&C Plan Table 109 and Section 3.2.2.
- 48. General Text Revisions -** PPL Electric proposes to update the text throughout the EE&C Plan to reflect current conditions.

49. **Chiller Efficiency** - PPL Electric proposes to change the efficiency requirements for chillers in the C&I Custom Incentive Program to conform to revised Table 3-25 in the 2011 TRM. *See* Black-line EE&C Plan at Section 3.3.
50. **High Bay Lighting Eligibility Requirements** - The Company proposes to change eligibility requirements, in the Efficient Equipment Incentive Program, for T5 and T8 high bay fixtures. The modifications include changing “>125 watts” to “>100 watts,” and deleting the requirement to install fixtures in an area with ceiling height greater than 15 ft. These changes accommodate high efficiency fixtures that are less than 125 watts and recognize that fixtures are effective at heights less than 15 ft. These less restrictive requirements will encourage increased participation in these measures, especially for the Small C&I sector. *See* Black-line EE&C Plan at Section 3.3.
51. **Clarify Eligibility Requirements for Commercial CFLs** - The Company proposes to delete the requirement that commercial CFLs must be purchased after July 1, 2010 to be eligible for a rebate in the Efficient Equipment Incentive Program. That requirement created customer confusion, since all other measures in that program are retroactive to July 1, 2009. *See* Black-line EE&C Plan at Section 3.3.
52. **Change Incentive for Pin-Based CFLs** - PPL Electric proposes to change the rebate for pin-based CFLs from \$30 per fixture to \$30 per fixture for commercial customers and \$5 per fixture for residential customers in the Efficient Equipment Incentive Program. These changes better align the incentives with the savings. Savings are lower for residential customers because the hours of use are lower than commercial applications. *See* Black-line EE&C Plan at Sections 3.2 and 3.3.
53. **Increase Estimated Participation for Air Source Heat Pumps, Dishwashers, Clothes Washers, and Residential Lighting Retrofits** - PPL Electric proposes to increase the estimated participation levels for these measures. Customers have shown more interest than estimated in PPL Electric’s current EE&C Plan. Air source heat pumps increased from approximately 4,000 to approximately 16,500. Dishwashers increased from approximately 7,000 to approximately 25,000. Clothes washers increased from approximately 2,000 to approximately 44,000. The EE&C Plan assumed no residential lighting retrofits, but some residential customers have replaced lighting such as T-12 linear fluorescent fixtures. PPL Electric has proposed discontinuing some of these measures as separate minor changes in this Petition.<sup>30</sup> *See* Black-line EE&C Plan at Sections 3.2 and 3.3.
54. **Reduce Estimated Participation for Central Air Conditioners, ENERGY STAR Light Fixtures, Programmable Thermostats, and High Efficiency Furnaces** - PPL Electric proposes to decrease the estimated participation levels for these measures. Customers have shown less interest than estimated in PPL Electric’s current EE&C Plan. Central air conditioners decreased from

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<sup>30</sup> *See* related minor changes and change no. 8, above.

approximately 6,000 to approximately 5,000. ENERGY STAR light fixtures decreased from approximately 42,000 to approximately 700. Programmable thermostats decreased from approximately 10,000 to approximately 600. High efficiency furnaces for RTS customers decreased from approximately 500 to approximately 300. PPL Electric has proposed discontinuing some of the measures as separate minor changes in this Petition.<sup>31</sup> See Black-line EE&C Plan at Sections 3.2 and 3.3.

- 55. Add a Small C&I Direct Install Option to the Efficient Equipment Incentive Program** - PPL Electric proposes to add a direct install option for customers, called Direct Discount Services, which uses PPL Electric's network of authorized contractors to market, propose, and install lighting and refrigeration measures for Small C&I customers. Incentives are based on kWh/yr saved for each measure and are paid to the installation contractor, minimizing a customer's cash outlay. See Black-line EE&C Plan at Section 3.3. Also, the authorized contractor completes and processes all required paperwork including the complex PA Lighting Spreadsheet. The Direct Discount Services option will accelerate participation by Small C&I customers who are having difficulty identifying efficiency improvements, funding the full cost of the measures, finding contractors, and filling-out rebate forms and other project documentation. Moreover, the measures are the same as those included in this program for self-installation by the customer. This proposed change will have no impact on cost or savings for the program. If this change is not implemented, PPL Electric will not achieve the Small C&I and Institutional savings and cost estimates in its black-line EE&C Plan.
- 56. Add Direct Mail Option for the E-PowerWise Kits** - PPL Electric proposes to add a direct mail option for E-PowerWise kits. See Black-line EE&C Plan at Section 3.2.1.<sup>32</sup> The Company will mail, directly to qualified customers, energy conservation educational material and a card which the customer would return in order to receive an energy savings kit. As fully described in the E-PowerWise program, the energy kits sent to customers that submit a request card would include multiple energy-saving measures, *i.e.*, compact fluorescent lamps, faucet aerators, and high-efficiency shower heads, as well as instructions for proper installation. Customers will also be asked to complete and return a survey that documents their actions, which will be used to evaluate and report on program impacts. The Company will adjust its Evaluation Plan if necessary to reflect separate sampling of this delivery mechanism. The Company is proposing the direct mailing program because Community-Based Organizations, which assist in distributing the energy kits, are currently experiencing cuts in funding, leading to staffing reductions, agency closings, and the elimination of certain programs.

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<sup>31</sup> *Id.*

<sup>32</sup> As part of this proposal, the Company will conduct a pilot program with 100 to 500 kits to determine if directly mailing the E-PowerWise kits to low-income customers is a viable delivery channel. PPL Electric will continue the direct mail option if the pilot program is successful or PPL Electric will discontinue it if the pilot program is unsuccessful.

Distributing the energy kits via Community-Based Organization workshops or other related interactions has become more difficult due to various cutbacks by these organizations. Direct mail would provide a more stable delivery option while improving the tracking of kit distribution. The Company will determine if the kits should be delivered exclusively by mail, exclusively by the Community-Based Organizations, or by a combination of both methods. This proposed change will have no impact on cost or savings for the program. However, if this change is not implemented, it may be more difficult for the Company to achieve the savings currently projected for this program.

**B. PROPOSED NON-MINOR CHANGES TO THE EE&C PLAN**

As described more fully below, by this Petition, PPL Electric is also proposing six (6) “non-minor” modifications to its existing EE&C Plan. In support of the proposed changes, PPL Electric states as follows:

**1. Elimination of the TOU Program**

PPL Electric proposes to delete the TOU Program from its EE&C Plan. *See* Black-line EE&C Plan at Sections 3.2, 3.3, and 3.5. By Order entered on March 9, 2010, the Commission determined that to ensure that PPL Electric’s TOU Program is consistent with the Commission’s Default Service Policy Statement at 52 Pa. Code §§ 69.1801 *et seq.*, it directed the Company to collect its TOU Program costs, and to credit the benefits, through its charges/credits to default service customers only.<sup>33</sup> As the Commission has determined that TOU Program costs are to be recovered from default service customers, any limited savings achieved from the TOU Program will not be counted toward the Company’s EE&C targets. Therefore, the Company is deleting TOU Program from its Act 129 EE&C Plan. However, as part of its Default Service requirements, the Company will continue to offer time-of-use rates to all customers that have been provided with a smart meter.

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<sup>33</sup> *Pennsylvania Public Utility Commission v. PPL Electric Utilities Corporation*, Docket No. R-2009-2122718 (Opinion and Order Entered March 9, 2010).

As approved in the Company's 2009 EE&C Plan, the TOU Program was expected to produce 61 MW of peak load reduction (from 150,000 participants). However, the Company noted in its 2010 Petition to modify its EE&C Plan, that it did not expect to achieve the projected participation and peak load reductions TOU Program. As of December 2011, there are only approximately 3,500 participants in the Company's TOU program. Further, the Company noted that its TOU Program had been the subject of a separate proceeding and that the Company was evaluating potential modifications to this program and the resulting impact on its EE&C Plan, but that it anticipated filing a separate request to modify its current TOU Program.

The elimination of the TOU Program reduces the EE&C Plan portfolio cost by approximately \$5.7 million. Despite the elimination of the TOU Program and the estimated peak load reductions from this program, the Company continues to expect to achieve its Act 129 compliance targets if the other proposed changes to its EE&C Plan are implemented.

## **2. Elimination of the New Home Program**

PPL Electric proposes to eliminate the New Home Program. *See* Black-line EE&C Plan at Section 3.2. Due to the overall state of the economy, the new home market is not likely to rebound quickly enough to achieve material savings in Program Years 3 and 4.<sup>34</sup> In addition, the per-home savings are very low compared to estimates in the original EE&C Plan because new building codes (*e.g.*, IECC 2009 that became effective in 2010) and likely changes to TRM to incorporate those new codes will reduce new home savings that could be credited to Act 129 EE&C plans. Moreover, the measures in this program are also available in the Efficient Equipment Incentive Program and can be utilized by new home builders or owners. Therefore,

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<sup>34</sup> *See* the U.S. Census Bureau and the Department of Housing and Urban Development Joint Release on New Residential Construction in October 2011, issued November 17, 2011, available at <http://www.census.gov/const/newresconst.pdf> (builders broke ground on a seasonally adjusted annual rate of 628,000 homes in October 2011, down 0.3% from September 2011).

the measures in the eliminated New Home Program would still be available, even though the formal program has been removed from the EE&C Plan. The New Home Program budget of approximately \$2.7 million will be reallocated to the residential portion of the Efficient Equipment Incentive Program.<sup>35</sup> Therefore, there is no impact on the portfolio's total cost or the residential sector budget due to the elimination of the program. Moreover, portfolio savings may increase slightly because funding will now be used more effectively in the Efficient Equipment Incentive Program. Furthermore, this program has a greater savings per dollar ratio than the New Home Program and there would be no additional administrative costs to establish and maintain the New Home Program.

**3. The Addition of a CSP for the C&I and Institutional Portions of Efficient Equipment Incentive and Custom Incentive Programs**

PPL Electric proposes to add a CSP for the C&I portions of the Efficient Equipment Incentive and Custom Incentive Programs, instead of self-managing these programs. *See* Black-line EE&C Plan at Sections 3.3 and 4.1.1.<sup>36</sup> A review of the existing implementation method indicates that it is not resulting in a satisfactory level of participation from Small C&I and Institutional customers, as previously described. The Company anticipates that a C&I CSP will be able to initiate more direct contact with Small C&I customers, Institutional customers, and trade allies about the EE&C programs. The CSP will have the technical expertise to help

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<sup>35</sup> Tables 5a-1, 5a-2, and 5a-3 in Appendix B to this Petition provides the program level estimated costs and savings and the differences between the current EE&C Plan and the proposed EE&C Plan. The residential portion of the Efficient Equipment Incentive Program increased by approximately \$7 million and the \$2.7 million from the New Home Program will be reallocated to the residential portion of the Efficient Equipment Incentive Program. As illustrated in Table 5a-3, Residential sector savings increased approximately 92,000 MWh/yr (20%) with a projected cost increase of approximately \$3 million (approximately 5%). Approximately \$800,000 is an increase in direct program costs and approximately \$2 million is an increase in common cost allocation, as described below.

<sup>36</sup> The Company has included this change in the non-minor section of this Petition out of an abundance of caution because adding a CSP does not fit the strict definition of a minor change provided by the Commission in the *Expedited Process Order*. However, as noted in this section, the proposed change has no impact on cost or savings, therefore, under a broad interpretation of what constitutes a minor change, the adding of a CSP could constitute minor change because it is a modification of a condition that does not increase the overall cost to a customer class.



customers and trade allies to identify, implement, and prepare rebate applications and supporting documentation for EE&C projects. This CSP can also support Large C&I customers, particularly to help them prepare their rebate applications and supporting documentation. Aggressive marketing is not needed for the Large C&I sector since that sector is ahead of target.

Furthermore, the C&I CSP can complete lighting spreadsheets for the customer, complete the rebate application and associated documentation, better verify baseline conditions (especially for lighting retrofits), and recruit trade allies especially for the Direct Discount portion of the Efficient Equipment Incentive Program. This type of additional support will help Small C&I customers, in particular, to implement projects, obtain rebates, and realize savings. This proposed change has no cost or savings impact on the specific programs or the EE&C Plan. Costs related to the CSP will be absorbed within the current budget for each applicable program. If this change is not implemented, PPL Electric will not achieve the Small C&I and Institutional savings and cost estimates in its black-line EE&C Plan.

#### **4. Adjustments to the Estimated Common Costs**

The Company proposes to adjust estimated common costs to reflect current projections. Common costs are applicable to more than one customer class or apply system-wide. Common costs include tracking systems, EM&V, overarching advertising and marketing, EE&C Plan development and revisions, and general management and administration. Common costs are allocated to customer sectors based on an allocation factor equal to the percentage of the EE&C costs directly assigned to each customer class to the total of EE&C costs directly assigned to all customer sectors.

The revised projections include the following:

1. Increase the projected total common cost approximately 13% from approximately \$38 million<sup>37</sup> to approximately \$43 million. *See* Black-line EE&C Plan Table 5a,

Table 110, and Section 7.5.

- The projected cost for EM&V increased from approximately \$8.5 million to approximately \$9.5 million. PPL Electric's current EE&C Plan underestimated the complexity of EM&V, including the impact and frequency of TRM changes, the Audit Plan, formal quarterly and yearly reporting requirements, and other EM&V. EM&V includes impact evaluations, process evaluations, cost-effectiveness evaluations, site visits and surveys, evaluation plans, monthly/quarterly/yearly reporting, QA/QC of transactions, technical working groups, baseline studies, market potential studies, and other activities related to the evaluation and performance of the Company's programs.
- The projected cost for EE&C Plan development and revisions increased from approximately \$1.5 million to approximately \$3.3 million. PPL Electric's current EE&C Plan underestimated the frequency, formality, and complexity of formal EE&C Plan revisions.
- The projected cost for PPL Electric's tracking system (Energy Efficiency Management Information System - "EEMIS") increased from approximately \$4.8 million to approximately \$6 million. PPL Electric's current EE&C Plan underestimated the complexity of this system including the impact and the frequency of TRM changes, the Audit Plan, formal reporting, and implementing and changing the Company's programs.
- The projected costs for items not subject to the Act 129 cost cap increased from approximately \$4 million to approximately \$5 million. The projected cost of the SWE's contract increased to add the baseline study, the market potential study, and the demand response study. The Commission also directed PPL Electric to conduct NTG studies each program year and to account for those costs not subject to the Act 129 cost cap.

2. Change the projected percentage of common costs allocated to each customer sector. Common costs are allocated to customer sectors based on the percentage

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<sup>37</sup> This amount includes approximately \$4 million for PPL Electric's share of SWE costs which is not a cost component of PPL Electric EE&C Plan and are not be subject to the two percent cap on the cost of its EE&C Plan. *October 2009 Order*, p. 41. These were not specifically shown in the common cost tables in the current EE&C Plan but are included in the Act 129 tariff rates. PPL Electric has included all costs in the black-line tables in the updated EE&C Plan.

of each sector's total direct cost. The percentage of total direct costs for each sector changed because of various direct cost reductions described in the minor changes portion of this Petition and because of the various cost changes described in the non-minor changes portion of this Petition.

- Residential increased from approximately 25.5% to approximately 27.1%.
  - Low-income decreased from approximately 14.8% to approximately 14.5%.
  - Small C&I is unchanged at approximately 35.3%.
  - Large C&I increased from approximately 13.8% to approximately 14.5%.
  - Institutional decreased from approximately 10.8% to approximately 8.6%.
3. Change the projected yearly distribution of common costs. This includes a true-up to Program Years 1 and 2 actuals instead of the per year estimates that were included in the current EE&C Plan. The actual spending rate differed from the assumptions in the current EE&C Plan. *See* Black-line EE&C Plan Table 114.

#### **5. Increase in the Projected Cost of the Direct Load Control Program**

PPL Electric proposes to increase the projected cost of the Direct Load Control Program from approximately \$11 million to approximately \$12 million. In addition, there are changes to the projected participation levels between sectors, including no allocation to the Low-income sector since PPL Electric will not income-qualify participants, a reduction to the Small C&I sector, and an increase to the Residential sector. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.2. The cost in the current EE&C Plan is an estimate that was prepared before PPL Electric awarded the contract for this program's turnkey CSP. The contract price for the Direct Load Control Program was greater than estimated in the current EE&C Plan.

**6. Increase in Participation and Costs for Residential Portion of Renewable Energy Program**

PPL Electric proposes to increase the number of units and total costs for residential PV and GSHP due to the large number of applications that were received when the program opened. This increased the cost of the residential portion of the program by approximately \$800,000. This proposed change results in reallocation of costs among different customer classes within the confines of the existing budget. *See* Tables 5a-1, 5a-2, and 5a-3. As the Company could not equitably prioritize all the applications that were received, PPL Electric accepted all applications up until PPL Electric notified the public that the Residential portion of the program had closed. *See* Black-line EE&C Plan Table 5a, Table 109, and Section 3.2.

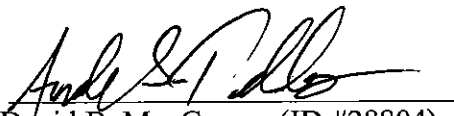
**V. NOTICE**

Pursuant to the *Expedited Review Order*, PPL Electric is serving copies of this filing on the Pennsylvania Office of Consumer Advocate, the Pennsylvania Office of Small Business Advocate, the Commission's Bureau of Investigations and Enforcement, and all other parties of record in PPL Electric's EE&C Plan proceeding (Docket No. M-2009-2093216). *See Expedited Review Order*, p. 19. PPL Electric will also post the black-line version of the EE&C Plan on its Act 129 website (<http://www.pplelectric.com/e-power/stakeholders/index.htm>).

## **VI. CONCLUSION**

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that the Pennsylvania Public Utility Commission approve the proposed modifications to the EE&C Plan, as set forth in this petition. PPL Electric requests that the Commission resolve issues, if possible, on the basis of comments and replies to comments on the proposed modifications and for all changes that cannot be resolved based upon comments and replies, PPL Electric, respectfully requests that the Commission approve the proposed changes to the EE&C Plan as quickly as is practically possible.

Respectfully submitted,



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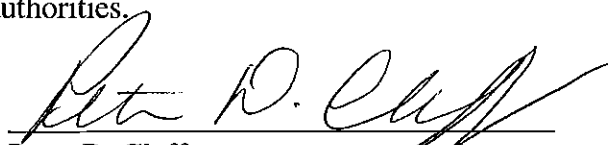
Date: February 2, 2012

Attorneys for PPL Electric Utilities Corporation

## VERIFICATION

I, Peter D. Cleff, being the Manager-Energy Efficiency Evaluation and Performance at PPL Electric Utilities Corporation, hereby state that the facts set forth in the foregoing documents are true and correct to the best of my knowledge, information and belief and that I expect that PPL Electric Utilities Corporation to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa.C.S. § 4904 relating to unsworn falsification to authorities.

Date: 1/30/12

  
Peter D. Cleff

# APPENDICES

# **APPENDIX A**

## **BLACK-LINE EE&C PLAN**



Before the  
**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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**PPL Electric Utilities Corporation**  
**Energy Efficiency and Conservation Plan**

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Docket No. M-2009-2093216

~~Compliance Filing to Reflect the Pa Public Utility Commission's  
Opinion and Order Entered January 28, 2011~~

[Proposed Changes- February 2, 2012](#)

~~Issued: February 28, 2011~~

~~Approved by the Pa Public Utility Commission on May 5, 2011~~

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## Glossary of Terms and Abbreviations

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ACEEE	American Council for an Energy Efficient Economy
The Act	Act 129 (Act of October 15, 2008, P.L. 1592, No. 129)
AMI	Advanced Metering Infrastructure
ARRA	American Reinvestment and Recovery Act
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
BPI	Building Performance Institute
CBO	Community-based Organization
CDD	Cooling Degree Days
CEE	Consortium for Energy-efficiency
CFL	Compact Fluorescent Lamp
CIP	Continuous Improvement Process
C&I	Commercial and Industrial
CSP	Conservation Service Provider
COP	Coefficient of Performance
DCED	Department of Community and Economic Development
DEER	Database for Energy-efficiency Resources
DEP	Department of Environmental Protection
DLC	Direct Load Control
ECM	Electrically Commutated Motor
EDC	Electric Distribution Company
EE&C	Energy-efficiency and Conservation
EER	Energy-efficiency Ratio
EEMIS	Energy-efficiency Management Information System
EERS	Energy-efficiency Resource Standards
EFMR	EFMR Monitoring Group, a PA non-profit agency
EIA	Energy Information Agency
EGS	Electric Generation Supplier
EM&V	Evaluation, Measurement and Verification
EPAct	Energy Policy Act of 2005
FTE	Full-time employee
GAMA	Gas Appliance Manufacturers Association
GPM	Gallons per minute
HDD	Heating Degree Days
HERS	Home Energy Rating System
HP	Horse Power
HVAC	Heating, ventilation, and air conditioning

IPMVP	International Performance Measurement and Verification Protocols
kWh	Kilowatt hour
kW	Kilowatt
LCR	Load Control Receiver
LEED	Leadership in Energy and Environmental Design – a national building certification program
LPD	Lighting Power Density
M&V	Measurement and Verification
MWh	Megawatt hour
MW	Megawatt
NPV	Net present value
NYMEX	New York Mercantile Exchange
PCF	Peak Coincidence Factor
PHFA	Pennsylvania Housing Finance Agency
PJM	A regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia
PPLICA	A coalition of large C&I customers served by PPL Electric
PV	Photovoltaic
QA/QC	Quality Assurance and Quality Control
RESNET®	Residential Energy Services Network
RFP	Request for Proposal
SAE	Statistically Adjusted Engineering
SEDA-COG	SEDA council of Governments, a regional, multi-county development agency
SEER	Seasonal Energy-efficiency Rating
SOX	Sarbanes Oxley Act (Pub.L. 107-204, 116 Stat. 745, enacted July 30, 2002)
SQL	A database computer language
<u>SWE</u>	<u><a href="#">Act 129 Statewide Evaluator</a></u>
TA	Trade Ally
TOU	Time of Use
TRC	Total Resource Cost
TRM	Technical Reference Manual
VFD	Variable Frequency Drive
WRAP	PPL Electric's LIURP program that will be expanded for Act 129

## Summary of Modifications

Following is a summary of the changes included in this EE&C Plan. Please see the Petition to Modify the EE&C Plan for more details.

**Minor Changes.** As defined by the Commission, there are three categories of “minor changes,” i.e., elimination of a measure, certain fund transfers, and adding a measure or changing the conditions of a measure:

1. **Discontinue Rebate for Dehumidifiers** - PPL Electric proposes to discontinue the rebate for dehumidifiers in the Efficient Equipment Incentive Program.
2. **Discontinue Rebate for ENERGY STAR Light Fixtures** - PPL Electric proposes to discontinue the rebate for ENERGY STAR light fixtures in the Efficient Equipment Incentive Program.
3. **Discontinue Rebate for Scanners, Printers and All Other Office Equipment** - PPL Electric proposes to discontinue the rebate for office equipment in the Efficient Equipment Incentive Program.
4. **Close Residential Portion of Renewable Energy Program Earlier than Expected** - PPL Electric proposes to close the residential photovoltaic (“PV”) and residential ground source heat pump (“GSHP”) portions of the Renewable Energy Program earlier than expected as each is fully subscribed.
5. **Close Government, Non-Profit, Institutional (“GNI”) Portion of Renewable Energy Program Earlier than Expected** - PPL Electric proposes to close the GNI portion of the Renewable Energy Program earlier than expected as the program is fully subscribed and reached its budget limit.
6. **Discontinue Rebate for Dishwashers and Clothes Washers** - PPL Electric proposes to discontinue the rebate for dishwashers and clothes washers in the Efficient Equipment Incentive Program.
7. **Discontinue Rebate for Time Clocks** - PPL Electric proposes to discontinue time clocks as an eligible measure in the Efficient Equipment Incentive Program.
8. **Discontinue Some Efficiency Levels for Heat Pumps and Central Air Conditioners** - PPL Electric proposes to discontinue the rebate for Seasonal Energy-Efficiency Rating (“SEER”) 14.5 heat pumps and SEER 14 and 15 central air conditioning in the Efficient Equipment Incentive Program.
9. **Discontinue Demand Control Defrost** - PPL Electric proposes to discontinue demand control defrost (commercial refrigeration) as an eligible measure in the Efficient Equipment Incentive Program.
10. **Discontinue Rebate for Chiller Pipe Insulation** - PPL Electric proposes to discontinue the rebate for chiller pipe insulation in the Efficient Equipment Incentive Program.



11. **Discontinue Rebate for Cooling Tower Two-Speed Fan Motor** - PPL Electric proposes to discontinue the rebate for Cooling Tower Two-Speed Fan Motor in the Efficient Equipment Incentive Program.
12. **Discontinue Rebate for Programmable Thermostats** - PPL Electric proposes to discontinue the rebate for residential and commercial programmable thermostats in the Efficient Equipment Incentive Program.
13. **Revise Bonus Rebate Structure for Energy Assessment & Weatherization Program** – The Company proposes to discontinue the rebate (up to \$100) for air infiltration sealing in the Energy Assessment & Weatherization Program.
14. **Consolidate Cost Categories in EE&C Plan** - PPL Electric proposes to consolidate the CSP cost estimate breakdown in EE&C Plan from two (2) items (CSP Labor; CSP Material/Supplies) to one (1) item (CSP Costs).
15. **Transfer Funds from the Large C&I Portion of the Efficient Equipment Incentive Program to the Large C&I Portion of C&I Custom Incentive Program** - PPL Electric proposes to reallocate approximately \$10 million Large C&I direct program costs from the Efficient Equipment Incentive Program to the Custom Incentive Program.
16. **Transfer Funds from the Small C&I Portion of the C&I Custom Incentive Program to the Small C&I Portion of the Efficient Equipment Incentive Program** - PPL Electric proposes to reallocate approximately \$13 million Small C&I program costs from the C&I Custom Incentive Program to the Efficient Equipment Incentive Program.
17. **Reduce Projected Participation, Savings, and Costs for the Small C&I Sector** - PPL Electric proposes to reduce the projected participation and savings for the Small C&I sector for most measures (lighting, HVAC, motors, appliances, water heating, etc.) in the Efficient Equipment Incentive Program and the C&I Custom Incentive Program. The overall Small C&I savings reduction is approximately 267,000 MWh/yr (44%) and 37 MW (44%). The overall Small C&I cost reduction is approximately \$1 million (1%).
18. **Reduce the Projected Cost of the Load Curtailment Program** - PPL Electric proposes to decrease the projected cost of the Load Curtailment Program from approximately \$15 million to approximately \$11 million. The change is due to estimating accuracy and removal of an allowance for calling additional peak load hours. The cost in the current EE&C Plan is an estimate that was prepared before PPL Electric awarded the contract for this program's turnkey CSP. The contract price for the Load Curtailment Program is less than estimated in the current EE&C Plan. Also, PPL Electric has removed an allowance of approximately \$2 million for calling additional hours of load curtailment. That allowance was for additional hours to replace previously called events that likely will not be in the top 100 hours because they were replaced by higher loads later in the summer. PPL Electric deleted this allowance because it would have increased direct program costs for the Large C&I customer sector above the current EE&C Plan estimate and PPL Electric is diligently trying to keep those costs within the current budget for that sector. However, PPL Electric notes that

calling additional hours during the summer of 2012 remains a cost exposure for this program. Since the 100 actual peak load hours are not known until after-the-fact (when the summer 2012 peak load reduction period ends on September 30, 2012), PPL Electric will not know the likelihood and magnitude of this cost exposure until September 2012.

PPL Electric also reduced the estimated energy savings from this peak load reduction program from 15,000 MWh/yr to 0 because it is not clear if these types programs provide energy reductions. Until PPL Electric enrolls customers in the Load Curtailment Program and better understands the specific actions customers take to reduce peak load during each hour of a peak load reduction event, PPL Electric cannot determine which customers will merely shift energy consumption (from peak periods to off-peak periods) and which customers will permanently reduce energy consumption (such as shutting off lights during the peak period).

19. **Re-forecast HVAC Tune-up and Revise Incentives** - PPL Electric proposes to adjust savings and cost assumptions between program years for HVAC Tune-Up Program to reflect actual experience and reduce the projected total savings and costs this program.
20. **Adjust Participant Level and Savings for Behavior & Education Program** - PPL Electric proposes to increase the participation levels and savings for the behavior program with no additional cost. PPL Electric proposes to reduce the measure life to one year and, therefore, the savings count only in one program year and do not compound over multiple years.
21. **Change Projected Participation & Savings for Appliance Recycling Program; Reduce Total Projected Program Savings and Costs** - PPL Electric proposes to revise the projected number of recycled refrigerators, freezers and window air conditioners in the Appliance Recycling Program to reflect more realistic targets. The Company also proposes to reduce the per-unit savings to conform to 2011 and 2012 TRM changes.
22. **Add Ductless Heat Pumps** - PPL Electric proposes to add residential and commercial ductless heat pumps as an eligible measure in the Efficient Equipment Incentive Program.
23. **Add and Modify Measures in Compact Fluorescent Lighting Campaign Program and Rename the Program**- PPL Electric proposes to expand the eligible products in the Compact Fluorescent Lighting Campaign program to include residential light-emitting diodes ("LEDs") and other efficient lighting technologies to stimulate their use and to expose customers to those technologies. The Company also proposes to change the name of the program to "Residential Lighting." This proposal does not increase the cost of this program.
24. **Add C&I LED Lighting** - LEDs for C&I were added to the 2011 TRM and PPL Electric proposes to add LED lighting to the Efficient Equipment Incentive Program.

25. **Add Packaged Terminal Air Conditioners and Packaged Terminal Heat Pumps** - PPL Electric proposes to add packaged terminal air conditioners and packaged terminal heat pumps as eligible measures in the Efficient Equipment Incentive Program.
26. **Add Heat Pump Water Heaters to WRAP and adjust WRAP Projected Savings and Participation** - PPL Electric proposes to add heat pump water heaters as an eligible measure for low-income WRAP.
27. **True-Up Projections of Peak Load Reductions from Energy Efficiency Measures** - PPL Electric proposes to adjust the projected peak load reduction from energy efficiency measures/programs to reflect current results, trends, and changes to the TRM.
28. **Change Rebate and Estimated Participation Level for ENERGY STAR Refrigerators** - PPL Electric proposes to reduce the rebate from \$50 to \$25 and increase the expected number of units in the Efficient Equipment Incentive Program from 21,860 to approximately 56,000.
29. **Change Eligibility Requirements for LED Traffic Lights** - PPL Electric proposes to streamline rebates and change the eligibility requirements for LED traffic lights in the Efficient Equipment Incentive Program. The proposed changes include: red and green lights will have the same rebate for the same size light; rebates for yellow LED traffic lights are discontinued because they have no savings; and eligibility is limited to replacements of incandescent traffic lights, i.e., no rebate if LED traffic light/bulb replaces another LED traffic light/bulb because there would be no savings.
30. **Change Eligibility Requirements for Lighting Power Density Reduction (New Construction Lighting)** - PPL Electric proposes to change the minimum required lighting power density ("LPD") reduction versus code from 15% to 5% in the Efficient Equipment Incentive Program.
31. **Change Estimated Participation Level for Room Air Conditioners** - PPL Electric proposes to reduce the expected number of rebates for room air conditioners in the Efficient Equipment Incentive Program from approximately 38,000 to approximately 9,000 to reflect current performance.
32. **Change Eligible Motor Efficiencies & Rebates** - PPL Electric proposes to increase the minimum motor efficiencies in the Efficient Equipment Incentive Program to align to revised industry standards that became effective December 2010 and were updated in the TRM. As a result, some efficiency levels are no longer eligible for a rebate.
33. **Change Residential LED Lighting Eligibility** – The Company proposes to clarify that the prescriptive rebate for LED fixtures or retrofit kits in the Efficient Equipment Incentive Program applies to residential use only. C&I LED lighting will be covered in the Company's C&I Custom Incentive Program or through C&I lighting rebates at \$0.10 per kWh/yr in the Efficient Equipment Incentive Program.

34. **Clarify Rebates Caps** - PPL Electric proposes a general clarification for all programs and measures, except for the C&I Custom Incentive Program. Specifically, the Company clarifies that rebates paid cannot exceed the cost of the measure. This limitation was implied, but was not specifically mentioned in the EE&C Plan. In the C&I Custom Incentive Program, the rebate cap is unchanged and cannot exceed 50% of the project cost.
35. **Change Projected Participation for Heat Pump Water Heaters** - PPL Electric proposes to increase the projected number of rebates for heat pump water heaters from 230 to 2,200 in the Efficient Equipment Incentive Program.
36. **Change Rebate for C&I Custom Incentive Program Technical Studies and Add Expiration Dates to Ensure Customers Can Implement the Project by May 2013** - PPL Electric proposes to change the rebate and eligibility requirements for C&I Custom Incentive Program technical studies. Rebates for technical studies will be calculated at the lesser of the following values:

If the study is a comprehensive audit of an entire facility, the reimbursement will be calculated as 10 cents per square foot;

For a feasibility study that addresses specific equipment or system, the reimbursement will be calculated as 0.5 cents per kWh/yr;

Studies will be capped at 25% of the potential custom incentive, 100% of the study cost, or \$50,000, whichever is less.
37. **Change Rebate for De-Lamping** - PPL Electric proposes to change the rebate structure in the Efficient Equipment Incentive Program for lighting retrofits that include de-lamping. Instead of one (1) de-lamping measure, the Company proposes five (5). This will better align rebates with the savings, i.e., the specific number of lamps removed.
38. **Change Eligibility Requirements for Maximum Number of Air Conditioners in Appliance Recycling Program** - PPL Electric proposes to increase the maximum number of recycled air conditioners per customer from two (2) to four (4) in the Appliance Recycling Program. In select situations, such as multi-family housing units with master metering, the Company will allow more than 4 room air conditioners.
39. **Increase Projected Participation/Savings for Large C&I** - PPL Electric proposes to increase projected Large C&I savings by approximately 91,000 MWh/yr within the current budget.
40. **Increase Projected Participation and Savings for Compact Fluorescent Lighting Program; Reduce Projected Cost** - PPL Electric proposes to increase projected savings in the Compact Fluorescent Lighting Campaign program by approximately 100,000 MWh/yr within the current budget. PPL Electric proposes to decrease the projected cost of this program approximately \$2.5 million.
41. **Change Rebate Structure for T5, T8, High Performance T8 Lighting** - PPL Electric proposes to change the rebate structure from per fixture to per lamp for

- T5, T8, and high performance T8 lighting in the Efficient Equipment Incentive Program.
42. **Change Occupancy Sensor Rebate** - PPL Electric proposes to change the rebate for an occupancy sensor ("OS") from "up to \$45" to "up to \$45; up to \$25 if coupled with daylighting controls" in the Efficient Equipment Incentive Program.
43. **Change Eligibility Requirement for C&I Wall & Ceiling Insulation** - PPL Electric proposes to change the eligibility requirement in the Efficient Equipment Incentive Program for C&I Wall and Ceiling Insulation for existing structures from "current ASHRAE standard + R11" to "a minimum of R11 and must meet or exceed ASHRAE." PPL Electric also proposes to revise eligible space conditioning types in the Efficient Equipment Incentive Program and the Audit & Weatherization Program to align with the HVAC baseline efficiencies in Table 3-21 of the 2011 TRM.
44. **Change Eligibility Requirement for T5 and T8 Light Fixtures** - PPL Electric proposes to change eligibility requirement in the Efficient Equipment Incentive Program for T5 and T8 light fixtures from "Must replace T12 (lamp & electronic ballast)" to "Replace fixture with T5 or T8 lamps and ballast."
45. **Clarify Eligibility Requirement for Display Cases** - PPL Electric proposes to clarify the eligibility requirement for Display Cases in the Efficient Equipment Incentive Program. The proposed modification includes changing "ENERGY STAR" on the rebate chart to "See incentive application for details" and updating the application to align with requirements of 2011 TRM. PPL Electric also proposes to add "open air units" to the list of case types that do not qualify for an incentive in the Efficient Equipment Incentive Program.
46. **Clarify Eligibility for Energy Assessment & Weatherization Audit Rebate** - PPL Electric proposes to clarify eligibility for Residential Energy Assessment & Weatherization Program. The proposed modification includes changing the language for the audit rebate eligibility requirement from "air conditioning or electric heat" to "central air conditioning or main source electric heat."
47. **Change Classification of WRAP and E-Power Wise Measure Costs and Incentives** – In accordance with the Commission's 2011 *Total Resource Cost Test Order*, Docket No. M 2009-2108601 (Order Entered August 2, 2011), the cost of direct install measures for WRAP and E-Power Wise should be classified as "CSP Direct Program Costs," not "incentives." Previously, PPL Electric classified these as "incentives" in its quarterly and annual reports. PPL Electric will make this proposed change effective in Program Year 3 and will not adjust the prior costs in its accounting systems, tracking systems, or reports.
48. **General Text Revisions** - PPL Electric proposes to update the text throughout the EE&C Plan to reflect current conditions.
49. **Chiller Efficiency** - PPL Electric proposes to change the efficiency requirements for chillers in the C&I Custom Incentive Program to conform to revised Table 3-25 in the 2011 TRM.

50. **High Bay Lighting Eligibility Requirements** - The Company proposes to change eligibility requirements, in the Efficient Equipment Incentive Program, for T5 and T8 high bay fixtures. The modifications include changing ">125 watts" to ">100 watts," and deleting the requirement to install fixtures in an area with ceiling height greater than 15 ft.
51. **Clarify Eligibility Requirements for Commercial CFLs** - The Company proposes to delete the requirement that commercial CFLs must be purchased after July 1, 2010 to be eligible for a rebate in the Efficient Equipment Incentive Program. That requirement created customer confusion, since all other measures in that program are retroactive to July 1, 2009.
52. **Change Incentive for Pin-Based CFLs** - PPL Electric proposes to change the rebate for pin-based CFLs from \$30 per fixture to \$30 per fixture for commercial customers and \$5 per fixture for residential customers in the Efficient Equipment Incentive Program.
53. **Increase Estimated Participation for Air Source Heat Pumps, Dishwashers, and Clothes Washers. Increase Residential Lighting Retrofits. Adjust Rebates for Air Source Heat Pumps** - PPL Electric proposes to increase the estimated participation levels for these measures. Customers have shown more interest than estimated in PPL Electric's current EE&C Plan. Air source heat pumps increased from approximately 4,000 to approximately 16,500. Dishwashers increased from approximately 7,000 to approximately 25,000. Clothes washers increased from approximately 2,000 to approximately 44,000. The EE&C Plan assumed no residential lighting retrofits but some residential customers have replaced lighting such as T-12 linear fluorescent fixtures. PPL Electric has proposed discontinuing some of these measures as separate minor changes in this Petition. The Company proposes to reduce the rebate for SEER 15 ASHP from \$325 to \$100 and to reduce the rebate for SEER 16 ASHP from \$425 to \$200. The lower rebates should be sufficient to achieve the desired participation level and stay within budget.
54. **Reduce Estimated Participation for Central Air Conditioners, ENERGY STAR Light Fixtures, Programmable Thermostats, and High Efficiency Furnaces. Adjust rebates for Central Air Conditioners.** PPL Electric proposes to decrease the estimated participation levels for these measures. Customers have shown less interest than estimated in PPL Electric's current EE&C Plan. Central air conditioners decreased from approximately 6,000 to approximately 5,000. ENERGY STAR light fixtures decreased from approximately 42,000 to approximately 700. Programmable thermostats decreased from approximately 10,000 to approximately 600. High efficiency furnaces for RTS customers decreased from approximately 500 to approximately 300. PPL Electric has proposed discontinuing some of the measures as separate minor changes in this Petition. The Company proposes to reduce the rebate for SEER 16 central air conditioners from \$300 to \$100. The lower rebate should be sufficient to achieve the desired participation level and stay within budget.
55. **Add a Small C&I Direct Install Option to the Efficient Equipment Incentive Program** - PPL Electric proposes to add a direct install option for customers.

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called Direct Discount Services, which uses PPL Electric's network of authorized contractors to market, propose, and install lighting and refrigeration measures for Small C&I customers. Incentives are based on kWh/yr saved for each measure and are paid to the installation contractor, minimizing a customer's cash outlay. See Black-line EE&C Plan at Section 3.3. Also, the authorized contractor completes and processes all required paperwork including the complex PA Lighting Spreadsheet.

56. **Add Direct Mail Option for the E-PowerWise Kits -** PPL Electric proposes to add a direct mail option for E-PowerWise kits. See Black-line EE&C Plan at Section 3.2.1. The Company will mail, directly to qualified customers, energy conservation educational material and a card which the customer would return in order to receive an energy savings kit.

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**PROPOSED NON-MINOR CHANGES.** Please see the Petition to Modify the EE&C Plan for more details:

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1. **Elimination of the TOU Program**

PPL Electric proposes to delete the TOU Program from its EE&C Plan. However, as part of its Default Service requirements, the Company will continue to offer time-of-use rates to all customers that have been provided with a smart meter.

2. **Elimination of the New Home Program**

PPL Electric proposes to eliminate the New Home Program. Due to the overall state of the economy, the new home market is not likely to rebound quickly enough to achieve material savings in PY3 and PY4. In addition, savings are very low compared to estimates in the original EE&C Plan because new building codes (e.g., IECC 2009 that became effective in 2010) and likely changes to TRM to incorporate those new codes will reduce new home savings that could be credited to Act 129 EE&C plans. Moreover, the measures in this program are also available in the Efficient Equipment Incentive Program and can be utilized by new home builders or owners.

3. **The Addition of a CSP for the C&I and Institutional Portions of Efficient Equipment Incentive and Custom Incentive Programs**

PPL Electric proposes to add a CSP for the C&I portions of the Efficient Equipment Incentive and Custom Incentive Programs, instead of self-managing these programs.

4. **Adjustments to the Projected Common Costs**

The Company proposes to adjust estimated common costs to reflect current projections.

5. **Increase in the Projected Cost of the Direct Load Control Program**

PPL Electric proposes to increase the projected cost of the Direct Load Control Program from approximately \$11 million to approximately \$12 million. In addition, there are changes to the projected participation levels between sectors including no allocation to the Low-income sector since PPL Electric will not income-qualify participants, a reduction to the Small C&I sector, and an increase to the Residential sector.

6. Increase in Participation and Costs for Residential Portion of Renewable Energy Program

PPL Electric proposes to increase the number of units and total costs for residential PV and GSHP due to the large number of applications that were received when the program opened. This increased the cost of the residential portion of the program by approximately \$800,000.



Overview of Plan

**1.1. Summary Description of Plan, Plan Objectives, and Overall Strategy to Achieve Energy-efficiency and Conservation Goals.**

**1.1.1. Summary Description of Plan**

PPL Electric Utilities Corporation (PPL Electric or the Company) hereby submits its Revised Energy-efficiency and Conservation Plan (EE&C Plan or the Plan) in compliance with Section 2806.1 (b)(1)(i) of Act 129 (The Act). This filing is being made pursuant to the January 16, 2009 Implementation Order (Implementation Order) of the Pennsylvania Public Utility Commission (the Commission) at Docket M-2008-2069887 and the Commission's Opinion and Order entered on October 26, 2009 at Docket M-2009-2093216. The ~~proposed~~ Plan describes an extensive portfolio of energy-efficiency, conservation, and peak load reduction measures, programs, and education. The proposed Portfolio consists of the following programs, all of which are voluntary for customers:

1. Efficient Equipment Incentive Program
2. Residential Energy Assessment & Weatherization
3. ~~Compact Fluorescent Lighting Campaign~~ Residential Lighting Program (formally called "CFL Program")
4. Appliance Recycling Program
5. ~~ENERGY STAR® New Homes Program~~
5. Renewable Energy Program
6. Direct Load Control Program
8. ~~Time of Use Rates~~
7. Energy-efficiency Behavior & Education
8. Low-income WRAP
9. Low-income E-Power Wise
10. Commercial and Industrial Custom Incentive Program
11. HVAC Tune-Up Program
12. Load Curtailment Program

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These ~~14~~ programs are designed to meet the goals established by Sections 2806.1 and 2806.2 of Act 129, as outlined in the January Order:

"This program requires an electric distribution company ("EDC") with at least 100,000 customers to adopt a plan, approved by the Commission, to reduce electric consumption by at least one percent (1%) of its expected consumption for June 1, 2009 through May 31, 2010, adjusted for weather and extraordinary loads. This one percent (1%) reduction is to be accomplished by May 31, 2011. By May 13, 2013, the total annual weather-normalized consumption is to be reduced by a minimum of three percent (3%). Also, by May 31, 2013, peak demand is to be reduced by a minimum of four-and-a-half percent (4.5%) of the

EDC's annual system peak demand in the 100 hours of highest demand, measured against the EDC's peak demand during the period of June 1, 2007 through May 31, 2008."<sup>1</sup>

These programs are designed as a portfolio of options which, ~~once implemented~~, will offer PPL Electric's customers a cost-effective, equitable, flexible, and wide-ranging set of programmatic choices, incentive options, information, and educational opportunities. In its October 26, 2009 Opinion and Order, the Commission approved ~~all of~~ these programs together as an integrated portfolio designed to meet Act 129 energy-efficiency and conservation goals in PPL Electric's service territory.<sup>2</sup> Further revisions were approved by the Commission on February 17, 2010.<sup>3</sup> On September 15, 2010, PPL Electric filed a petition seeking approval to change certain aspects of the previously approved EE&C Plan. After reviewing comments and reply comments filed in response to the Company's compliance filing, the Commission approved PPL Electric's petition on May 6, 2011.<sup>4</sup>

### 1.1.2 Plan Objectives

The requirements of Act 129 are wholly consistent with PPL Electric's business philosophy. PPL Electric has a history of striving for excellence in customer service. To build on that, over the past several years PPL Electric has developed and implemented programs that support more efficient use of electricity. Act 129 creates a platform for expanding these activities with programs that offer more customer choices for the wise use of electricity; help customers reduce their electricity consumption and save money without diminishing the quality of their electric services; reduce the need for new, more costly and resource-intensive electricity supplies; and support local economic development.

PPL Electric's portfolio of programs is designed to provide these customer benefits and to meet the energy reduction, peak load reduction, and other requirements set forth in Act 129. Specifically, PPL Electric's Plan:

- Includes measures and programs to achieve PPL Electric's approved electricity consumption and peak load reduction targets of:
  - 1% energy savings by 2011 = 382,000 MWh~~/yr~~
  - 3% energy savings by 2013 = 1,146,000 MWh~~/yr~~
  - 4.5% peak load reduction by 2013 = 297 MW
- Is designed to comply with the designated expenditure cap of 2% of 2006 Annual Revenues for each year of the four-year plan, which equates to an average of approximately \$61.5 million per year for four program years and approximately

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<sup>1</sup> Implementation Order at page 2.

<sup>2</sup> Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan, Docket No. M-2009-2093216 (Order Entered October 26, 2009).

<sup>3</sup> Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan, Docket No. M-2009-2093216 (Order Entered February 17, 2010).

<sup>4</sup> Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan, Docket No. M-2009-2093216 (Order Entered May 6, 2010).

\$246 million for the entire Plan period. The first program year is 6/1/2009 – 5/31/2010 and subsequent program years continue on that cycle until 5/31/2013.

- Designates activities to achieve 10% of total Plan reductions from institutional facilities—local governments, school districts, colleges, and nonprofit organizations. Institutional customers are eligible for the same programs as their underlying rate class (typically small or large commercial and industrial) but marketing and other delivery details will be designed to address the specific needs of institutional customers.
- Designates activities to achieve the required proportion of reductions from low-income customers. In accordance with the Commission's Low-Income Working Group Report dated April 27, 2010, an EDC is compliant with the Act 129 low-income requirement if the number of measures available to low-income customers is consistent with the percentage of low-income household usage shown in the last column on Table 1 of the LIWG Report. For PPL Electric, that percentage is 8.64%. PPL Electric's EE&C Plan is designed to dedicate (make available) at least 8.64% of the total measures to low-income customers. Approximately 63% of the total unique measures in PPL Electric's EE&C Plan are available to low-income customers. This percentage of measures available to low-income customers significantly exceeds the proportion required by Act 129 (8.64% in PPL Electric's case). Those measures are expected to achieve approximately 62% of the energy consumption and peak load reductions from the low-income customer sector. In addition, based on the program year 2 impact evaluation, it is likely that approximately 6% of the total energy savings will be from low-income customers including participation in non low-income programs. A list of measures is included in Appendix G.
- Offers at least one energy-efficiency and one demand response program to every customer class.
- Provides a reasonable mix of energy-efficiency and demand response programs for all customers.
- Is cost-effective, based on a Total Resource Cost Test (TRC) criterion, for the entire portfolio.
- Allocates the cost of measures to the customer class(es) that receive(s) the benefit of those measures.
- Defines the roles and responsibilities of Conservation Service Providers.
- Leverages economies of scale and other efficiencies by offering programs across multiple customer sectors, as appropriate.
- Includes procedures to measure, evaluate, and verify performance of the programs and the Plan as a whole. These procedures are described in PPL Electric's Evaluation Plans which are submitted separately and approved by the Commission's Statewide Evaluator.

- Outlines a process for annual, independent evaluation of the results and the cost-effectiveness of the Plan using the Standards for the Participation of Demand Side Management Resources—Technical Reference Manual at Docket No. M-00051865 (TRM), wherever applicable.
- Proposes a mechanism for recovery of all applicable costs.

The Plan described herein includes a range of energy-efficiency and demand response programs targeted to every customer segment in PPL Electric's service territory. These programs are the key components of an extensive electric energy-efficiency initiative designed to achieve ~~in excess of~~ approximately 1,361,979 ~~1,275,740~~ MWh/yr of reduced energy consumption and approximately 334–321 MW of peak demand savings. In developing the proposed program approach, PPL Electric considered successful energy-efficiency program models around the country, ~~and~~ its own strategic objectives to position the Company as a leading provider of energy-efficiency services to its customers, and the actual performance of PPL Electric's programs in years 1 and 2.

The Plan also reflects significant input from a large group of external stakeholders. Input for the original EE&C Plan was gathered from three large group meetings, which included break-out sessions and many meetings with individual stakeholders. PPL Electric conducts stakeholder meetings twice a year and reviews progress, proposed EE&C Plan changes, and other related topics at those bi-annual meetings. In addition, PPL Electric maintains a stakeholder website to inform stakeholders. Furthermore, the Plan incorporates elements of PPL Electric's on-going coordination activities with Pennsylvania's other EDCs, including ideas, insights, and, where appropriate, consistent program features, design elements, and implementation details. The Plan also incorporates significant input from PPL Electric's CSPs, Trade Allies, and program participants.

### 1.1.3 Overall Strategy to Achieve Energy-efficiency and Conservation Goals

PPL Electric's program design and implementation strategy includes several key features the Company has identified as critical to achieving the proposed Plan's objectives, including:

- Ongoing customer support, education, guidance and follow up to encourage customers to choose energy-efficiency and conservation options and adopt sustainable energy-efficient practices.
- Flexibility to allow customers to use their own resources and trade allies and to combine incentives from multiple programs or from other sources to create the best solution for any facility or system.
- Precision marketing that blends PPL Electric's in-house resources with the external expertise of program Conservation Service Providers (CSPs) and trade allies to match program outreach strategies to the unique needs of various customer classes and market segments.
- Engaging trade allies, community-based organizations, and other local market participants through outreach, coordination, training, and potential co-marketing to ensure they are aware of PPL Electric's programs, are able to articulate

program features and benefits to customers, and support customers' decisions to take energy-efficiency and demand reduction actions.

- Where appropriate, using existing market delivery channels to provide efficient, simple participation processes from the customer's perspective. Where possible, PPL Electric does not dictate where the customer must obtain energy-efficiency products and services. Those decisions are the customer's.
- Reliance on CSPs, trade allies (TAs), and market partners to effectively promote and deploy programs. PPL Electric expects to utilize approximately ~~10-12~~ CSPs to deliver services in support of its EE&C programs, with some CSPs operating as turnkey program delivery contractors, and others providing specialized functions across multiple programs.
- Programs that are easy for the customers to understand, accept, enroll, and participate, while ensuring the Company collects the data and documentation required by the Audit Plan, TRM, SWE Guidance Memos, and other Commission requirements.
- Strategic delivery of programs across multiple customer classes where the program offering and delivery process is compatible with multiple customer and building types. For example, PPL Electric's Efficient Equipment Incentive Program is available to all customer classes. The program offers different equipment measures appropriate to each customer class and building type, but utilizes ~~identical~~ similar administrative and delivery mechanisms as well as similar ~~marketing and~~ quality assurance approaches to reduce customer confusion and leverage efficiencies associated with delivery of discreet program functions.
- ~~• Immediate development of the infrastructure (staff, systems, processes, CSPs, trade allies, market partners, etc.) necessary to launch programs upon Commission approval and to ramp up quickly. PPL Electric expects most of this infrastructure to be in place by November 2009.~~
- For many programs, retroactive customer eligibility for customers who install or commit to install qualifying equipment and services between July 1, 2009 and Commission approval of the Plan. In addition to increasing PPL Electric's likelihood of meeting its targets, especially the 2011 energy reduction target and the peak load reduction target, this approach will allow some customers to take advantage of Federal stimulus funding through the American Recovery and Reinvestment act (ARRA), along with Act 129 funding, to install energy-efficiency projects.

## **1.2. Summary description of process used to develop the EE&C Plan and key assumptions used in preparing the Plan.**

### **1.1.2 Plan Development Process**

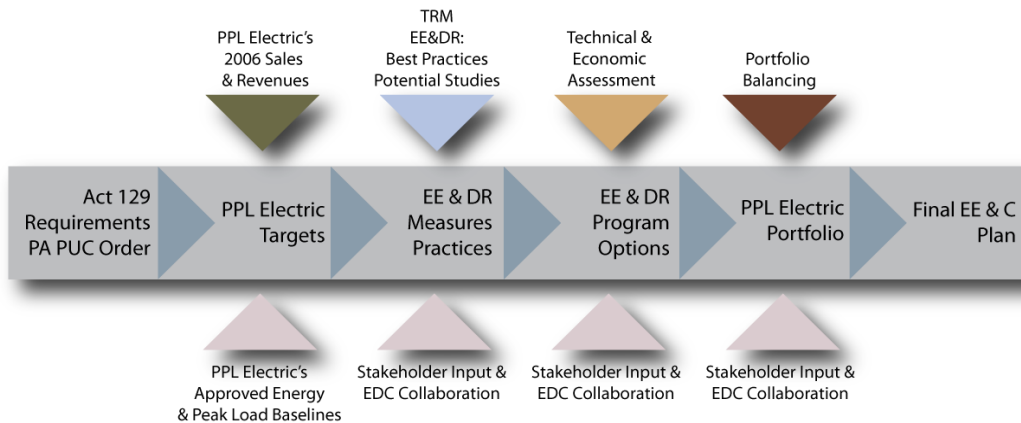
At the outset, PPL Electric realized that developing an EE&C Plan to comply with all of the requirements of Act 129 would require significant expertise in this area and a significant commitment of resources. Consequently, the Company assigned a full-time Project Manager to the task and created an in-house team that includes representatives from all affected areas of the Company. In addition, PPL Electric hired the Cadmus

Group, a nationally-renowned environmental and energy consulting firm, to assist in the preparation of the Plan.

The requirements of Act 129 formed the basis for developing the Plan. As illustrated in Figure 1, the first step in the process was to carefully review Act 129 to determine: the broad objectives, energy and peak load reduction targets, allowable annual expenditures for PPL Electric, and all other requirements. The Company used energy consumption forecasts (and associated reduction targets) and average historical peak loads (and associated reduction targets) approved by the Commission in an Order entered on March 30, 2009, at Docket No.M-2008-2069887. Actual total annual revenue as of December 31, 2006, was used to determine the 2% expenditure cap established by Act 129.

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**Figure 1. Process for Developing the Plan**



These targets established parameters for constructing a portfolio of measures and programs targeting different customer classes. For each sector, a set of program concepts was developed based on best program practices and lessons learned in utility-sponsored or publically funded energy-efficiency programs. The programs were formulated to satisfy the equity requirements of Act 129 by ensuring a range of program options would be available to all customer classes and market segments, and to meet the reduction targets for governmental/non-profit and low-income sectors. The process for development of the Plan consisted of four basic elements: 1) establishing a set of guiding principles; 2) assessing energy-efficiency and conservation resource potentials; 3) developing and balancing the portfolio to meet all of the requirements of the Act; and 4) providing opportunities for stakeholders and other Pennsylvania EDCs to participate and contribute to Plan development.

#### 1.2.1.1. Principles Guiding Development of the Plan

PPL Electric is committed to a long-term investment in energy-efficiency. The following guiding principles served as a backdrop to development of the measures, programs, and implementation strategies in PPL Electric's portfolio.

- **Customer focus:** PPL Electric has a long history of acting as an energy advisor to its customers. Its Plan was developed to empower customers to take energy-efficiency actions that save money and support their environmental goals in a way that is simple to understand, minimizes confusing program variables and bureaucracy, and optimizes customer benefits to the greatest extent possible.
- **Compliance with Act 129:** PPL Electric takes its regulatory obligations seriously and welcomes the opportunity to offer energy-efficiency and conservation programs to its customers. Consistent with the requirements of Act 129, PPL Electric has sought significant stakeholder input, and has developed a portfolio of cost-effective programs to generate the energy and demand savings needed to meet the goals outlined by the Pennsylvania legislature.
- **Leadership in efficiency and conservation:** PPL Electric's EE&C Plan builds on a base of energy-efficiency initiatives undertaken over the past several years. PPL Electric's efforts to engage customers in energy-efficiency include: offering an online home energy use analysis tool; hourly and daily electricity use information via the Internet; advanced building science training and subsidized diagnostic tools to support a nascent home energy auditor industry in Pennsylvania; financial incentives for residential energy audits; rebates for commercial lighting projects; education and community outreach to promote energy-efficiency; and free CFLs. In addition, PPL Electric has installed smart meter technology at every customer site in its service territory.
- **Proven solutions and "deep" sustainable savings:** PPL Electric's programs focus on proven, cost-effective energy-efficiency technologies that can be installed alone or as part of an extensive path to long-term, sustainable energy-efficiency. PPL Electric will seek to optimize the "depth" of energy savings for each customer facility or home through extensive efficiency strategies, and will encourage participation in its multiple programs and incentives wherever such participation makes sense for customers.
- **Flexibility and options:** PPL Electric's Plan is based on a strategic approach that is targeted, yet flexible enough to adjust and expand as warranted by changing market conditions. It offers customers a logical continuum of actions coupled with increasingly valuable incentives for cost-effective efficiency strategies. The Plan provides multiple program options, education, information, financial incentives, and services to support customers' energy-efficiency actions. Some programs allow customers to make use of existing technical analyses, make decisions based on organizational priorities, and employ a phased implementation approach.
- **Market transformation:** In keeping with the intent of the Act and the Company's internal principles, PPL Electric's Plan is designed to stimulate broader market acceptance and installation of energy-efficient technologies. PPL Electric will take aggressive steps to assist its customers in the installation of low-cost, high-savings energy-efficiency measures – such as Compact Fluorescent Lamps (CFLs) – that provide sustainable savings over time. The Plan further supports innovative technologies, particularly through its proposed commercial and industrial (C&I) Custom Incentive program, and includes provisions for training and education, outreach to trade allies and stakeholders, and an active customer education campaign.

- **Commitment to low-income customers.** Act 129 continues PPL Electric's strong commitment to helping low-income customers reduce their electricity consumption and save money. PPL Electric's WRAP is the Company's successful, valued LIURP program that will be expanded for Act 129. PPL Electric will also offer ~~new~~ all residential energy-efficiency and demand response programs to low-income ~~program~~ customers as part of its Plan.

#### 1.2.1.2. Assessment of Resource Potentials

Energy-efficiency potential studies are an important tool allowing program planners to understand the energy savings potential available in each market sector and to design programs around achievable goals. PPL Electric utilized the report, *Potential for Energy-efficiency, Demand Response, and Onsite Solar Energy in Pennsylvania*, published May 1, 2009, by the American Council for an Energy Efficient Economy (ACEEE),<sup>5</sup> as a primary resource from which to evaluate a number of energy conservation and demand response strategies for its original EE&C Plan.

The ACEEE report determined the cost-effective potential for energy savings in the state by "characterizing the incremental costs and energy savings for a number of efficient technologies or measures for residential, commercial, and industrial consumers." ACEEE estimated the cost-effectiveness of each measure and determined the total energy-efficiency "resource potential" for cost-effective measures. A policy analysis was then conducted to estimate the amount of savings that could be achieved from certain policies. This analysis "assumes a reasonable program and policy penetration rate, and therefore is less than the overall resource potential."

The study did not estimate "achievable potential" at a measure or end-use level. End-use level estimates were only presented for economic potential, and thus cannot be used directly in constructing a portfolio. They are useful, however, in determining the broad areas in which efficiency programs should focus, and in predicting cost-effective measures.

The following key findings of the ACEEE report proved useful for portfolio planning:

- There are significant, potential, cost-effective savings opportunities in the residential, commercial, and industrial sectors.
- Both energy-efficiency and demand response measures will contribute to reductions in peak demand.
- Lighting is the end-use with the greatest potential for savings in the residential and commercial sectors, but not in the industrial sector.
- Commercial sector utility programs have the highest predicted benefit-to-cost ratio of any of the proposed policy initiatives (6.0 versus an average of 2.4).
- The demand response potential is estimated to reach between 2.4% and 6.3% of peak demand by 2015. The ACEEE analysis "estimates that 3.1% reductions in peak demand are possible by 2013 through demand response policies alone. This result is applicable for between 80 and 100 hours of peak demand."

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<sup>5</sup> Developed with funding from the Pennsylvania Department of Environmental Protection, the U.S. Department of Energy, and the U.S. Environmental Protection Agency.



PPL Electric also used a second ACEEE report, dated March 2009, entitled *Meeting Aggressive New State Goals for Utility-Sector Energy-efficiency: Examining Key Factors Associated with High Savings*. The report had several key findings that influenced program planning:

- Act 129 electricity savings goals are similar to those recently adopted by a number of other states but are quite aggressive relative to the past performance of those states. According to ACEEE, “the very few top performing states in the nation were only achieving savings in the area of 0.8% per year.” In contrast, Act 129 requires that EDCs achieve nearly 1% incremental savings each year assuming all EDCs start to fully implement their programs in May 2010. Additionally, Act 129 has established aggressive peak load reduction targets. Only a few other states, such as California and Oregon have established peak reduction goals.
- Achieving the goals while remaining under the spending cap of 2% of revenue will be challenging. Of states spending in excess of 2% of revenue, all are achieving incremental savings of less than 1.1%.
- Lighting accounts for between 63% and 92% of savings. Any plan must include significant savings from lighting.
- Energy savings can generally be achieved more cost-effectively in the nonresidential sector than in the residential sector.

PPL Electric primarily used these studies as a check against its own program-planning assumptions and results [for its original EE&C Plan](#). The Company's proposed mix of measures and distribution of savings among sectors are in line with the data presented in the studies, [supplemented by the Company's actual experience delivering Act 129 EE&C programs from late 2009 to December 2011](#).

#### 1.2.1.3. Developing the Portfolio

The energy and peak load-saving targets, the expenditure cap, cost-effectiveness of the portfolio, the institutional and low-income set-asides, and the customer equity guidelines established by Act 129 defined the major parameters and constraints for developing the portfolio. Development of the portfolio, [and subsequent revisions](#), began with a “bottom-up” process, which involved compiling an extensive list of EE&C measures and practices, combining them to create programs, and aggregating the programs to construct the portfolio. The process culminated in a “top-down” balancing exercise to ensure the composition and performance of the portfolio meets all Act 129 requirements. PPL Electric used a five-step process for developing its proposed portfolio and its constituent programs, as described below.

*Step 1: Compile an extensive list of energy-efficiency and conservation measures and practices.* Only measures based on proven, commercialized technologies [that are covered in the TRM or are viable custom measures whose savings can be substantiated with a site specific measurement and verification plan](#) were considered. For each measure considered for the Plan, data on technical specifications and potential end-use energy and peak demand impacts and costs were compiled ~~from various secondary sources~~ [primarily from the TRM and from PPL Electric's experience in program years 1 and 2](#). ~~The California and draft Pennsylvania Technical Reference Manuals (TRMs) served as default sources for the majority of measures.~~ Other technical sources, including the Database for Energy-Efficiency Resources (DEER), the Consortium for

Energy-efficiency (CEE) and ENERGY STAR were ~~used to obtain data for measures not included in the TRM~~ also consulted. Peak load impacts for each measure were ~~calculated directly from~~ estimated from the Technical Reference Manual or -hourly end-use load shapes. Hourly end-use load shapes were developed from engineering models for the Midwestern region of the U.S. which were then calibrated to long-term weather conditions in PPL Electric's service area.

*Step 2: Determine life-cycle costs, savings and avoided cost benefits for each measure to compute the measure's cost-effectiveness from a TRC perspective<sup>6</sup>.* Application of the TRC ~~screen~~—identified measures which did not meet the cost-effectiveness threshold.<sup>7</sup> However, to ensure a well-balanced and extensive mix of measures, some measures with high saving potentials such as insulation, heat pump hot water heaters, and packaged air conditioning units were retained in the portfolio. Key assumptions used in determination of cost-effectiveness are listed in Table 1 ~~Table 1~~.

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**Table 1. Key Assumptions Used in Cost-Effectiveness Calculations**

	Residential	Small C&I	Large C&I
Energy*	<b>\$46.02/MWh</b>	<b>\$46.02/MWh</b>	<b>\$46.02/MWh</b>
Capacity*	<b>\$68.82/kW-year</b>	<b>\$68.82/kW-year</b>	<b>\$68.82/kW-year</b>
Line Losses	<b>8.33%</b>	<b>8.33%</b>	<b>4.12%</b>
Transmission & PJM Ancillary Services*	<b>\$0.00757/kWh</b>	<b>\$0.00511/kWh</b>	<b>\$0.00511/kWh</b>
Distribution*	<b>\$0.0222/kWh</b>	<b>\$0.00927</b>	<b>\$0.000002<sup>8</sup></b>
Discount Rate (after-tax weighted cost of capital)	<b>8%</b>	<b>8%</b>	<b>8%</b>
Escalation factor	<b>8.45%</b>	<b>8.45%</b>	<b>8.45%</b>
Total Avoided Cost- Planning Year 2009	<b>\$75.79/MWh</b>	<b>\$61.10/MWh</b>	<b>\$51.14/MWh</b>
Total Avoided Cost- Planning Year 2010	<b>\$84.74/MWh</b>	<b>\$69.54/MWh</b>	<b>\$59.23/MWh</b>
Total Avoided Cost- Planning Year 2011	<b>\$91.00/MWh</b>	<b>\$74.52/MWh</b>	<b>\$63.33/MWh</b>
Total Avoided Cost- Planning Year 2012	<b>\$95.70/MWh</b>	<b>\$77.82/MWh</b>	<b>\$65.69/MWh</b>

**\* 2009/2010 values shown**

*Step 3: For each program in the portfolio, calculate program-level savings.* Savings are calculated as the sum of products of annual savings and expected market saturation (number of installations) for each program measure over the course of the Plan. For the

<sup>6</sup> Calculation methods and assumptions used for estimating all program costs are provided in Appendix E.

<sup>7</sup> Measures failing the cost-effectiveness threshold included wall insulation, heat pump hot water heaters, and high efficiency central air conditioners in the residential sector; windows and packaged air conditioning units in the commercial sector.

<sup>8</sup> The majority of large commercial and industrial customers have a flat monthly charge for distribution so the average avoided distribution charge on a \$/kWh-basis is low.

~~original EE&C Plan, projected~~ **Projected** number of installations for each measure was derived by benchmarking against similar programs operated by utilities in California, the Northwest and Iowa. For the commercial custom program, the expected number of installations was derived by assuming a mix of various measures likely to be installed in a “typical” project. For this revised EE&C Plan, projections for program years 3 and 4 were based primarily on PPL Electric’s experience in programs years 1 and 2.

*Step 4: Spread the aggregate, plan-level savings for each program over the four-year Plan cycle to set annual saving targets.* Expected ramp-up of annual savings varied across programs. ~~In the case of an existing program such as WRAP, an even annual ramp-up was included.~~ In the case of new programs where no prior local implementation experience or infrastructure exists, savings are expected to begin to accrue at lower levels (usually 25% of plan-level targets) and ramp up gradually over the course of the Plan. For this revised EE&C Plan, projections for program years 3 and 4 were based primarily on PPL Electric’s experience in programs years 1 and 2.

*Step 5: Balance the portfolio.* Finally, the expected number of participants and customer incentive levels in each program were adjusted iteratively to balance the portfolio. The objective of balancing the portfolio is to provide a reasonable mix of programs that meets all Act requirements, such as institutional and low-income set-asides, consumption and peak load targets, the overall cost cap, a variety of measures applied equitably to all customer classes, and cost-effectiveness at the portfolio level. For this revised EE&C Plan, one of the portfolio balancing objectives was to minimize changes (energy reductions, peak load reductions, and costs) where possible for each customer sector compared to the EE&C Plan approved by the Commission in May 2011, while ensuring the EE&C Plan achieves overall compliance targets within the cost cap.

#### 1.2.1.4. Considering the Role of Uncertainty

The proposed EE&C program portfolio was constructed within the confines of Act 129 and the Commission’s interpretation of the Act’s requirements in its Implementation Order. The parameters for the proposed plan were defined by these constraints regarding energy savings, peak demand reduction targets, cost-effectiveness of the portfolio, expenditure limits, customer equity and set aside provisions for low-income and governmental/non-profit customer segments.

The Act requires cumulative energy savings of 3% by May 2013. Assuming utilities begin full implementation of their plans by May 2010, the established target translates into incremental yearly savings of about 1% of projected annual sales, on average. This is an aggressive target compared to recent energy-efficiency resource standards (EERS) adopted in other states and relative to that achieved by programs considered successful in other jurisdictions. A review of EERS proposed or adopted in other states indicates markedly lower targets in most cases.<sup>9</sup> Moreover, in states with EERS at the same level as those required by the Act or higher, targets are expected to be met through additional mechanisms such as codes and standards (e.g., California), transmission and distribution efficiency improvements (e.g., Washington), or both (e.g., Minnesota). A recent study by ACEEE further indicated in 2006, the latest year for which data were

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<sup>9</sup> See Federal Energy Regulatory Commission, “Electric Market Overview: Energy-efficiency Resource Standards and Goals,” April 3, 2009. <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-eeps.pdf>

available, only three states – Rhode Island, Vermont and Connecticut – were able to achieve annual savings of 1 percent or greater.<sup>10</sup>

The Plan strives to exceed the reduction targets by approximately 10% to provide a reasonable margin for uncertainty, primarily realization rates (determined 6 months or more after the end of each program year) that are worse than projected. Depending on progress, budgets, and actual realization rates during years 3 and 4, PPL Electric may decide to increase or reduce that margin. However, PPL Electric notes that there are several uncertainties associated with its ability to achieve these targets within the constraints of the Act's requirements. The major uncertainties fall into the following categories—:

1. General market uncertainty and the~~The~~ state of the economy and customer willingness and ability to implement energy-efficiency measures, especially small C&I and institutional customers (schools, non-profits, and governments) the limited time to develop the infrastructure to promptly implement programs in time to meet the reduction targets by the required dates, the
2. The cost and logistics associated with peak load reductions, ~~and~~
3. ~~general market uncertainty associated with expected customer participation levels.~~ "Equity" among customer sectors. Some stakeholders' want PPL Electric to minimize or eliminate EE&C changes, especially those that shift projected cost and savings between customer sectors, even if that shift increases the likelihood that PPL Electric will meet its overall compliance targets.
4. Post-2013 uncertainty and its impact on the current EE&C Plan. Can EDCs "bank" over-compliance in the current EE&C Plan cycle (2009 -2013) apply it to post-2013 EE&C Plans? Will customers assume incentives will "always be available" (post-2013) and, therefore, have no sense of urgency to act now?

First, the state of the economy and customers' ability to make investments in energy-efficiency is very challenging, especially for small commercial and industrial customers who comprise a significant portion of the expected portfolio savings. The challenging economy is worse and has lasted longer than PPL Electric expected at the time it submitted its initial EE&C Plan in July 2009 and revised its EE&C Plan in September 2010 (approved by the Commission in May 2011). To address this uncertainty, PPL Electric has included generous incentive levels for customers and ~~will~~ has educated customers about additional funding sources that may be available to help offset the customer's investment. PPL Electric also implemented several program enhancements such as a C&I CSP, a direct discount delivery mechanism, education and support for trade allies, and extensive marketing and education targeted for small C&I customers. Despite these enhancements, the small C&I sector continues to significantly lag the assumptions in the May 2011 EE&C Plan.

PPL Electric has also designed its programs to rely on existing market delivery mechanisms to identify and implement energy-efficiency products and services. This should streamline the process and allow customers to identify and implement projects as quickly as possible, assuming trained energy-efficiency and HVAC contractors are

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<sup>10</sup> The 2008 State Energy-efficiency Scorecard, Maggie Eldridge et. al., ACEEE Report E086

available. PPL Electric has also included a Custom Incentive Program to provide flexibility for commercial and industrial customers to implement measures that meet their specific needs.

As suggested by stakeholders, PPL Electric has also requested Commission approval to allow retroactive eligibility for customers who install, or commit to install, qualifying equipment and services for applicable programs between July 1, 2009, and Commission approval of the Plan. In addition to increasing the likelihood of meeting PPL Electric's targets, especially the 2011 energy reduction target and the 2012 peak load reduction target, this provision will allow some customers to take advantage of Federal American Reinvestment and Recovery Act (ARRA) funds in addition to Act 129 funding to install energy-efficiency projects. Many of those projects may require the customer to identify or commit to projects between July and Commission approval of the Plan.

~~The second major uncertainty is the ability for PPL Electric, CSPs, and trade allies to deliver programs quickly enough. The Act requires PPL Electric to implement the Plan upon Commission approval October 26, 2009, there are only 1.5 years to meet the first reduction target and 3.5 years to meet the final reduction targets.~~

Furthermore, approximately ~~65~~54% of the portfolio savings ~~must~~is estimated to come from PPL Electric's commercial and industrial customers. This customer segment typically requires a longer lead time than the residential segment to identify, justify, budget, and implement energy-efficiency measures, especially for customers with budget cycles and lengthy funding or procurement processes. It is also challenging for PPL Electric and its CSPs to reach and connect with many of the key decision-makers for the small commercial and industrial customers and, in many cases, there are "disconnected" costs and benefits if the customer is a building owner (landlord, property manager, etc.) who does not pay the electric bill (paid by the tenant).

To address these uncertainties, PPL Electric ~~must have had~~ most of its infrastructure of new staff, CSPs, Trade Allies, systems, and processes in place before November 2009 so it ~~is was~~ prepared to launch programs quickly and ~~can~~maximized the time available to deliver programs. ~~PPL Electric has already begun to implement this infrastructure. PPL Electric has also started to work~~ed with trade allies to assess and expedite, if necessary, the availability of trained and qualified personnel to deliver services, especially in the early years of the Plan. The revised estimate of savings from the Small C&I sector in this EE&C Plan reflects the challenges of this sector. PPL Electric will closely monitor progress and if the Company is not on track to meet the revised savings estimates (in this EE&C Plan revision) for the Small C&I sector by 3/1/12, it will request Commission approval to implement further changes.

The ~~third~~second major uncertainty is the technical challenge, cost, and logistics for obtaining peak load reductions. The Act requires a reduction of 4.5% of annual system peak demand in the 100 hours of highest demand (equivalent to 297 MW for PPL Electric) by May 31, 2013, as measured by the Company's weather normalized peak demand for June 1, 2007, through May 31, 2008. In its Implementation Order, the Commission held this determination should be limited to June, July, August, and September.<sup>11</sup> Accordingly, an EDC must demonstrate its EE&C Plan meets the

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<sup>11</sup> January 15 Implementation Order at p. 21

requirement for the period June 1, 2012, through September 30, 2012.<sup>12</sup> Demand reductions from implementation of energy-efficiency measures in the Plan are expected to produce approximately 233,130 MW of peak coincident savings. In many cases, changes to the TRM have reduced the peak load savings of measures compared to the assumptions in PPL Electric's original and current EE&C Plans. The remaining peak load reductions will be obtained through demand response programs, including approximately ~~98-156~~ MW from commercial and industrial curtailment contracts and approximately ~~93-36~~ MW from direct load control (DLC) of residential and small C&I customers ~~and Time of Use Rates.~~ These MW values are grossed-up to reflect transmission and distribution losses (see footnote on next page).

The proposed EE&C Plan has very little cushion in excess of the peak load reduction compliance target. In many cases, changes to the TRM have reduced the peak load savings from energy efficiency measures compared to the assumptions in PPL Electric's original and current EE&C Plans. Also, PPL Electric continually re-balances its mix of measures to achieve both the demand reduction and the energy reduction targets. At times, these reduction targets conflict with each other. For example, efficient heating equipment may contribute significant energy savings but no peak load reductions. Air conditioning equipment contributes peak load reductions but minimal energy savings. Additional peak load reductions from demand response measures (direct load control and load curtailment) are very costly and cannot be increased because of budget constraints.

~~During design of its demand response programs and portfolio balancing, PPL Electric identified potentially significant uncertainties associated with the cost, total number of participants/MWs, total number of hours each participant is willing to interrupt, and the length of CSP and customer contracts needed to achieve this peak load reduction target. These uncertainties were raised during discussions with curtailment service providers and demand response aggregators and it was determined that the resolution of these uncertainties could increase the cost of peak load reduction programs by \$15 to \$65 million above the current total portfolio cost. These uncertainties are discussed in more detail below. PPL Electric expects to obtain additional information on these issues in August and September 2009 when it receives bids for firm demand response reductions (Direct Load Control and Load Curtailment Programs).~~

Significant challenges are associated with the 100 peak hours. These peak hours cannot be predicted with reasonable certainty and will not be known until after the fact. It will require a complex infrastructure to attempt to predict the top 100 hours of peak demand each year and to "reconstruct" actual loads (probably in near real-time). Reconstruction is required to determine the load absent the Act 129 demand reductions (due to energy-efficiency measures and demand response measures). If the impact of Act 129 demand reductions is not added back into the actual load, those hours may no longer be in the 100 peak hours.<sup>13</sup>

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<sup>12</sup> *ibid* p. 29

<sup>13</sup> The Implementation Order requires that the demand reductions be achieved for the 100 hours of highest peak demand during the summer of 2012. It is not clear to PPL Electric that the Commission must determine compliance with the peak demand reduction requirements based on the 100 hours of highest peak demand during the summer of 2012 as the Act specifically states that demand reductions are to be measured against the 100 hours of highest peak demand in 2007-2008. PPL Electric requests that the Commission maintain flexibility regarding this issue.

PPL Electric anticipates few customers will be willing to interrupt for 100 hours per year, especially if the hours are uncertain. Generally, customers prefer certainty and predictability regarding supply interruptions. Customers familiar with or participating in load curtailment programs are comfortable committing to less than 10 hours of interruption. CSPs suggest some customers may be willing to interrupt for as much as 25 – 50 hours if they receive appropriate financial incentives. Even if customers commit to curtailing load for a given number of hours, there will be times when they do not interrupt because of factors such as the specific impact of that interruption on their business.

Because of these factors, ~~the portfolio expects~~the Load Curtailment CSPs will ~~have to significantly~~ “oversubscribe” participants in the demand reduction program by obtaining more MWs of firm curtailable load than the target for less than 100 hours per participant, ~~curtailing the target number of MWs for more than the 100 required hours, or both~~ to meet the target (an average number of MW reductions over 100 hours). ~~Based on input from curtailment service providers, demand response aggregators, and market research of PPL Electric’s customers, the~~Load Curtailment Program portfolio includes ~~200–300~~ MW of curtailable load customers, ~~each willing to interrupt~~ for 50 hours. This is equivalent to 150 MW over 100 hours.<sup>14</sup> Since it is unlikely that PPL Electric could perfectly predict that these 50 hours will be in the top 100 hours, PPL Electric may have to call more than 50 hours to account for hours that “drop out” (i.e. originally expected those events to be in the top 100 hours but they were superseded by higher loads later in the summer). This cost exposure is up to \$10 million for up to 10 additional hours) and is not included in this EE&C Plan because the likelihood is uncertain and because there is not enough money within the current portfolio cost forecast to accommodate this contingent funding. Some of the curtailment service providers and demand response aggregators suggested that PPL Electric could need as much as 1,000 MW of curtailable load customers, each willing to interrupt for 10 hours. Under that scenario, the total cost of the load curtailment program could increase by as much as \$30 MM and the customer saturation level (percent of eligible customers who participate) would likely be unrealistic to attain.

There is another uncertainty caused by the coordination of Act 129 load curtailment programs and PJM load curtailment programs. Currently, PJM rules do not account for Act 129 events in PJM’s customer baseline methods. Should an Act 129 event be called during the baseline or adjustment window preceding a PJM emergency or economic event, PJM baselines and customer performance calculations would be adversely affected. In essence, the customer’s participation in Act 129 load curtailment could significantly reduce the customer’s revenue from PJM programs, effectively creating “competition” between PJM and Act 129 load curtailment programs. Since a customer’s revenue and exposure to non-compliance penalties from PJM programs could be much greater than their revenue from Act 129 programs, customers may be reluctant to participate in Act 129 load curtailment. Another concern is that participation in Act 129 load curtailment could reduce a customer’s PJM Peak Load Contribution, reducing the ability for that customer to achieve load reductions for PJM emergency programs in subsequent years. That would discourage customers from participating in Act 129 load

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<sup>14</sup> In accordance with the Evaluation Plan and SWE Guidance Memos, this will be grossed-up to reflect transmission and distribution losses because peak load reductions are measured at the retail meter level but compliance is measured at the system (generation) level. The resultant peak load reductions will be approximately 156 MW after this gross-up.



curtailment or, if the customer participates in Act 129 curtailment, PJM will have fewer resources in the following year.

~~Additionally, the cost of curtailable load is uncertain. The current portfolio cost for curtailable load (\$80/kW-year for 100 MW over 100 hours) is based on the lowest price scenario informally provided by CSPs. However, some CSPs recommended obtaining 200 MW of participants, each willing to interrupt an average of 50 hours at a cost of \$40/kW-year (total cost would be the same). Other CSPs have suggested the cost for 50 hours could be as much as \$80 to \$100/kW-year. This could double the current portfolio cost assumptions, adding at least \$14 MM in additional costs. PPL Electric will be in a better position to confirm these cost assumptions when it receives formal bids in August/September from load curtailment CSPs.~~

~~CSPs stated most customers want to participate in programs for many years. A single year contract with a customer (such as 2012 only, which is the only year required to meet Act 129 peak load reduction targets) would not provide adequate incentives for customers to enroll. The CSPs also expect at least five to eight year contracts to cost-effectively recover their high initial capital investment (recruiting participants, software, hardware, etc.) over a reasonable period of time.~~

~~The current portfolio expects PPL Electric will need to enter into contracts with CSPs that extend beyond the end of this EE&C Plan (5/31/13), although those payments are not included in the current portfolio and would likely be structured in the CSP contract to be contingent on the Commission's extension of peak load reduction targets and funding beyond the life of the current Plan. The portfolio includes expenditures in 2010 and 2011 to develop the DLC and load curtailment infrastructure, recruit participants, test systems and processes, and implement load reductions; so PPL Electric will be prepared to successfully implement the full DLC and load curtailment programs in 2012, and provide adequate incentives to ensure customers participate. However, there is a cost exposure if PPL Electric must commit to customer incentives or payments to CSPs beyond September 2012 to induce their participation in DLC or load curtailment programs during 2010-2012. That cost exposure is on the order of \$5-\$10 MM per year.~~

~~If Because there is no firm commitment to continue demand response programs beyond the summer of 2012, PPL Electric is limited to demand response contracts that expire on 9/30/2012 (the compliance date for peak load reductions), Those these short-term contracts may be are more costly than longer-term contracts that provide demand response beyond 2012 because the recovery of fixed CSP costs will be compressed into very few years. That is one of the reasons that cost-effectiveness is poor for demand response programs in this EE&C Plan. The additional expenditures, not currently reflected in the portfolio, may be on the order of at least \$5 MM beyond the current portfolio.~~

~~PPL Electric also may have to commit to expenditures beyond May 31, 2013 for commercial and industrial projects associated with energy consumption reductions. Those projects impact the energy reduction targets and the peak load reduction targets. For example, some commercial and industrial customers will evaluate projects or start projects in 2012 or early 2013, and those projects will not be completed until after May 2013. Those customers may need the certainty of PPL Electric's Act 129 incentives to justify and implement their projects.~~



~~To provide an additional cushion for the peak load reduction target and to mitigate cost exposures associated with peak load, PPL Electric proposes to account for the peak load reductions from energy efficiency measures obtained after September 30, 2012 but before May 31, 2013. This would amount to 45 MW of peak load reductions beyond those currently included (as of September 30, 2012). By accounting for these 45 MW of peak load reductions from energy efficiency measures, PPL Electric would not have to obtain a commensurate amount of peak load reductions from specific demand response measures such as direct load control or curtailment before September 30, 2012. At least one intent of Act 129 regarding demand reduction is to avoid a like amount of required new capacity. These 45 MW peak load reductions from energy efficiency measures accomplish that intent, do so before the May 31, 2013 deadline, and cost less than obtaining reductions from demand response measures.~~

The third category of uncertainty is equity (proportion of total costs and savings) among customer sectors. Some stakeholders want PPL Electric to minimize or eliminate EE&C changes, especially those that shift projected cost and savings between customer sectors, even if that shift increases the likelihood that PPL Electric will meet its overall compliance targets. As previously mentioned, it is extremely challenging to get the expected energy reduction from the Small C&I customer sector. However, based on actual participation in program years 1 and 2, residential and large C&I customers could easily exceed projected savings (and costs). To accommodate stakeholders, this EE&C Plan strives to minimize shifting between sectors while striving to meet the overall compliance target. However, PPL Electric may need to further shift the emphasis between customer sectors in order to meet its overall compliance target if the Small C&I sector does not meet estimates in this EE&C Plan.

~~The fourth category of uncertainty is general market uncertainty associated with expected customer participation levels. The proposed portfolio is the result of balancing the competing objectives of the Plan under multiple constraints imposed by the Act. To achieve this balance, a large number of assumptions had to be made concerning measure performance, measure costs and market conditions. Clearly, any shortfall in technical measure performance, unforeseen costs and changes in the macro-economic and structural conditions affecting consumers' willingness to invest in energy efficient equipment will have a profound effect on the portfolio's performance.~~

The fourth category of uncertainty is post-2013 EE&C and its impact on the current EE&C Plan. Can EDCs apply over-compliance in the current EE&C Plan cycle (2009 - 2013) to post-2013 EE&C Plans? Or, must EDCs stop programs as soon as targets are met, even if funding remains and there is significant time before May 2013. Will customers assume incentives "always will be available" (post-2013) or expect higher incentives in the post-2013 EE&C Plan (likely to be vetted with stakeholders during the summer of 2012), and, therefore, have no sense of urgency to act now? Will programs "go dark" between May 31, 2013 and the next EE&C cycle? PPL Electric will work with stakeholders and the Commission to establish post-2013 EE&C targets, rules, transition plans, etc. by mid-2012.

~~As described elsewhere in this document, PPL Electric will adopt protocols to effectively monitor progress toward meeting the Plan goals, to detect problems quickly, and take corrective action, and to continually and quickly adjust the Plan prospectively over time. However, the proposed Plan's ability to meet the projected targets is ultimately a function of consumers' ability and willingness to participate in programs. This in turn is influenced by a number of factors, particularly macro-economic conditions, which may~~

~~inhibit investment in energy efficiency and conservation measures. As described earlier, this is particularly applicable in commercial and industrial markets where the implementation of energy efficiency projects involves sizable initial capital costs by the customer and project development (analysis, approval, funding, engineering, construction, etc.) can take a long time (easily more than a year for many measures).~~

#### 1.2.1.5. Stakeholder Involvement

Throughout the preparation of this Plan, PPL Electric pursued opportunities to inform stakeholders of the Company's progress and to solicit input. Both formal and informal communication was maintained with many parties, including: other Pennsylvania electric distribution companies; consumer and environmental advocates; chambers of commerce; state, local, and private economic development organizations; community-based organizations; trade associations; governmental agencies; trade allies; market partners; and CSPs.

Stakeholder participation resulted in a more creative and robust portfolio than would have been possible otherwise. ~~PPL Electric anticipates this~~ This collaborative process ~~will increase~~ increased the likelihood of success in implementing the portfolio. This process ~~should~~ also helps expedite approval of revisions to the EE&C Plan ~~approval~~, thereby allowing more time to prepare for implementation and expanding opportunities for consumer savings. Further, PPL Electric ~~plans to solicit~~ solicited formal and informal input from stakeholders periodically throughout the Plan delivery period to improve programs. PPL ~~will meet~~ meets formally with stakeholders as needed, but not less than twice annually until May 31, 2013, unless otherwise ordered by the Commission.

Table 2 ~~Table 2~~ summarizes the stakeholder meetings and stakeholders who were invited to participate in the process. PPL Electric also meets frequently with its CSPs, trade allies (equipment installers, engineers, consultants, equipment dealers, retailers, etc. who provide products and services to customers), and potential CSPs (companies who would like to contract with PPL Electric to provide EE&C products and services) to review EE&C Plan progress, consider new products and services, and to identify opportunities to improve EE&C programs.

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**Table 2. Stakeholder Coordination Activities and Participation**

Meeting	Invitees or Attendees	Topics Discussed
3/10/09	Major statutory and intervenor groups such as OCA, PA DEP, PA PUC, Penn Future, OSBA, PPLICA.	Review Act 129. Describe PPL Electric's process for developing the plan. Identify key open issues and alternatives. Determine the best process for obtaining future stakeholder input.
4/1/09	Full stakeholder group*	Understand the purpose of Act 129 and why it is important to stakeholders. Provide input to the EE&C Plan. Identify and develop consensus on open issues. Establish ongoing, collaborative process for development and implementation of the Plan.

## Section 1: Overview of Plan

Meeting	Invitees or Attendees	Topics Discussed
		Break-out sessions with residential & low-income, small C&I and institutional, and large C&I.
5/27/09	Full stakeholder group*	"80% complete" draft Plan issued one week before the meeting. Status of EE&C Plan. Review proposed programs. Review the implementation strategy. Summarize expected portfolio savings, impacts, and costs by program, customer sector, etc. Seek feedback on the Plan. Break-out sessions with residential and low-income, small C&I and Institutional, large C&I.
Ongoing 3/10/09 – 6/15/09. Meetings, teleconferences, e-mail communication.	Meetings with many of the stakeholders individually.	Discuss issues specific to that stakeholder or issues a stakeholder did not want to discuss in large group meetings for competitive or other reasons.
Ongoing 3/10/09 – 6/15/09. Meetings, teleconferences, e-mail communication.	All PA EDCs and the PA Energy Association.	Coordination to identify opportunities for consistent programs, program design elements, incentive levels, etc., that would improve the likelihood of program success, minimize customer confusion, achieve cost efficiencies, etc.
Various	PPL Electric's residential and C&I customers - survey panel and telephone interviews.	Gauge customer awareness of Act 129. Solicit customer input about their familiarity, preference, and willingness to participate in various energy-efficiency programs at various incentive levels.
<a href="#">April 28, 2010</a>	<a href="#">Stakeholders</a>	<a href="#">Review EE&amp;C Plan results and proposed changes.</a>
<a href="#">October 20, 2010</a>	<a href="#">Stakeholders</a>	<a href="#">Review EE&amp;C Plan results and proposed changes.</a>
<a href="#">May 2, 2011</a>	<a href="#">Stakeholders</a>	<a href="#">Review EE&amp;C Plan results and proposed changes.</a>
<a href="#">October 18, 2011</a>	<a href="#">Stakeholders</a>	<a href="#">Review EE&amp;C Plan results and most of the proposed changes. Some proposed changes were identified after this meeting.</a>

\* The full stakeholder group includes more than 175 people, representing:

- Registered and other potential CSPs
- Environmental advocacy groups
- Chambers of commerce
- Economic development organizations—public and private
- Community-based organizations
- Trade allies such as contractors, trade associations, energy services companies, vendors, etc.

- Market partners that deliver or promote energy-efficiency programs such as Keystone HELP, PHFA, SEDA-COG, Community Committee of the Lehigh Valley, Schuylkill Community Action, Community Action Program of Lancaster, other Community Action Groups, etc.
- Property/Facilities management companies
- Sustainable Energy Fund
- Office of Consumer Advocate
- PA Department of Environmental Protection
- PA Governor's Green Government Council
- Municipal and local government groups, county commissioners, township commissioners, etc.
- Office of Small Business Advocate
- EFMR
- DCED
- Energy-efficiency engineers and consultants
- Penn Future
- PPLICA
- [PUC Staff](#)
- PA Treasury Department

### 1.3. Summary Tables of Portfolio Savings Goals, Budget and Cost-Effectiveness.

The following tables provide summaries of ~~expected~~ estimated savings, budget, and cost-effectiveness for PPL Electric's Plan. These include:

- ~~Table 3~~ Table 3 provides a summary of estimated lifetime costs and benefits by program for PPL Electric's entire portfolio.
- ~~Table 4~~ Table 4 shows a summary of estimated portfolio ~~of~~ energy and demand savings.
- ~~Table 5~~ Table 5 shows the overall estimated portfolio budget, broken out by sector and program year.

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Table 3. Portfolio Summary of Lifetime Costs and Benefits<sup>15</sup>

<u>Portfolio</u>	<u>Discount Rate</u>	<u>Total Discounted Lifetime Costs (\$000)</u>	<u>Total Discounted Lifetime Benefits (\$000)</u>	<u>Total Discounted Net Lifetime Benefits (\$000)</u>	<u>Cost-Benefit Ratio (TRC)</u>
<u>Residential (exclusive of Low-Income)</u>	<u>8%</u>	<u>\$122,505</u>	<u>\$360,690</u>	<u>\$238,186</u>	<u>2.94</u>
<u>Residential Low-Income</u>	<u>8%</u>	<u>\$31,321</u>	<u>\$28,964</u>	<u>-\$2,357</u>	<u>0.92</u>
<u>Commercial / Industrial Small</u>	<u>8%</u>	<u>\$133,558</u>	<u>\$152,929</u>	<u>\$19,370</u>	<u>1.15</u>
<u>Commercial / Industrial Large</u>	<u>8%</u>	<u>\$56,683</u>	<u>\$183,474</u>	<u>\$126,790</u>	<u>3.24</u>
<u>Governmental / Non-Profit</u>	<u>8%</u>	<u>\$88,065</u>	<u>\$123,303</u>	<u>\$35,238</u>	<u>1.40</u>
<u>Total</u>		<u>\$432,132</u>	<u>\$849,360</u>	<u>\$417,228</u>	<u>2.0</u>

<sup>15</sup> This is Table 1 in the PUC template.

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Portfolio	Discount Rate	Total Discounted Lifetime Costs (\$000)	Total Discounted Lifetime Benefits (\$000)	Total Discounted Net Lifetime Benefits (\$000)	Cost-Benefit Ratio (TRC)
Residential (exclusive of Low-Income)	8%	\$70,566	\$294,232	\$214,666	3.70
Residential Low-Income	8%	\$32,300	\$23,826	-\$8,475	0.74
Commercial / Industrial Small	8%	\$171,732	\$531,832	\$360,100	3.10
Commercial / Industrial Large	8%	\$47,600	\$101,421	\$53,821	2.13
Governmental / Non-Profit	8%	\$53,595	\$120,542	\$66,947	2.25
Total	—	\$384,794	\$1,071,853	\$687,059	2.79

Table 4. Summary of Portfolio Energy and Demand Savings<sup>16</sup>

	<u>Program Year 2009</u>		<u>Program Year 2010</u>		<u>Program Year 2011</u>		<u>Program Year 2012</u>	
	<u>MWh/yr Saved</u>	<u>MW Saved</u>	<u>MWh/yr Saved</u>	<u>MW Saved</u>	<u>MWh/yr Saved</u>	<u>MW Saved</u>	<u>MWh/yr Saved</u>	<u>MW Saved</u>
<u>Baseline</u>	<u>38,214,368</u>	<u>6,592</u>	<u>38,214,368</u>	<u>6,592</u>	<u>38,214,368</u>	<u>6,592</u>	<u>38,214,368</u>	<u>6,592</u>
<u>Residential Sector (exclusive of Low-Income)</u>	<u>82,724</u>	<u>5.1</u>	<u>300,906</u>	<u>26.7</u>	<u>441,189</u>	<u>42.6</u>	<u>560,812</u>	<u>85.0</u>
<u>Residential Low-Income Sector</u>	<u>1,200</u>	<u>0.1</u>	<u>8,744</u>	<u>1.1</u>	<u>18,231</u>	<u>2.1</u>	<u>25,420</u>	<u>2.8</u>
<u>Commercial / Industrial Small Sector</u>	<u>424</u>	<u>0.0</u>	<u>87,817</u>	<u>20.1</u>	<u>212,433</u>	<u>42.6</u>	<u>235,916</u>	<u>52.2</u>
<u>Commercial / Industrial Large Sector</u>	<u>=</u>	<u>=</u>	<u>68,678</u>	<u>9.0</u>	<u>200,633</u>	<u>18.0</u>	<u>231,406</u>	<u>160.8</u>
<u>Governmental/Non-Profit Sector</u>	<u>15</u>	<u>0.0</u>	<u>44,342</u>	<u>9.9</u>	<u>103,128</u>	<u>23.0</u>	<u>121,779</u>	<u>49.5</u>
<u>EE&amp;C Plan Total</u>	<u>84,363</u>	<u>5.2</u>	<u>510,487</u>	<u>66.8</u>	<u>975,613</u>	<u>128.3</u>	<u>1,175,333</u>	<u>350.3</u>
<u>Percent Reduction From Baseline</u>	<u>0.2%</u>	<u>0.1%</u>	<u>1.3%</u>	<u>1.0%</u>	<u>2.6%</u>	<u>1.9%</u>	<u>3.1%</u>	<u>5.3%</u>
<u>Compliance Target</u>			<u>1%</u>				<u>3%</u>	<u>4.5%</u>
<u>Percent Savings Due to Portfolio Above or Below Commission Goal</u>			<u>0.3%</u>				<u>0.1%</u>	<u>0.8%</u>

<sup>16</sup> This is Table 2 in the PUC template. MWh/yr and MW saved are cumulative over the four-year Plan period. MWs in Program Year 2012 are as of 9/1/12 and assume energy efficiency measures with peak load reductions are installed by 5/31/12 so their peak load reductions count in the summer of 2012 (the peak load compliance period).

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MWh Saved for Consumption Reductions kW Saved for Peak Load Reductions	Program Year 2009		Program Year 2010		Program Year 2011		Program Year 2012	
	MWh Saved	kW Saved	MWh Saved	kW Saved	MWh Saved	kW Saved	MWh Saved	kW Saved
Baseline	38,214,368	6,591,948	38,214,368	6,591,948	38,214,368	6,591,948	38,214,368	6,591,948
Residential Sector (exclusive of Low-Income)	32,666	4,415	176,404	36,050	322,753	77,697	469,558	130,460
Residential Low Income Sector	4,056	590	8,834	3,547	13,998	8,524	19,775	15,866
Commercial / Industrial Small Sector	26,808	5,207	163,524	33,586	354,728	76,456	602,782	132,942
Commercial / Industrial Large Sector	5,669	986	31,500	5,447	71,876	12,374	139,811	146,818
Governmental/Non-Profit Sector	5,982	1,059	37,054	6,668	79,086	14,620	135,054	47,342
EE&C Plan Total	75,180	12,257	417,307	85,299	839,441	189,668	1,366,979	473,428
Percent Reduction From Baseline	0.2%	0.2%	1.1%	1.3%	2.2%	2.9%	3.6%	7.2%
Commission Identified Goal			1%				3%	4.50%
Percent Savings Due to Portfolio Above or Below Commission Goal			0.1%				0.6%	2%

MWh and kW saved are cumulative over the four-year Plan period.

Note: Table 4 was revised to reflect the change in allocation of energy savings for the CFL Program, an additional 50 MW of projected peak load reductions for the Load Curtailment Program, deleting Program Year 2010 peak load reductions for the Direct



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~~Load Control Program (DLC), and deleting 2010 and 2011 peak load reductions for the Load Curtailment (LC) Program. Changing the peak load reductions in the LC program also causes minor changes in energy savings for that program.~~

**Table 5. Summary of Portfolio Costs<sup>17</sup>**

	Direct Costs										Common Costs, All Years		All Costs, All Years	
	Program Year 2009		Program Year 2010		Program Year 2011		Program Year 2012		Total					
	Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget	
	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%
Residential Portfolio Annual Budget	\$5.605	63%	\$19.058	39%	\$13.042	19%	\$17.093	23%	\$54.797	27%	\$11.715	27%	\$66.512	27%
Residential Low-Income Portfolio Annual Budget	\$3.054	34%	\$9.611	20%	\$9.364	14%	\$7.261	10%	\$29.290	15%	\$6.262	15%	\$35.552	15%
Commercial/Industrial Small Portfolio Annual Budget	\$170	2%	\$8.378	17%	\$24.086	35%	\$38.594	52%	\$71.228	35%	\$15.227	35%	\$86.456	35%
Commercial/Industrial Large Portfolio Annual Budget	\$75	1%	\$5.553	11%	\$15.047	22%	\$8.540	11%	\$29.216	14%	\$6.246	14%	\$35.461	14%
Governmental/Non-Profit Portfolio Annual Budget	\$11	0%	\$6.463	13%	\$7.483	11%	\$3.360	4%	\$17.317	9%	\$3.702	9%	\$21.019	9%
Total Portfolio Annual Budget	\$8.916	100%	\$49.063	100%	\$69.023	100%	\$74.848	100%	\$201.849	100%	\$43.151	100%	\$245.000	100%

-	<b>Program Year 2009</b>		<b>Program Year 2010</b>		<b>Program Year 2011</b>		<b>Program Year 2012</b>		<b>Total</b>	
	<b>Portfolio Budget</b>		<b>Portfolio Budget</b>		<b>Portfolio Budget</b>		<b>Portfolio Budget</b>		<b>Portfolio Budget</b>	
	<b>\$000</b>	<b>%</b>	<b>\$000</b>	<b>%</b>	<b>\$000</b>	<b>%</b>	<b>\$000</b>	<b>%</b>	<b>\$000</b>	<b>%</b>
<b>Residential Portfolio Annual Budget</b>	<b>\$8,114</b>	<b>30%</b>	<b>\$16,811</b>	<b>31%</b>	<b>\$18,265</b>	<b>-24%</b>	<b>\$10,508</b>	<b>22%</b>	<b>\$62,697</b>	<b>25%</b>
<b>Residential Low-Income Portfolio Annual Budget</b>	<b>\$7,706</b>	<b>28%</b>	<b>\$8,679</b>	<b>16%</b>	<b>\$9,444</b>	<b>13%</b>	<b>\$10,660</b>	<b>12%</b>	<b>\$36,488</b>	<b>15%</b>

<sup>17</sup>This is Table 3 in the PUC Template.

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Commercial/Industrial Small-Portfolio Annual Budget	<del>\$7,170</del>	<del>26%</del>	<del>\$19,221</del>	<del>-35%</del>	<del>\$26,066</del>	<del>35%</del>	<del>\$33,865</del>	<del>-38%</del>	<del>\$86,322</del>	<del>35%</del>
Commercial/Industrial Large-Portfolio Annual Budget	<del>\$2,166</del>	<del>8%</del>	<del>\$4,611</del>	<del>8%</del>	<del>\$12,660</del>	<del>17%</del>	<del>\$14,574</del>	<del>16%</del>	<del>\$34,010</del>	<del>14%</del>
Governmental/Non- Profit Portfolio Annual Budget	<del>\$2,199</del>	<del>-8%</del>	<del>\$5,480</del>	<del>-10%</del>	<del>\$8,580</del>	<del>-11%</del>	<del>\$10,228</del>	<del>-12%</del>	<del>\$26,487</del>	<del>11%</del>
Total Portfolio Annual Budget	<del>\$27,353</del>	<del>100%</del>	<del>\$54,802</del>	<del>100%</del>	<del>\$75,016</del>	<del>100%</del>	<del>\$88,834</del>	<del>100%</del>	<del>\$246,007</del>	<del>100%</del>

Program year is June 1 – May 31. The projected program year expenditures are shown above. Recovery of program costs will be levelized as described in Section 1.7.

Note: Total may not be exact due to rounding.

**Table 5a. Program Summary by Sector (\$1,000)**

Program	<u>Residential Direct Program Cost (\$1000s)</u>	<u>Low- Income Direct Program Cost (\$1000s)</u>	<u>Small C&amp;I Direct Program Cost (\$1000s)</u>	<u>Large C&amp;I Direct Program Cost (\$1000s)</u>	<u>Institutional Direct Program Cost (\$1000s)</u>	<u>TOTAL Direct Program Cost (\$1000s)</u>	<u>Total MWh/vr Reduction*</u>	<u>\$/kWh</u>	<u>Total MW Reduction**</u>	<u>Benefit-to- Cost Ratio***</u>
<u>Efficient Equipment Incentive</u>	<u>\$14,431</u>	<u>=</u>	<u>\$68,099</u>	<u>\$4,907</u>	<u>\$8,917</u>	<u>\$96,355</u>	<u>539,933</u>	<u>\$0.18</u>	<u>73</u>	<u>1.6</u>
<u>Energy Assessment &amp; Weatherization</u>	<u>\$2,366</u>	<u>=</u>	<u>\$0</u>	<u>=</u>	<u>=</u>	<u>\$2,366</u>	<u>2,607</u>	<u>\$0.91</u>	<u>1.45</u>	<u>0.4</u>
<u>Compact Fluorescent Lighting Campaign</u>	<u>\$15,207</u>	<u>\$0</u>	<u>\$0</u>	<u>=</u>	<u>=</u>	<u>\$15,207</u>	<u>392,137</u>	<u>\$0.04</u>	<u>19</u>	<u>6.9</u>
<u>Appliance Recycling</u>	<u>\$7,270</u>	<u>=</u>	<u>\$29</u>	<u>\$1</u>	<u>\$0</u>	<u>\$7,300</u>	<u>74,537</u>	<u>\$0.10</u>	<u>10</u>	<u>8.8</u>
<u>Renewable Energy</u>	<u>\$1,912</u>	<u>=</u>	<u>\$15</u>	<u>\$0</u>	<u>\$3,655</u>	<u>\$5,582</u>	<u>18,875</u>	<u>\$0.30</u>	<u>5</u>	<u>0.5</u>
<u>Direct Load Control</u>	<u>\$10,779</u>	<u>\$0</u>	<u>\$1,186</u>	<u>=</u>	<u>\$13</u>	<u>\$11,978</u>	<u>0</u>	<u>=</u>	<u>36</u>	<u>0.1</u>
<u>Energy Efficiency Behavior &amp; Education</u>	<u>\$2,829</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>\$2,829</u>	<u>23,504</u>	<u>\$0.12</u>	<u>5</u>	<u>2.2</u>
<u>Low Income WRAP</u>	<u>=</u>	<u>\$28,673</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>\$28,673</u>	<u>21,151</u>	<u>\$1.36</u>	<u>1</u>	<u>1.1</u>
<u>E-Power Wise</u>	<u>=</u>	<u>\$618</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>\$618</u>	<u>4,268</u>	<u>\$0.14</u>	<u>1</u>	<u>4.6</u>
<u>Custom Incentive</u>	<u>\$2</u>	<u>=</u>	<u>\$1,739</u>	<u>\$13,816</u>	<u>\$3,613</u>	<u>\$19,170</u>	<u>196,707</u>	<u>\$0.10</u>	<u>13</u>	<u>3.8</u>
<u>HVAC Tune-up</u>	<u>=</u>	<u>=</u>	<u>\$161</u>	<u>\$802</u>	<u>\$21</u>	<u>\$985</u>	<u>2,046</u>	<u>\$0.48</u>	<u>1</u>	<u>0.4</u>
<u>Load Curtailment</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>\$9,689</u>	<u>\$1,097</u>	<u>\$10,786</u>	<u>0</u>	<u>=</u>	<u>156</u>	<u>0.6</u>
<u>Total- Direct Cost</u>	<u>\$54,797</u>	<u>\$29,290</u>	<u>\$71,228</u>	<u>\$29,216</u>	<u>\$17,317</u>	<u>\$201,849</u>	<u>=</u>	<u>\$0.16</u>	<u>=</u>	<u>=</u>
<u>Common Cost Allocation#</u>	<u>\$11,715</u>	<u>\$6,262</u>	<u>\$15,227</u>	<u>\$6,246</u>	<u>\$3,702</u>	<u>\$43,151</u>	<u>=</u>	<u>\$0.03</u>	<u>=</u>	<u>=</u>
<b><u>TOTAL ESTIMATED COST</u></b>	<b><u>\$66,512</u></b>	<b><u>\$35,552</u></b>	<b><u>\$86,456</u></b>	<b><u>\$35,461</u></b>	<b><u>\$21,019</u></b>	<b><u>\$245,000</u></b>	<u>=</u>	<u>=</u>	<u>=</u>	<b><u>2.0</u></b>
<u>Total Estimated MWh/vr Reduction*</u>	<u>561,764</u>	<u>25,420</u>	<u>335,393</u>	<u>231,410</u>	<u>121,779</u>	<u>=</u>	<u>1,275,766</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>MWh/vr Reduction Target*</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>114,643</u>	<u>=</u>	<u>1,146,431</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>\$/kWh (direct &amp; common)</u>	<u>\$0.12</u>	<u>\$1.40</u>	<u>\$0.26</u>	<u>\$0.15</u>	<u>\$0.17</u>	<u>=</u>	<u>=</u>	<u>\$0.19</u>	<u>=</u>	<u>=</u>
<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>
<u>Total Estimated MW Reduction**</u>	<u>75</u>	<u>2</u>	<u>47</u>	<u>158</u>	<u>39</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>321</u>	<u>=</u>
<u>MW Reduction Target</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>=</u>	<u>297</u>	<u>=</u>

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Program	Residential	Low-Income	Small C&I	Large C&I	Institutional	TOTAL-Direct Program Cost	Total MWh/yr Reduction <sup>##</sup>	% of Total MWh/yr	Total MW Reduction <sup>###</sup>	% of Total MW <sup>###</sup>	Benefit Cost Ratio
Efficient Equipment Incentive	\$7,481	-	\$55,071	\$14,371	\$12,011	\$88,934	715,875	-52.5%	75	-19.7%	2.7-3.4*
Energy Assessment & Weatherization	\$2,658	-	-	-	-	\$2,658	5,961	0.4%	0.3	0.1%	1.3
C&I	\$17,712	-	-	-	-	\$17,712	292,137	21.4%	31	-8.0%	4.8
Appliance Recycling	\$9,082	-	-	-	-	\$9,082	114,761	8.4%	9	2.4%	10.9
ENERGY STAR® New Homes	\$2,731	-	-	-	-	\$2,731	5,211	0.4%	0.3	0.1%	1.4
Renewable Energy	\$1,097	-	-	-	\$4,484	\$5,581	18,190	1.4%	1	0.3%	1.1-1.5*
Direct Load Control	\$6,280	\$1,258	\$2,866	-	\$218	\$10,621	0	0.0%	32	-8.4%	0.2
Time of Use Rates	\$4,128	\$830	\$766	-	\$56	\$5,781	0	0.0%	61	15.9%	3.1-3.5*
Energy Efficiency Behavior & Education	\$2,830	-	-	-	-	\$2,830	18,100	1.3%	2	-0.4%	3.3
Low Income WRAP	-	\$28,657	-	-	-	\$28,657	18,695	1.4%	2	0.5%	0.8
ePower-Wise	-	\$681	-	-	-	\$681	1,080	0.1%	-	0.0%	1.1
C&I Custom Incentives	-	-	\$14,386	\$2,876	\$3,336	\$20,598	140,459	10.3%	15	3.9%	2.3-3.1*
HVAC Tune-up	-	-	\$1,257	-	\$90	\$1,347	22,176	1.6%	7	1.8%	5.7
Load Curtailment	-	-	-	\$12,045	\$2,616	\$14,661	15,000	1.1%	148	38.4%	0.5
Total-Direct Program Cost	\$53,990	\$31,426	\$74,346	\$29,292	\$22,812	\$211,875	-	-	-	-	-
Common Cost Allocation	\$8,698	\$5,062	\$11,976	\$4,718	\$3,675	\$34,129	-	-	-	-	-
<b>TOTAL ESTIMATED COST</b>	<b>\$62,697</b>	<b>\$36,488</b>	<b>\$86,322</b>	<b>\$34,010</b>	<b>\$26,487</b>	<b>\$246,004</b>	-	-	-	-	<b>2.79</b>
Total Estimated MWh/yr Reduction <sup>##</sup>	469,558	19,775	602,782	139,811	135,054	-	1,366,979 <sup>##</sup>	100.0%	-	-	-
MWh/yr Reduction Target	-	-	-	-	-	-	1,146,431	-	-	-	-
Total Estimated MW Reduction <sup>###</sup>	109	15	84	137	38	-	-	-	384 <sup>##</sup>	100.0%	-
MW Reduction Target	-	-	-	-	-	-	-	-	297	-	-

\* Varies by customer sector. [Notes for Table 5a:](#)

\* [Gross verified energy savings for measures installed Life of Plan](#) (thru 5/31/13).

\*\* [Gross verified peak load reductions as of 9/30/12. Assumes \(assumes\) energy efficiency measures with peak load reductions are installed by 5/31/12 so their peak load reductions count in the summer of 2012. MW reductions are grossed-up to reflect T&D losses \(compliance is at the "generation level"\).](#)

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\*\*\* Composite for all sectors.

# Includes costs that are not subject to the cost cap.

~~# Projected load reductions increased in the Load Curtailment program by 50 MW. The additional 50 MW of load curtailment slightly increases the energy savings (MWh/yr) associated with those curtailments, thereby slightly increasing the energy savings for the Load Curtailment Program and the EE&C Plan as a whole.~~

~~Updates to Table 5a reflect changes in direct program costs, the reallocation of CFL Program costs, and the updated peak reduction for the Load Curtailment program.~~

~~The reclassification of common and direct costs changed the percentage of each sector's direct costs. Because common costs are allocated based on direct costs, the reclassification resulted in a shift of common costs between sectors.~~

~~The change in MWh/yr and MW for the residential, low-income, and small C&I sectors is due to the reallocation of CFL Program savings to the residential sector, while the increase in MW reductions (and resultant increase in MWh/yr) for Load Curtailment is due to the change in forecasted peak load reductions from that program.~~

#### **1.4. Summary of Program Implementation Schedule over Four Year Plan Period.**

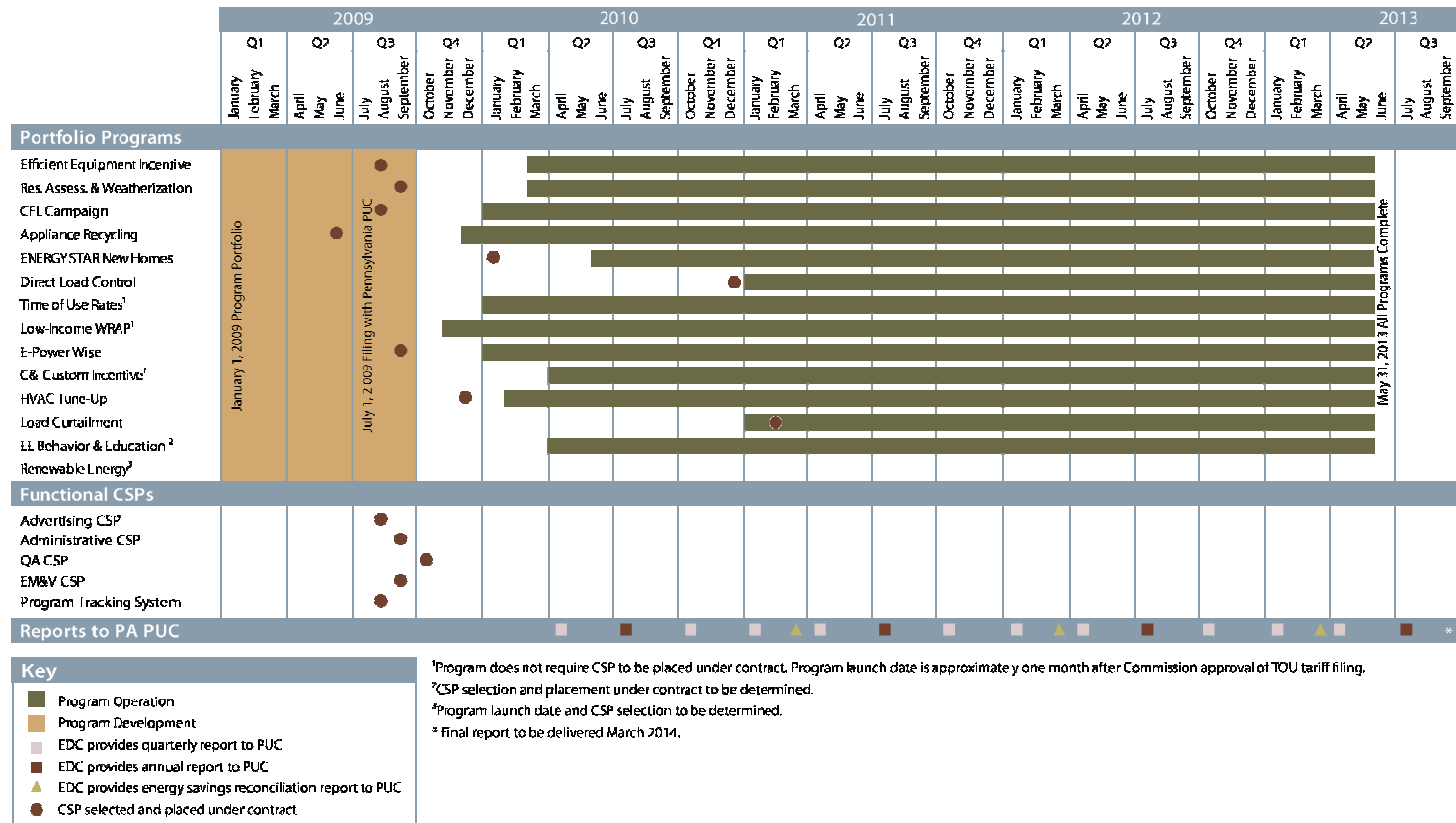
As described earlier, PPL Electric has started to develop the infrastructure (staff, systems, processes, CSPs, trade allies, market partners, etc.) that will be necessary to launch programs and ramp up quickly. PPL Electric has an aggressive schedule (see Section 4.1.5) for issuing Requests for Proposals (RFPs) and awarding most of its planned CSP contracts by November 2009 to ensure programs are ready to launch in late 2009 and early 2010, following Commission approval of the EE&C Plan. For these RFPs, the program objectives, reduction targets, schedule, and scopes of work will be based on the information contained herein. If the Plan changes during the Commission approval process, PPL Electric will rebalance its portfolio and modify CSP contracts accordingly.

For applicable programs, PPL Electric's Plan allows retroactive eligibility for customers who install, or commit to install, qualifying equipment and services between July 1, 2009, and Commission approval of the Plan. In addition to increasing the likelihood that PPL Electric can meet its targets, especially the 2011 energy reduction target and the peak load reduction target, this provision allows some customers to take advantage of Federal ARRA funds in addition to Act 129 funding to install energy-efficiency projects.

A summary of PPL Electric's four-year implementation schedule is provided below. A more detailed schedule, which includes milestones and anticipated delivery dates for each program as well as major functional needs that span the portfolio, is provided in Section 4.1.5.

~~Some of the dates in Figure 2 have changed during implementation of the Plan. For example, the selection of the CSP for the Direct Load Control Program was deferred until November 2010, the launch of the Direct Load Control Program was deferred until late 2010/early 2011, the selection of the CSP for the Load Curtailment Program was deferred until December 2010, and the launch of the Load Curtailment Program was deferred to late 2010/early 2011. These changes are reflected in the figure.~~

Figure 2. Program Implementation Schedule





### **1.5. Summary description of the EDC implementation strategy to manage EE&C portfolios and engage customers and trade allies.**

PPL Electric's implementation strategy is based on its assessment of features needed to help support customer energy-efficiency and demand response actions and generate a high level of energy and peak demand savings. The approach includes:

- A wide range of voluntary customer programs that provide tangible benefits.
- Ongoing customer support throughout the program process.
- Flexibility to allow customers to use their own resources and combine incentives from multiple programs or from other sources to form the best solution for any facility or system.
- Precision marketing that blends PPL Electric's in-house resources with external expertise from program CSPs and trade allies to match specific program outreach to customers most likely to participate.
- Coordination with trade allies, community based organizations, and other local market participants through outreach, training and potential co-marketing to ensure that they are aware of PPL Electric's programs, are able to articulate program features and benefits to potential customers and can support customers in their decision to take energy-efficiency and demand reduction actions.

PPL Electric's implementation strategy will rely on a broad range of contractors, partners, trade allies, community agencies, and other entities engaged in energy-efficiency to promote, deliver, and support the effective deployment of programs. PPL Electric expects to utilize CSPs to deliver services in support of its EE&C programs, with some CSPs operating as turnkey program delivery contractors, and others providing specific functions across multiple programs.

In addition, many PPL Electric programs will depend on trade allies and other market partners to engage customers, promote programs, evaluate projects, and install energy efficient equipment. The Company's objective is to strike a reasonable balance of costs, ratepayer value, customer choice, quality service, and energy and capacity savings.

A complete description of PPL Electric's implementation and program management strategy is provided in Section 4.1.

### **1.6. Summary description of EDC's data management, quality assurance and evaluation processes; include how EE&C Plan, portfolios, and programs will be updated and refined based on evaluation results.**

#### **1.6.2. Data Management**

The Company ~~will develop (or procure) and implement~~ed an electronic program management, tracking, reporting, and analysis system, which will allow program activities to be tracked in near real-time. This system ~~will also generate~~s reports and queries to allow ongoing monitoring, management, analysis, and reporting of activities.

A detailed description of PPL Electric's data management strategy and planned Energy-efficiency Management Information System (EEMIS) is provided in Section 5.2.

### 1.6.3. Quality Assurance

Quality assurance will be integral to implementation plans for each program. Quality Assurance and Quality Control (QA/QC) procedures will be deployed at various levels of program development and implementation, including CSP recruitment, CSP training, program operations, and implementation. PPL Electric's internal QA/QC function will be a primary job responsibility for the Customer Program Specialists managing each Act 129 program. PPL Electric's internal QA/QC procedures for Act 129 will:

- Focus on anticipating, detecting, and preventing problems or errors rather than reacting to them.
- Strive to ensure work is done correctly the first time.
- Ensure CSPs utilize qualified individuals to perform all work functions through:
  - A thorough, competitive hiring process for each CSP that mandates the use of appropriately skilled personnel;
  - Proper training of personnel to maintain current knowledge and skills needed for their position;
  - Adequate planning, coordination, supervision, and technical direction; and
  - Proper definition and a clear understanding of job requirements and procedures.

A detailed description of PPL Electric's QA/QC process and standards is provided in Section 6.1.

### 1.6.4. Evaluation Process

Each program in the Plan will have an impact ~~assessment~~evaluation, and a process ~~analysis~~evaluation, and a ~~cost-effectiveness~~ evaluation. The impact ~~assessment~~evaluation will focus on developing accurate estimates of the program's actual savings, based on protocols developed by the ~~Statewide EM&V contractor~~SWE and the Commission. The process ~~analysis~~evaluation will focus on qualitative assessments of the program's design, operation, and implementation. The process evaluation also will include an "evaluability" assessment to ensure all data required for the impact ~~assessment~~evaluation are collected. The cost-effectiveness evaluation will determine the cost-effectiveness of the programs and portfolio using the Total Resource Cost Test method specified by the Commission. Ongoing monitoring activities and results will be tracked, monitored and reported to the Commission, ~~using an Energy efficiency Management Information System, described in greater detail in Section 5.~~ PPL Electric develops an Evaluation Plan that describes the EM&V requirements for each program. The Evaluation Plans are submitted to the SWE for approval.

### 1.6.5. Updating the Plan

As discussed previously, developing a well-balanced plan within the confines of the Act was a complex process, which relied on a large number of technical, economic and market assumptions. Over the life of the Plan, PPL Electric expects that many of these assumptions will have to be revisited, refined, and, where necessary, revised to reflect updated market conditions, variations from the Plan's estimates, customer preferences, experience in Pennsylvania or other states, cost-effectiveness, new technologies and

practices, new state or federal energy standards, results of the annual reviews, and for other factors. The extent to which such revisions may be called for and whether they will have a material effect on the design and outcomes of programs in the Plan are difficult to predict. The Company, however, expects some revisions to particular elements of various programs may be necessary as new information becomes available through ongoing monitoring and management of the Plan, and through the process and impact evaluation activities. The Company ~~plans to begin~~began its ongoing monitoring and management as soon as each program ~~launches~~launched. The Company ~~plans to begin~~began its process evaluations early in program implementation, so it can provide timely feedback to the planning and implementation processes. The results of ongoing monitoring, management, and process analysis ~~will be~~are used to identify program aspects that work well or do not, and to adjust program features as warranted. The Company expects to continually refine its proposed programs, adjust projected participation levels and customer incentive levels, reallocate budgets, or introduce new measures and programs within the parameters of Act 129, ~~if to reflect market conditions, progress (actual values) that differ from estimates in the EE&C Plan, changes in the TRM, lessons learned, best practices, and other factors, market conditions warrant.~~ All such revisions to this EE&C Plan will be submitted to the Commission for its review.

### 1.7. Summary Description of Cost Recovery Mechanism

Section 2806.1(g) of Act 129 requires that the total cost of any EE&C Plan cannot exceed 2% of the EDC's total annual revenues as of December 31, 2006. PPL Electric's total annual revenues for calendar year 2006 were approximately \$3 billion (3,075,068,824). Accordingly, the 2% cost cap established by Act 129 is approximately \$61.5 million (\$61,501,376). In the Implementation Order entered on January 16, 2009, at Docket No. M-2008-2069887, the Commission concluded that this limitation on the "total cost of any plan" should be interpreted as an annual amount, rather than an amount for the full term of the Plan.<sup>18</sup>

Although the 2% cost cap will be calculated on an annual basis, PPL Electric believes that it should be applied on a total EE&C Plan basis. Because the EE&C Plans will be implemented by program year (with each program year beginning June 1 and ending May 31), the initial Act 129 program will have a total duration of four program years. Multiplying PPL Electric's annual cost cap of \$61.5 million per year by four program years produces a total spending cap for the Company's EE&C Plan of \$246 million.

PPL Electric will spend most of the \$246 million to implement its EE&C Plan, including administrative costs. However, this total cost also will include the costs that PPL Electric incurred to develop its EE&C Plan. In the Implementation Order, the Commission found that EDCs should be permitted to recover the incremental cost incurred to design, create, and obtain Commission approval of a plan.<sup>19</sup> In addition, in an Order entered on May 28, 2009 at Docket No. P-2009-2091818, the Commission granted PPL Electric's request to defer such plan development costs on its balance sheet as a regulatory asset. Accordingly, the Company proposes to amortize and recover those deferred costs ratably over the 41-month life of its initial EE&C Plan (i.e., January 1, 2010 through May 31, 2013). The amortization of those costs will be included within the \$246 million spending cap.

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<sup>18</sup> Implementation Order, page 34

<sup>19</sup> Ibid, p. 33

Section 2806.1(a)(11) of Act 129 requires that EE&C measures must be paid for by the same customer class that receives the energy and conservation benefits of those measures. Accordingly, in its January 16, 2009 Implementation Order, the Commission directed EDCs to first assign the costs relating to each measure to those classes that will receive the benefits.<sup>20</sup> PPL Electric will follow this direct assignment approach wherever possible. However, some costs will relate to EE&C measures that are applicable to more than one customer class or that provide system-wide benefits. The Commission directed EDCs to allocate those costs, and general administrative costs, using reasonable and generally acceptable cost of service principles as are commonly utilized in base rate proceedings.<sup>21</sup> Consistent with this provision of the Implementation Order, PPL Electric proposes to allocate such costs using an allocation factor equal to the percentage of the EE&C costs directly assigned to each customer class to the total of the EE&C costs directly assigned to all customer classes.

Section 2806.1(k)(1) of Act 129 authorizes EDCs to recover the costs of their EE&C Plan through a reconcilable adjustment clause under Section 1307 of the Public Utility Code. The Commission reiterated this requirement in its January 16, 2009 Implementation Order.<sup>22</sup> In its EE&C Plan filing, PPL Electric has included pro-forma tariff pages to implement such a cost recovery mechanism. The Implementation Order also directs that such cost recovery mechanisms must be non-bypassable, and not affect the EDC's price-to-compare, if the EE&C Plan benefits both shopping and non-shopping customers.<sup>23</sup> Because all of the programs included in PPL Electric's proposed EE&C Plan will benefit both shopping and non-shopping customers, the Company has designed its cost recovery mechanism to be non-bypassable. For residential customers, the cost recovery mechanism will be applied as a levelized cents/kWh component included in the distribution charge. For small C&I customers, the cost recovery mechanism will be applied as a levelized cents/kWh charge that will be a separate line item on the customer's bill. For large C&I customers, the cost recovery mechanism will be applied as a \$/kW charge, as a separate line item on the customer's bill, where the demand (kW) is the customer's PJM Interconnection, LLC Peak Load Contribution (PLC) which may change yearly.

The Company proposes to calculate separately the applicable EE&C costs for each of the three major customer classes on its system, i.e., (1) residential, (2) small commercial and industrial, and (3) large commercial and industrial. These costs will vary in each program year of the EE&C Plan. In some program years, they may be greater than the annual 2% cost cap; in other program years, they may be less than the cap. However, over the four program years, the total costs of the EE&C Plan for all customer classes will not exceed \$246 million.

Although costs will vary year-to-year, PPL Electric proposes to recover those costs on a levelized basis. Annual budget amounts for each customer class will be developed on a levelized basis for the four years of the Company's proposed EE&C Plan. On a total system basis, that levelization will equate to an EE&C Plan budget in program year one of approximately \$30 million and EE&C Plan budgets in program years two through four of approximately \$72 million per year. These budget amounts will be adjusted to include

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<sup>20</sup> Ibid, p. 36

<sup>21</sup> Ibid, p. 37

<sup>22</sup> Implementation Order, at page 38

<sup>23</sup> Ibid, p. 38

the annual costs that PPL Electric will incur to pay for the statewide Act 129 evaluator. Section 2806.1(h) of Act 129 provides that the Commission can recover such program implementation costs from EDCs, and logically it follows that EDCs can recover those costs from customers. However, the costs for the statewide Act 129 evaluator and for the Company's net-to-gross evaluations are not included under the Company's 2% cost cap. In establishing that cost cap, Section 2806.1(g) specifically characterizes the cap as a limitation on the "total costs of any plan required under this section." Because the costs of the statewide Act 129 evaluator are not the costs of PPL Electric's EE&C Plan, they are not subject to the limitation set forth in Section 2806.1(g). The Commission has determined that costs for annual net-to-gross evaluations are not subject to the cost cap.

The adjusted budget amounts will be included each year in the Company's cost recovery mechanism. These amounts will be recovered from customers in the residential and small commercial and industrial classes on a levelized cents per kWh basis. They will be recovered from customers in the large commercial and industrial class on a dollar per kW basis where the kW demand is the customer's PJM Interconnection, LLC Peak Load Contribution (PLC).

For each customer class, PPL Electric proposes to separately reconcile the revenues collected under the cost recovery mechanism with the adjusted budget amounts for that year. This reconciliation, which will be performed on an annual basis, primarily will reflect variations in actual sales from forecasted sales. The Company does not propose to reconcile the revenues collected under the cost recovery mechanism to its actual spending levels in each year. As discussed above, those spending levels can vary from year-to-year.

In addition to the annual reconciliation, PPL Electric proposes to make "mid-course" corrections in the cost recovery mechanism to reflect major changes to any of its EE&C programs. Any mid-course corrections will be reviewed with stakeholders and submitted to the Commission for approval. Finally, at the end of the four-year EE&C Plan, the Company will reconcile total revenue collected to its total budget for the four-year EE&C Plan. Of course, the annual reconciliation, any "mid-course" corrections and the end of Plan reconciliation all will be subject to Commission review and approval before PPL Electric actually adjusts customers' rates.

PPL Electric will not collect or pay interest on under- or over-collections of Act 129 costs.

Finally, PPL Electric is not proposing an expiration date for the cost recovery mechanism. The mechanism will be needed to refund any over collection or recover any under collection existing at the end of the four-year EE&C Plan and for the purpose of any ongoing program cost recovery. The cost recovery will not exceed the mandated 2% cost cap.

No Act 129 capital costs are included as part of the Act 129 cost recovery rider or will be placed into rate base.

## 2. Energy-efficiency Portfolio/Program Summary Tables and Charts

### 2.1. Residential, Commercial/Industrial Small, Commercial/Industrial Large and Governmental/Non-profit Portfolio Summaries.

Table 6~~Table 6~~ below, provides a summary of estimated net lifetime energy savings and estimated peak demand savings for each program in PPL Electric's portfolio, by customer segment.

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**Table 6. Program Summaries<sup>24</sup>**

	<u>Program Name</u>	<u>Program Market</u>	<u>Program Two Sentence Summary</u>	<u>Program Years Operated</u>	<u>Net Lifetime MWh/yr Savings</u>	<u>Net Peak Demand MW Savings</u>	<u>Percentage of Portfolio MWh/yr savings (%)</u>	<u>Percentage of Portfolio Total Lifetime MWh/yr savings (%)</u>
<u>Residential Portfolio Programs (exclusive of Low Income)</u>	<u>Appliance Recycling</u>	<u>Working, residential refrigerators, freezers and room AC</u>	<u>Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.</u>	<u>2009 - 2013</u>	<u>585,765</u>	<u>12.1</u>	<u>6%</u>	<u>5%</u>
	<u>Residential Lighting (previously Compact Fluorescent Lighting Campaign)</u>	<u>All customers</u>	<u>Up-stream incentives on ENERGY STAR CFLs. Customers receive discount at the register when purchasing.</u>	<u>2009 - 2013</u>	<u>2,352,824</u>	<u>25.0</u>	<u>31%</u>	<u>20%</u>
	<u>Custom Incentive</u>	<u>Existing single family homes</u>	<u>Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.</u>	<u>2009 - 2013</u>	<u>272</u>	<u>0.0</u>	<u>0.0%</u>	<u>0.0%</u>
	<u>Energy Efficiency Behavior &amp; Education</u>	<u>All customers</u>	<u>Activities and initiatives to educate customers about low cost/no-cost ways to reduce energy consumption and peak demand.</u>	<u>2010 - 2013</u>	<u>60,215</u>	<u>5.4</u>	<u>1.8%</u>	<u>0.5%</u>
	<u>Direct Load Control</u>	<u>New and existing homes with central air conditioner or heat pump</u>	<u>Control device cycles central AC or heat pump on and off during summer peak period. Participants receive incentive at end of summer.</u>	<u>2010-2013</u>	<u>0</u>	<u>32.1</u>	<u>0%</u>	<u>0%</u>
	<u>Efficient Equipment Incentive</u>	<u>All customers</u>	<u>Prescriptive rebate for the purchase of energy efficient electric equipment.</u>	<u>2009-2013</u>	<u>801,993</u>	<u>8.1</u>	<u>5%</u>	<u>7%</u>
	<u>Renewable Energy</u>	<u>Existing and new single family homes</u>	<u>Prescriptive rebates for the installation of renewable energy equipment</u>	<u>2009-2010</u>	<u>132,110</u>	<u>0.9</u>	<u>0.7%</u>	<u>1%</u>

<sup>24</sup> This is Table 4 in the PUC Template.

## Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

	<a href="#">Energy Assessment &amp; Weatherization</a>	<a href="#">Existing single family homes</a>	<a href="#">Free installation of low cost energy saving measures, rebates for energy audits and weatherization measures.</a>	<a href="#">2009-2013</a>	<a href="#">7,653</a>	<a href="#">1.5</a>	<a href="#">0.2%</a>	<a href="#">0%</a>
	<a href="#">Totals for Residential Sector</a>				<a href="#">3,940,832</a>	<a href="#">85.0</a>	<a href="#">44%</a>	<a href="#">34%</a>

-	Program Name	Program Market	Program Summary	Program Years Operated	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh savings (%)	Percentage of Portfolio Total Lifetime MWh savings (%)
Portfolio Programs (exclusive)	Appliance Recycling Program	Working, refrigerators, freezers and room AC	Free pick up, recycling and disposal of appliances and participant rebate.	2009-2012	917,504	13,148	8%	6%
	Energy Efficiency Behavior & Education	All customers	Activities to educate customers about low cost/no EE&C behavior and measures.	2010-2012	90,500	2,060	1%	1%
	Residential Energy Assessment & Weatherization Program	Existing single-family homes	Home energy assessment, direct installation measures, and rebates weatherization.	2010-2012	62,564	591	0.4%	0.4%
	Direct Load Control Program	Homes with central air conditioner or heat pump	Control device cycles central AC or heat pump on and off during summer peak period. Participant incentive at end of summer.	2010-2012	0	19,192	NA	NA
	Efficient Equipment Incentive Program	All customers	Prescriptive rebate for energy-efficient electric equipment.	2010-2012	396,858	5,032	2%	3%
	Compact Fluorescent Lighting Campaign	All customers	Up-stream incentives on ENERGY STAR CFLs. Customers receive discount at the register when purchasing.	2010-2012	1,418,953	45,240	21%	10%
	ENERGY STAR New Homes	Single-family new construction	Incentive for new homes that meet ENERGY STAR new construction standards.	2011-2012	78,165	593	0.4%	1%
	Time of Use Rates	All customers	Variable electricity prices based on peak and off-peak use.	2010-2012	0	44,316	NA	NA



## Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

<a href="#">Renewable Energy Program</a>	<a href="#">Existing and new single-family homes</a>	<a href="#">Prescriptive rebates for the installation of renewable energy equipment. Expected to close in 2010</a>	<a href="#">2010-2012</a>	<a href="#">55,183</a>	<a href="#">288</a>	<a href="#">0.3%</a>	<a href="#">0.4%</a>
<a href="#">Totals for Residential Sector:</a>	<a href="#">-</a>			<a href="#">3,010,726</a>	<a href="#">130,460</a>	<a href="#">34%</a>	<a href="#">21%</a>

Residential customers are also eligible for the Custom Incentive Program but participation is expected to be minimal because most residential measures are covered in other programs. The primary residential participants in the Custom Incentive Program are expected to be farms that are on a residential rate schedule.

~~Notes for Table 6 Residential: Changes to the CFL program are due to the reallocation of CFLs from the Low Income and Small G&I sectors to the Residential sector.~~

<a href="#">=</a>	<a href="#">Program Name</a>	<a href="#">Program Market</a>	<a href="#">Program Two Sentence Summary</a>	<a href="#">Program Years Operated</a>	<a href="#">Net Lifetime MWh/yr Savings</a>	<a href="#">Net Peak Demand kW Savings</a>	<a href="#">Percentage of Portfolio MWh/yr savings (%)</a>	<a href="#">Percentage of Portfolio Total Lifetime MWh/yr savings (%)</a>
<a href="#">Residential Low-Income Sector Programs (income-qualified participants only; excludes low-income participation in non low-income programs)</a>	<a href="#">E-Power Wise</a>	<a href="#">Income qualified customers</a>	<a href="#">Free low cost efficiency measures and energy efficiency education.</a>	<a href="#">2009-2013</a>	<a href="#">25,610</a>	<a href="#">0.8</a>	<a href="#">0.3%</a>	<a href="#">0.2%</a>
	<a href="#">Low Income WRAP</a>	<a href="#">Income qualified customers in single and multifamily existing homes</a>	<a href="#">Free energy assessment, low cost efficiency measures, weatherization and larger Efficient Equipment Incentive Program replacement.</a>	<a href="#">2009-2013</a>	<a href="#">317,269</a>	<a href="#">2.0</a>	<a href="#">1.7%</a>	<a href="#">2.7%</a>
	<a href="#">Totals for Low-Income Sector</a>				<a href="#">342,879</a>	<a href="#">2.8</a>	<a href="#">2%</a>	<a href="#">3%</a>

## Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

-	Program Name	Program Market	Program Summary	Program Years Operated	Net Lifetime MWh Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh savings (%)	Percentage of Portfolio Total Lifetime MWh savings (%)
Residential Low-Income Sector Programs	E-Power-Wise	Income-qualified customers	Free low-cost efficiency measures and energy-efficiency education.	2009-2012	7,342	149	0.1%	0.1%
	Direct Load Control Program	Homes with central air conditioner or heat pump	Control device cycles central AC or heat pump on and off during summer peak period. Participants receive incentive at end of summer.	2010-2012	0	3,848	NA	NA
	Compact Fluorescent Lighting Campaign	All customers	Up-stream incentives on ENERGY STAR CFLs. Customers receive discount at the register when purchasing. Note: sector is eligible for program but all savings and costs will be allocated to Residential					
	Time of Use Rates	All customers	Variable electricity prices based on peak and off-peak use. Customers save energy by shifting use away from higher priced rate periods.	2010-2012	0	8,884	NA	NA
	Low-Income WRAP	Low-income customers in single and multifamily existing homes	Free energy assessment, low-cost efficiency measures, weatherization, and larger equipment replacement.	2009-2012	241,753	2,985	1%	2%
	Totals for Low-Income Sector	-			249,095	15,866	1%	2%

<sup>2</sup> Note: the total percentage of portfolio MWh savings shown for the low-income sector (5%) is based on projected portfolio savings of 1,361,979 MWh which exceeds the mandated target of 1,146,000 MWh. This total is approximately 6% of the mandated target. See Appendix G for a list of measures available to low-income customers and available to all customers.

Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
Commercial/ Industrial Small Portfolio Programs	Appliance Recycling	<a href="#">Working, residential refrigerators, freezers and room AC</a>	<a href="#">Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.</a>	<a href="#">2009-2013</a>	<a href="#">5,244</a>	<a href="#">0.2</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Custom Incentive	<a href="#">C&amp;I: New and Existing Facilities</a>	<a href="#">Incentives for whole-building efficiency, technical studies and installation of custom efficiency Efficient Equipment Incentive Program.</a>	<a href="#">2009-2013</a>	<a href="#">182,395</a>	<a href="#">5.5</a>	<a href="#">1%</a>	<a href="#">2%</a>
	Direct Load Control	<a href="#">All customers</a>	<a href="#">Prescriptive rebate for the purchase of energy efficient electric equipment.</a>	<a href="#">2010-2013</a>	<a href="#">0</a>	<a href="#">3.5</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Efficient Equipment Incentive	<a href="#">Large C&amp;I with packaged HVAC systems</a>	<a href="#">Incentives for inspection, tune up and retrofits of packaged HVAC equipment.</a>	<a href="#">2009-2013</a>	<a href="#">2,006,253</a>	<a href="#">43.0</a>	<a href="#">25%</a>	<a href="#">17%</a>
	HVAC Tune-up	<a href="#">C&amp;I customers with monthly demand &gt; 500 kW</a>	<a href="#">Incentive for customers who curtail at least 15% or 100 kW of average load during summer peak periods.</a>	<a href="#">2010-2013</a>	<a href="#">647</a>	<a href="#">0.5</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Renewable Energy	<a href="#">Working, residential refrigerators, freezers and room AC</a>	<a href="#">Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.</a>	<a href="#">2009-2011</a>	<a href="#">2,927</a>	<a href="#">0.0</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Totals for C/I Small Sector				<a href="#">2,197,466</a>	<a href="#">52.8</a>	<a href="#">26%</a>	<a href="#">19%</a>

-	Program Name	Program Market	Program Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
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Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

Commercial/ Industrial-Small Portfolio Programs	<del>Commercial and Industrial Custom Incentive Program</del>	<del>C&amp;I new and existing facilities</del>	<del>Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.</del>	<del>2010-2012</del>	<del>1,283,798</del>	<del>19,250</del>	<del>7%</del>	<del>9%</del>
	<del>Direct Load Control Program</del>	<del>Buildings with central AC or heat pump</del>	<del>Control device cycles central AC or heat pump on and off during summer peak period. Participants receive incentive at end of summer.</del>	<del>2010-2012</del>	<del>0</del>	<del>8,705</del>	<del>NA</del>	<del>NA</del>
	<del>Efficient Equipment Incentive Program</del>	<del>All customers</del>	<del>Prescriptive rebate for the purchase of energy efficient electric equipment.</del>	<del>2010-2012</del>	<del>6,217,277</del>	<del>87,310</del>	<del>35%</del>	<del>44%</del>
	<del>Small Commercial HVAC Tune-up Program</del>	<del>Small C&amp;I with packaged HVAC systems</del>	<del>Incentives for inspection, tune-up and retrofits of packaged HVAC equipment.</del>	<del>2010-2012</del>	<del>132,280</del>	<del>10,353</del>	<del>2%</del>	<del>1%</del>
	<del>Time of Use Rates</del>	<del>All customers</del>	<del>Variable electricity prices based on peak and off-peak use.</del>	<del>2010-2012</del>	<del>0</del>	<del>7,324</del>	<del>NA</del>	<del>NA</del>
	<del>Compact Fluorescent Lighting Campaign</del>	<del>All customers</del>	<del>Up-stream incentives on ENERGY STAR CFLs. Customers receive discount at the register when purchasing. Note: sector is eligible for program but all savings and costs will be allocated to Residential</del>					
	<del>Totals for C/I Small Sector</del>	<del>-</del>			<del>7,633,356</del>	<del>132,942</del>	<del>44%</del>	<del>54%</del>

Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

<u>"</u>	<u>Program Name</u>	<u>Program Market</u>	<u>Program Two Sentence Summary</u>	<u>Program Years Operated</u>	<u>Net Lifetime MWh/yr Savings</u>	<u>Net Peak Demand kW Savings</u>	<u>Percentage of Portfolio MWh/yr savings (%)</u>	<u>Percentage of Portfolio Total Lifetime MWh/yr savings (%)</u>
<u>Commercial/Industrial Large Portfolio Programs</u>	<u>Appliance Recycling</u>	<u>Working residential refrigerators, freezers and room AC</u>	<u>Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.</u>	<u>2010-2012</u>	<u>210</u>	<u>0.0</u>	<u>0%</u>	<u>0.0%</u>
	<u>Custom Incentive</u>	<u>C&amp;I: New and Existing Facilities</u>	<u>Incentives for whole-building efficiency, technical studies and installation of custom efficiency Efficient Equipment Incentive Program.</u>	<u>2010-2012</u>	<u>2,104.092</u>	<u>11.3</u>	<u>11%</u>	<u>18%</u>
	<u>Efficient Equipment Incentive</u>	<u>All customers</u>	<u>Prescriptive rebate for the purchase of energy efficient electric equipment.</u>	<u>2010-2012</u>	<u>1,321.932</u>	<u>9.0</u>	<u>7%</u>	<u>11%</u>
	<u>HVAC Tune-up</u>	<u>Large C&amp;I with packaged HVAC systems</u>	<u>Incentives for inspection, tune up and retrofits of packaged HVAC equipment.</u>	<u>2010-2012</u>	<u>4.411</u>	<u>0.0</u>	<u>0%</u>	<u>0%</u>
	<u>Load Curtailment</u>	<u>C&amp;I customers with monthly demand &gt; 500 kW</u>	<u>Incentive for customers who curtail at least 15% or 100 kW of average load during summer peak periods.</u>	<u>2010-2012</u>	<u>0</u>	<u>140.4</u>	<u>0%</u>	<u>0.0%</u>
	<u>Totals for C/I Large Sector</u>	<u>=</u>			<u>3,430.646</u>	<u>160.8</u>	<u>18%</u>	<u>29%</u>

<u>-</u>	<u>Program Name</u>	<u>Program Market</u>	<u>Program Two Sentence Summary</u>	<u>Program Years Operated</u>	<u>Net Lifetime MWh/yr Savings</u>	<u>Net Peak Demand kW Savings</u>	<u>Percentage of Portfolio MWh/yr savings (%)</u>	<u>Percentage of Portfolio Total Lifetime MWh/yr savings (%)</u>
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Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

Commercial/ Industrial Large Portfolio Programs	<del>Load Curtailment Program</del>	<del>C&amp;I customers with monthly demand &gt; 500 kW</del>	<del>Incentive for customers who curtail at least 15% or 100 kW of average load during summer peak periods.</del>	<del>2010-2012</del>	<del>12,495</del>	<del>124,950</del>	<del>1%</del>	<del>-0.1%</del>
	<del>Commercial and Industrial Custom Incentive Program</del>	<del>C&amp;I: new and existing facilities</del>	<del>Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.</del>	<del>2010-2012</del>	<del>235,134</del>	<del>3,428</del>	<del>1%</del>	<del>2%</del>
	<del>Efficient Equipment Incentive Program</del>	<del>All customers</del>	<del>Prescriptive rebate for the purchase of energy efficient electric equipment.</del>	<del>2010-2012</del>	<del>1,544,478</del>	<del>48,441</del>	<del>8%</del>	<del>11%</del>
	<del>Totals for C/I Large Sector</del>	<del>-</del>			<del>1,792,107</del>	<del>146,818</del>	<del>10%</del>	<del>-13%</del>

## Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
Governmental/ Non-Profit Portfolio Programs	Appliance Recycling	<a href="#">Working, residential refrigerators, freezers and room AC</a>	<a href="#">Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.</a>	<a href="#">2010-2012</a>	<a href="#">14</a>	<a href="#">0.0</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Custom Incentive	<a href="#">Govt./NP: New and Existing Facilities</a>	<a href="#">Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.</a>	<a href="#">2010-2012</a>	<a href="#">663,847</a>	<a href="#">0.5</a>	<a href="#">3%</a>	<a href="#">6%</a>
	Direct Load Control	<a href="#">Govt./NP buildings with central AC or heat pump</a>	<a href="#">Control device cycles central AC or heat pump on and off during summer peak period. Participants receive incentive at end of summer.</a>	<a href="#">2010-2012</a>	<a href="#">0</a>	<a href="#">0.0</a>	<a href="#">0%</a>	<a href="#">0%</a>
	Efficient Equipment Incentive	<a href="#">All customers</a>	<a href="#">Prescriptive rebate for the purchase of energy efficient electric equipment.</a>	<a href="#">2010-2012</a>	<a href="#">975,219</a>	<a href="#">29.3</a>	<a href="#">5%</a>	<a href="#">8%</a>
	HVAC Tune-up	<a href="#">Govt./NP facilities with packaged HVAC systems</a>	<a href="#">Incentives for inspection, tune up and retrofits of packaged HVAC equipment.</a>	<a href="#">2010-2012</a>	<a href="#">145</a>	<a href="#">0.0</a>	<a href="#">0%</a>	<a href="#">0.0%</a>
	Curtailment	<a href="#">C&amp;I customers with monthly demand &gt; 500 kW</a>	<a href="#">Incentive for customers who curtail at least 15% or 100 kW of average load during summer peak periods.</a>	<a href="#">2010-2012</a>	<a href="#">0</a>	<a href="#">15.9</a>	<a href="#">0.0%</a>	<a href="#">0.00%</a>
	Renewable Energy	<a href="#">Existing and new facilities</a>	<a href="#">Prescriptive rebates for the installation of renewable energy equipment</a>	<a href="#">2010-2012</a>	<a href="#">148,085</a>	<a href="#">3.8</a>	<a href="#">1%</a>	<a href="#">1%</a>
	Totals for Gov't/NP Sectors				<a href="#">1,787,311</a>	<a href="#">49.5</a>	<a href="#">10%</a>	<a href="#">15%</a>
<b>Total for Plan</b>					<a href="#">11,699,133</a>	<a href="#">372<sup>25</sup> 322<sup>26</sup></a>	<a href="#">100%</a>	<a href="#">100%</a>

<sup>25</sup> Demand response through 9/30/12 + peak load reductions installed by 5/31/13

<sup>26</sup> Demand response through 9/30/12 + peak load reductions installed by 5/31/12. This is the basis for peak load compliance.

Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

-	Program Name	Program Market	Program Two-Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
Governmental/ Non-Profit Portfolio Programs	Commercial and Industrial Custom Incentive Program	Govt./NP; New and Existing Facilities	Incentives for whole-building efficiency, technical studies, and installation of custom efficiency equipment.	2009-2012	304,304	4,510	2%	2%
	Direct Load Control Program	Govt./NP buildings with central AC or heat pump	Control device cycles central AC or heat pump on and off during summer peak period. Participants receive incentive at end of summer.	2009-2012	0	655	NA	NA
	Efficient Equipment Incentive Program	All customers	Prescriptive rebate for the purchase of energy-efficient electric equipment.	2009-2012	1,199,231	16,583	7%	8%
	HVAC Tune-Up Program	Govt./NP facilities with packaged HVAC systems	Incentives for inspection, tune-up and retrofits of packaged HVAC equipment.	2009-2012	9,946	778	1%	0.1%
	Time of Use Rates	All customers	Variable electricity prices based on peak and off-peak use.	2009-2012	0	551	NA	NA
	Renewable Energy Program	Existing and new facilities	Prescriptive rebates for the installation of renewable energy equipment. Expected to close in 2010.	2009-2012	222,174	1,714	1%	2%
	Curtailment Program	C&I customers with monthly demand > 500 kW	Incentive for customers who curtail at least 15% or 100 kW of average load during summer peak periods.	2010-2012	2,255	22,550	0.2%	0.02%



Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

-	Program Name	Program Market	Program Two-Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
	Totals for Gov't/NP Sector Programs	-			1,737,909	47,342	11%	12%
Total for Plan		-			14,432,194	473,428	100%	100%

## 2.2. Plan data: Costs, Cost-effectiveness, and Savings by program, sector, and portfolio.

- ~~Table 3~~ ~~Table 3 (see page 18)~~ provides a summary of estimated lifetime costs and benefits by program for PPL Electric's entire portfolio. Formatted: Font: (Default) Arial, 11 pt, Not Bold, Font color: Black
- ~~Table 4~~ ~~Table 4 (see page 19)~~ reports PPL Electric's estimated energy savings and demand impacts for each customer sector by program year, as well as cumulative projected Portfolio savings by sector. Formatted: Font: (Default) Arial, 11 pt, Not Bold, Font color: Auto
- ~~Table 5~~ ~~Table 5 (see page 20)~~ includes the overall estimated portfolio budget broken out by sector and program year. Formatted: Font: (Default) Arial, 11 pt, Not Bold, Font color: Auto
- Table 5a ~~(see page 21)~~ includes a summary of estimated program costs and savings by customer sector and by program.
- ~~Table 6~~ ~~Table 6 (see pages 30 through 34)~~ provides a summary of estimated net lifetime energy savings and peak demand savings for each program in PPL Electric's portfolio, segregated by customer sector. Formatted: Font: (Default) Arial, 11 pt, Not Bold, Font color: Auto
- Table 8 summarizes the estimated cost-effectiveness of programs by sector.

## 2.3. Budget and Parity Analysis

Table 7. Estimated Budget and Parity Analysis Summary<sup>27</sup>

	<u>% of EE&amp;C Plan Energy Savings</u>	<u>% of EE&amp;C Plan Energy Savings (excluding Instit.)</u>	<u>% of EE&amp;C Plan Costs</u>	<u>% of EE&amp;C Plan Costs (excluding Instit.)</u>	<u>% of PPL EU Load<sup>28</sup></u>	<u>% of PPL EU Total Revenue in 2008<sup>29</sup></u>	<u>% of EE&amp;C Plan Peak Savings</u>
<u>Residential &amp; Low-Income</u>	<u>46%</u>	<u>51%</u>	<u>42%</u>	<u>46%</u>	<u>38%</u>	45%	24%
<u>Small C&amp;I</u>	<u>26%</u>	<u>29%</u>	<u>35%</u>	<u>39%</u>	<u>37%</u>	<u>32%</u>	<u>15%</u>
<u>Large C&amp;I</u>	<u>18%</u>	<u>20%</u>	<u>14%</u>	<u>16%</u>	<u>24%</u>	<u>23%</u>	<u>49%</u>
<u>Institutional</u>	<u>10%</u>	=	<u>9%</u>		<u>included in sectors above</u>		<u>12%</u>

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<sup>27</sup> This is a modified version of Table 5 in the PUC Template

<sup>28</sup> PPL Electric Utilities Consumption Forecast and Peak Load Data filed with Commission on February 9, 2009 for the period of June 1, 2009 through May 31, 2010.

<sup>29</sup> 2008 was the last year without significant shopping. Subsequent years have significant shopping and much of the EGS revenue from C&I customers is billed directly by EGSs and is not known by the Company.

## Section 2: Energy-efficiency Portfolio/Program Summary Tables and Charts

—Customer Class	Budget	% of Total EDG Budget	% of Total Budget Excluding Other Expenditures	% of Total Customer Revenue	Difference
Residential	\$62,697,398	25%	25%	35%	-10%
Residential Low Income	\$36,488,372	15%	15%	7%	8%
<b>Residential Subtotal</b>	<b>\$99,185,770</b>	<b>40%</b>	<b>40%</b>	<b>42%</b>	<b>-2%</b>
C&I Small	\$86,322,376	35%	35%	24%	11%
C&I Large	\$34,010,294	14%	14%	27%	-14%
<b>C&amp;I Subtotal</b>	<b>\$120,332,670</b>	<b>49%</b>	<b>49%</b>	<b>52%</b>	<b>-3%</b>
Governmental/Non-Profit	\$26,486,533	11%	11%	5%	6%
<b>Governmental/Non-Profit Subtotal</b>	<b>\$26,486,533</b>	<b>11%</b>	<b>11%</b>	<b>5%</b>	<b>6%</b>
<b>TOTAL</b>					
	<b>\$246,004,973</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	
Other Expenditures	\$0				
<b>Other Expenditures Subtotal</b>	<b>\$0</b>	<b>0%</b>			
<b>EDG TOTAL</b>	<b>\$246,004,973</b>	<b>100%</b>			

[Table 7 above demonstrates that the proportion of the EE&C Plan's energy savings and budget for each customer sector are reasonably comparable to each sector's share of total PPL Electric revenue and total PPL Electric load \(kWh/yr\).](#)

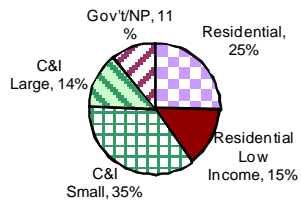
[Since PPL Electric has not conducted a baseline study or a market potential study<sup>30</sup> to estimate the energy savings that is technically and economically achievable from each sector, PPL Electric cannot conclude whether the proportion of total PPL Electric load or the proportion of total PPL Electric revenues are meaningful ways to estimate the proportion of Act 129 EE&C energy savings, peak load savings, or funding that is "reasonably equitable" for each customer sector.](#)

[Please see Section 9.1.1 for additional information.](#)

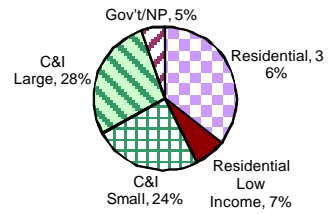
<sup>30</sup> The Statewide Evaluator, on behalf of the Commission, is currently conducting a baseline study and a market potential study. Results are expected in March 2011. However, results will not be statistically relevant for each PPL Electric customer sector.

[\[These charts are deleted but are not marked as such in the redline\]](#)

**% Budget by Customer Class**



**% Revenue by Customer Class**



### 3. Program Descriptions

#### 3.1. Discussion of Criteria and Process Used for Selection of Programs:

##### 3.1.1. Describe portfolio objectives and metrics that define program success (e.g., energy and demand savings, customers served, number of units installed).

###### 3.1.1.1. Portfolio Objectives

PPL Electric's primary objective is to deliver a portfolio of programs that will meet customers' needs, fulfill the Company's Plan objectives, as defined in Section 1.1.2, and achieve the results required by Act 129. PPL Electric is well positioned to deliver customized energy-efficiency programs to meet the needs of its customers. The Company has ongoing relationships, regularly communicates with its customers, and understands the unique characteristics and needs of various customer segments.

PPL Electric welcomes the opportunity to provide energy-efficiency services to its customers in support of the Commonwealth's goals. To achieve these goals, PPL Electric has designed a portfolio that:

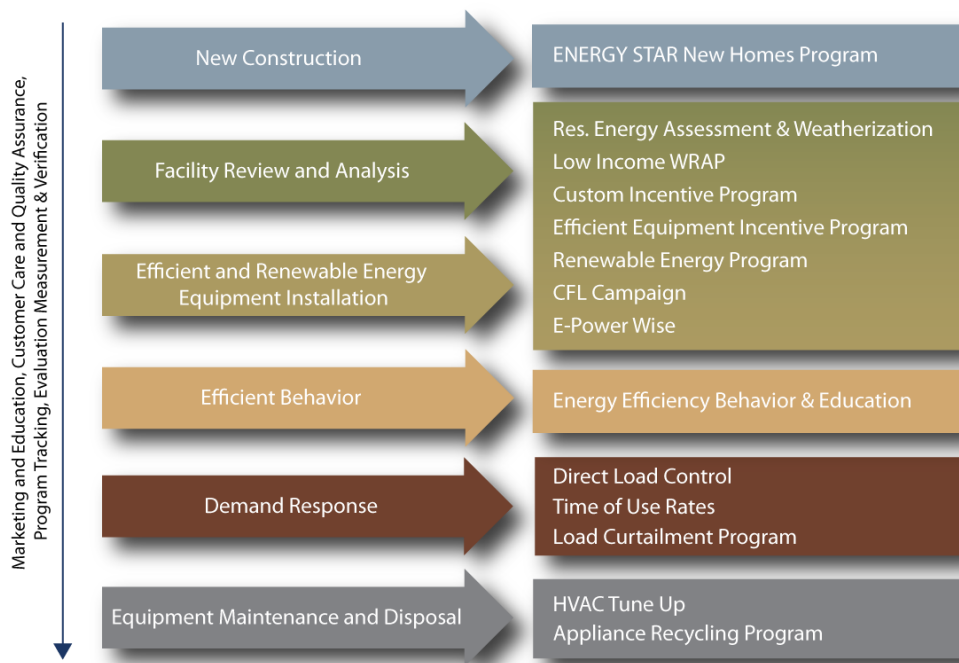
- Is based on a strategic approach that is targeted, yet flexible enough to adjust and expand as warranted by changing market conditions and progress toward Plan goals.
- Focuses on depth and sustainability of savings by offering customers a logical continuum of actions coupled with increasingly valuable incentives for cost-effective efficiency strategies.
- Allows customers to make use of existing technical analyses and market delivery relationships, focus on organizational priorities, and employ a phased implementation approach.
- Builds customer, trade ally, and stakeholder relationships through training, education, hardware, marketing strategies, and customer support.
- Capitalizes on energy-efficiency initiatives being led by other organizations in the Commonwealth as well as PPL Electric's existing programs, market knowledge, and community presence to efficiently deliver programs.
- Supports the local economy by reducing customer utility costs, utilizing local labor to deliver elements of the programs where appropriate, helping owners to increase the value and marketability of their buildings, and promoting the adoption of high quality equipment.
- Utilizes precision marketing techniques that capitalize on PPL Electric's market intelligence and customer information to match program marketing with likely participants and to promote depth of savings in every customer facility.

PPL Electric's programs are designed to provide a cohesive structure intended to support residential, low-income, C&I, and government and non-profit sector customers through a logical continuum of energy-efficiency actions, starting with facility review and analysis and ending with implementation, verification, and evaluation. Marketing and education functions, customer care and quality assurance, program tracking, and

evaluation, monitoring, and verification will be common features of all programs. The entire continuum is supported by financial incentives and a delivery approach focused on providing customers with the support they need to achieve their efficiency objectives. Implementation activities range from simple, common energy-efficiency and demand response measures that can be installed with minimal oversight or administrative burdens to more complex measures that are vetted through a technical analysis and may (but are not required to) be part of a facility-wide energy management strategy. This approach is depicted in [Figure 3](#).

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**Figure 3. PPL Portfolio Continuum**



### 3.1.1.2. Metrics that Define Success

The ultimate objective of the proposed Plan is to meet the requirements of Act 129 and encourage more efficient use of electric power by PPL Electric's customers without diminishing the quality of electrical services they receive. In the case of measures and program options (such as demand response), where the nature of electrical service may be affected, participants will be compensated through financial incentives. PPL Electric intends to accomplish this objective by offering its customers an extensive mix of technically sound and economical EE&C products and services.

PPL Electric will monitor its progress in meeting these objectives by tracking specific indicators of success and identify corrective action when necessary. At least five key indicators will be tracked, including market response, impacts, customer satisfaction,

operating efficiency and cost-effectiveness, using the criteria and metrics, shown in [Table 8](#).

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**Table 8. Key Indicators and Metrics for Monitoring Portfolio Success**

Key Indicator	Metrics
Market Response	<ul style="list-style-type: none"> <li>• Number of participants</li> <li>• Number of measures installed</li> </ul>
Impacts	<ul style="list-style-type: none"> <li>• kWh/yr savings</li> <li>• Peak savings (as defined by Act 129)</li> </ul>
Customer Satisfaction	<ul style="list-style-type: none"> <li>• Responses to periodic surveys administered as part of quality assurance</li> </ul>
Operating Efficiency	<ul style="list-style-type: none"> <li>• Application processing time</li> <li>• Incentive processing time</li> <li>• Expenditures in each category</li> </ul>
Cost-Effectiveness	<ul style="list-style-type: none"> <li>• Net-to-gross ratio (energy and peak demand impacts adjusted for free-ridership and spillover effects)</li> <li>• TRC benefit-to-cost ratio</li> </ul>

**3.1.2. Describe how programs were constructed for each portfolio to provide market coverage sufficient to reach overall energy and demand savings goals. Describe analysis and/or research that were performed.**

PPL Electric's program structure was designed after carefully considering the requirements of Act 129; market characteristics of its service territory; the ACEEE potential study described above; best practices of programs and incentives offered by other utilities and organizations around the country and barriers associated with deploying energy-efficiency and demand response solutions to PPL Electric's customers. At various points in the program development process, the Company met with stakeholders individually and in large groups to seek input, discuss progress, convey certain program constraints, and generate new ideas and perspectives. PPL Electric used these resources and information to compile a mix of proven energy-efficiency and demand response strategies to enable PPL Electric to reach its program goals, within the parameters set forth in Act 129.

Once a robust set of customer programs were identified, PPL Electric completed an extensive technical and economic program screening analysis (see Section 8), and examined a number of other factors to determine how best to structure the portfolio and implement individual programs. PPL Electric also determined how to facilitate a program launch and delivery schedule that would capitalize on existing activities, account for the seasonal nature of some programs, address CSP functions, and allow PPL Electric to achieve its Act 129 goals.



In compliance with the Secretarial Letter, PPL Electric has differentiated its programs according to the five customer classes defined in the EE&C Plan Template. PPL defines large commercial and industrial customers as those customers served at primary and

transmission voltage levels (rate schedules (LP4, LP5, LP6, IST, LPEP, ISA, PR1, and PR2). Small commercial and industrial customers include all nonresidential accounts served at secondary voltage levels (i.e., any rate schedule that is not “large C&I” and not “residential”). However, PPL Electric’s programs are defined according to delivery strategies, the nature of customers’ businesses, types of facilities, and types of energy-using equipment rather than on the PPL Electric rate class for that customer. In other words, where programs offer customer benefits across multiple classes, and where similar implementation, marketing, and administrative strategies may be utilized to capture functional efficiencies, those programs will be offered to all appropriate customer segments. However, PPL Electric will document, track and report on its program results and progress toward goals by the customer classes identified in this Plan.

The table below describes the distribution of program eligibility and energy savings.



**Table 9. Customer ~~Targets and~~ Eligibility by Program**

Program Name	Residential	Small C&I	Large C&I	Govt & Non-Profit	Low-Income	TRC
Efficient Equipment Incentive						1.6
Residential Energy Assessment & Weatherization						0.4
Compact Fluorescent Lighting Campaign						6.9
Appliance Recycling						8.8
Renewable Energy						0.5
Direct Load Control						0.1
Energy Efficiency Behavior & Education						2.2
Low Income WRAP						1.1
E-Power Wise						4.6
Custom Incentive						3.8
HVAC Tune-Up						0.4
Load Curtailment						0.6

Primary Customer Target 
  
 Eligible Customers 



Program Name		Residential	Low Income	Small C&I	Large C&I	Gov't. & Non-Profit
1	Efficient Equipment Incentive Program					
2	Residential Energy Assessment & Weatherization					
3	Compact Fluorescent Lighting Campaign					
4	Appliance Recycling					
5	ENERGY STAR New Homes					
6	Renewable Energy Program					
7	Direct Load Control					
8	Time of Use Rates					
9	Energy Efficiency Behavior & Education					
10	Low-Income WRAP					
11	E-Power Wise Program					
12	C&I Custom Incentive Program					
13	HVAC Tune-Up Program					
14	Load Curtailment Program					

 Primary Customer Target  
 Eligible Customers

As reflected in Table 9, residential customers are also eligible for the Custom Incentive Program but participation is expected to be minimal because most residential measures are covered in other programs. The primary residential participants in the Custom Incentive Program are expected to be farms that are on a residential rate schedule.

Ramp rates were assigned to each programs' participation estimates that account for a gradual build-up of customer outreach and acceptance, leading to market adoption rates that would be realistic but sufficiently aggressive to support the Company's goals. For example, PPL Electric's Low-income WRAP program will rely on a program delivery infrastructure and process that is well established in its territory. Accordingly, these programs are able to ramp-up quickly, even allowing for time to conduct training to build the workforce needed to accelerate these programs. For new programs, estimated participation starts at a low level, accelerates during the second year, then levels off to participation rates that represent expected total saturation. These assumptions were guided by the ACEEE potential study and the market characteristics in PPL Electric's territory, and are reflected in the experience of other utilities operating similar, successful

programs. In this revised EE&C Plan, program years 1 and 2 were adjusted to reflect actual values and program years 3 and 4 were forecasted based on current conditions and experience from years 1 and 2.

Savings estimates for most measures in the Plan are drawn from the Commission's TRM and from actual experience for program years 1 and 2. ~~For measures not listed in the TRM, savings are based on engineering calculations and modeling for identical measures in geographic areas with Cooling Degree Days (CDD) and Heating Degree Days (HDD) similar to those in PPL Electric's service territory. Savings were adjusted to account for any differences in CDD/HDD.~~ Incremental measure and labor costs were determined through online research and discussions with installation contractors, with cost-of-living adjustments for PPL Electric's service territory. Measure level costs and savings assumptions are provided in Appendix E. While technical interactions may slightly alter savings if multiple measures are installed together, PPL Electric's analysis treats measure savings as independent.<sup>31</sup>

End-use load shapes were employed in calculating peak load impacts for energy-efficiency measures. Because end-use load shapes were not available for PPL Electric's service territory, they were developed using load shapes from other regions and adjusted for weather conditions in PPL Electric's service territory. To calculate the peak load impacts from energy-efficiency measures, end-use load shapes were used to identify the average reduction in demand over PPL Electric's top 100 summer hours. Peak load impacts associated with demand-response programs were estimated through examining PPL Electric's customer load data and similar successful demand response programs.

Finally, PPL Electric adjusted program emphasis to result in a balanced portfolio to meet the savings (energy and peak load) and expenditure targets required in the Act and PPL Electric's objectives. For this revised EE&C Plan, one of the portfolio balancing objectives was to minimize changes (energy reduction, peak load reduction, and costs) where possible for each customer sector compared to the 2/28/11 approved EE&C Plan.

### **3.1.3. Describe how energy-efficiency, conservation, solar, solar photovoltaic systems, geothermal heating, and other measures are included in the portfolio of programs as applicable.**

In choosing which measures to include in its portfolio, PPL Electric wanted to ensure its customers are offered an extensive choice of program services and measures that allow them to increase their savings opportunities. PPL Electric was also required to balance the requirements of expenditures, savings, and demand reduction targets. As such, potential measures were screened by energy impact per dollar spent, summer demand impacts, cost-effectiveness, and technological maturity. PPL Electric also considered whether existing market drivers (such as ENERGY STAR), existing delivery mechanisms (such as community-based organizations), or existing financial mechanisms (such as EPAct tax credits) could be leveraged for marketing, delivery, and customer funding.

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<sup>31</sup> For example, in a single-family home, overall measure savings decrease by 2.8% when a programmable thermostat and SEER 16 central air conditioning unit are installed together. Similarly, the interaction between the same two measures in a multifamily home results in a 2.1% difference in savings.

### Section 3: Program Descriptions

Finally, PPL Electric looked at market trends and stakeholder feedback to identify appropriate measures for its portfolio.

Together, these aspects contributed to the decision of whether a measure should be included within the portfolio. While measure cost-effectiveness is a primary concern, a lack of cost-effectiveness did not dictate removal of a measure when other factors significantly contributed to Plan objectives. For example, even though SEER 16 air conditioners, on their own, were not cost effective, they were included in the program because of their high impact on peak-hour load reduction. Likewise, although it has a relatively low benefit-to-cost ratio, PPL Electric decided to include a program for solar photovoltaic systems due to increasing interest in and market acceptance of renewable energy technologies. PPL Electric ~~will~~ also consider ed incentives for additional renewable energy technologies ~~over time~~ as its programs and the technologies matured. The resulting portfolio represents a balance between common, market-ready energy-efficiency solutions and opportunities for customers to implement innovative technologies.

#### Program Descriptions

Following are descriptions of each program. Participation levels, savings, costs, and incentives are approximate. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

### 3.2. Residential Sector Programs

#### Efficient Equipment Incentive Program (Residential Sector)

2010-2013

##### Objectives

The objectives of the Efficient Equipment Incentive Program include:

- Provide customers with opportunities to reduce their energy costs and increase their energy-efficiency.
- Encourage customers to install high-efficiency HVAC, lighting equipment, and electric appliances.
- Encourage the use of high-efficiency/ENERGY STAR<sup>®</sup>-rated equipment.
- Promote strategies that encourage and support market transformation for high-efficiency appliances and equipment.
- Promote other PPL Electric EE&C programs.
- Achieve ~~no less than 4 million installed measures through 2013, with~~ a total reduction of ~~approximately 716,000~~539,933 MWh~~/yr~~ and ~~127,370~~73 MW.<sup>32</sup>

##### Target Market

PPL Electric's Efficient Equipment Incentive Program ~~will be~~is available to all customer sectors, ~~and delivered using a consistent implementation strategy, incentive mechanism, and administrative process.~~ The Plan divides the program into individual market sectors, with target customers and approximate participation, budgets, savings, eligible equipment, and other appropriate details broken out for each sector.<sup>33</sup>

~~To be as cost-effective as possible, the program will target customers seeking to replace older, inefficient equipment or renovating or building a home.~~ Table 10 ~~Table 10~~ outlines eligibility parameters for the residential sector.

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<sup>32</sup> Combined totals for all target customer segments.

<sup>33</sup> The Plan does not allocate budget or attribute energy savings for this program to the low-income sector; rather it assumes low-income sector customers will take advantage of higher incentives available through the Low-income WRAP program. Low-income customers, however, may participate.

**Table 10. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/1/2010
<b>Building Type</b>	Single family, multifamily, mobile home
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

#### Program Description

The program promotes the purchase and installation ~~of a wide range~~ of high-efficiency equipment, including technologies appropriate to specific building types and customer sectors. The Efficient Equipment Incentive Program provides customers with financial incentives to offset the higher purchase costs of energy-efficient equipment and offers information on the features and benefits of energy-efficient equipment. Targeted equipment includes electric heating, cooling, lighting, water heating, appliance, and other measures (ENERGY STAR®-labeled equipment is specified where available).

#### Implementation Strategy

PPL Electric ~~will select a qualified CSP~~ uses an (Administrative CSP) to provide customer intake, eligibility verification, rebate processing, and tracking for residential measures and some of the simple C&I measures. PPL Electric uses a C&I CSP for C&I customers and other C&I measures. The C&I CSP works with customers and ~~The CSP will work with~~ trade allies (such as equipment dealers and installers), to help customers ~~them~~ understand the features and benefits of high-efficiency equipment, select high-efficiency equipment, and fill out program applications. Customers ~~will be~~ are required to submit a program application with documentation of the equipment purchase and installation(s) for verification and rebate processing. PPL Electric's energy-efficiency staff ~~will provide~~ provides overall strategic direction and program management for the program and, supported by other CSPs, promotional, marketing, trade ally support, evaluation, and other administrative functions.

Key steps in program participation include:

- Directing customers ~~Customers may be directed~~ to the program through PPL Electric's marketing activities, the Company website, equipment dealers or by contacting an equipment installation contractor/trade ally for a service call.
- ~~Customers will generally work~~ Working with the equipment/appliance retailer or installation contractor to fill out program applications and ensure the required documentation is submitted to the program CSP s for processing.
- ~~The Administrative CSP~~ Program CSPs ~~will~~ review documentation to verify the applicant is a PPL Electric customer and the installed equipment meets ~~the minimum efficiency standard~~ eligibility requirements.
- Customers installing eligible high-efficiency equipment ~~will~~ schedule the work directly with their equipment dealer or installation contractor.
- For program years 3 and 4, a direct install option for customers called Direct Discount Services which uses PPL Electric's network of authorized contractors to market, propose, and install lighting and refrigeration measures for small C&I customers.

Incentives in this delivery channel are based on kWh/yr saved for each measure and are paid to the installation contractor.

- Processing rebate checks for qualified equipment.
- Verifying equipment/appliance installation for a sample of participants, which will be a part of measurement and verification.

~~No changes in the implementation strategy are expected in different program years.~~

### Risks and Risk Management Strategy

Table 11 ~~Table 11~~ presents key market risks to an effective Efficient Equipment Incentive Program as well as the strategies the program will use to address each risk.

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**Table 11. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Higher first cost of energy-efficient equipment.	Offer rebates to offset higher incremental cost. Educate customers on the long-term energy cost-saving benefits of higher efficiency equipment. Market program and general efficiency awareness to customers. Add new programs or measures and/or increase eligible equipment efficiency levels as technology improves.
Changing technology may impact lifecycle cost.	
Economic environment may limit customer's ability to purchase energy efficient equipment and appliances.	
Customers needing emergency replacement may not know about the program.	Provide trade ally training and outreach to explain the benefits of selling higher efficiency equipment; In-store brochures and collateral. Robust marketing strategy. Promote general efficiency awareness to customers and trade allies.
Customers choose to buy less efficient equipment.	

### Anticipated Costs to Participating Customers

Customer incremental costs (i.e. the cost differential between standard and high efficiency measures) will vary depending on the type of equipment purchased and the efficiency level of eligible equipment selected by the customer. In general, rebates are designed to cover approximately 25 to 50% of the customer incremental cost. PPL Electric will adjust rebate amounts to ensure they are appropriate and to increase/decrease participation as required to meet program objectives. PPL Electric will seek Commission approval for changes.

### ~~Ramp-up Strategy~~

~~The Efficient Equipment Incentive Program is expected to be among PPL Electric's most popular programs in terms of both participation and customer satisfaction. To ramp up the program quickly, PPL Electric's Advertising CSP will work directly with PPL Electric's Customer Strategy division to develop a robust marketing campaign to quickly foster brand identity and deploy program information into the marketplace. Because this is a new program, however, PPL Electric expects participation to be modest during the first~~

~~year and to ramp up more significantly during the following years, especially as general economic conditions improve.~~

### Marketing Strategy

This program relies on both customer marketing and point-of-sale dealer and installer information for promotion. PPL Electric's ~~and its~~ Advertising CSP ~~and C&I CSP will work with its Customer Strategy division to create a~~ developed a marketing strategy for the program; ~~this may include~~ that may include:

- ~~Promote~~ Promoting the program in PPL Electric's customer bill ~~insert~~ newsletter, "Connect."
- ~~Communicate~~ Communicating and ~~provide~~ providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- ~~Advertise using newspaper, radio, and other mass media (i.e., Pennsylvania Restaurant Association publication, other food service publications).~~ Advertising through newspapers, radio, television, or other media or publications.
- Brand marketing material with ENERGY STAR®.
- Presenting ing program information at seminars, conferences, home shows, and community events.
- ~~Outreach to and coordinated~~ Coordinating advertising with trade allies (i.e., equipment dealers, distributors, and installers; home builders, remodelers, and residential sector contractors).
- ~~Coordinate marketing opportunities with key market partners (i.e., Keystone HELP, Pennsylvania Housing and Finance Authority (PHFA)).~~
- Publishing ing a and distribute program brochure.
- Cross-~~promote~~ promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Rebates ~~will can~~ be a fixed amount per device or based on savings (i.e. \$/kWh annual savings-). Rebates can be paid by check or a prepaid debit card to customers who complete a rebate application and submit documentation of the equipment purchase to PPL Electric's ~~Administrative CSP~~. Rebates cannot exceed the cost of the measure.

Table 12 ~~Table 12~~ shows PPL Electric's ~~proposed~~ list of eligible equipment, incentive levels and efficiency qualifications. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

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Section 3: Program Descriptions  
Residential Sector Programs

While residential customers are eligible for all equipment under the Efficient Equipment Incentive Program, only equipment deemed appropriate for the residential sector is shown in the table below. Additional equipment measures included in the program may be found in Section 3.3.

**Table 12. Eligible Measures**

Measure	Eligibility Rating	Incentive
<del>Central Air Conditioner</del>	<del>SEER 14.5</del>	<del>\$150</del>
<del>Central Air Conditioner</del>	<del>SEER 15</del>	<del>\$225</del>
Central Air Conditioner	SEER 16	<del>\$300</del> <u>\$100</u>
Room AC <del>(1st unit)</del>	ENERGY STAR	\$25
<del>Room AC (2nd unit)</del>	<del>ENERGY STAR</del>	<del>\$25</del>
<del>Programmable Thermostat</del>	<del>ENERGY STAR or 5+1+1 at a minimum</del>	<del>Up to \$50</del>
<del>Air-Source Heat Pump</del>	<del>SEER 14.5</del>	<del>\$250</del>
Air-Source Heat Pump	SEER 15	<del>\$325</del> <u>\$100</u>
Air-Source Heat Pump	SEER 16	<del>\$400</del> <u>\$200</u>
Heat Pump Hot Water Heater	ENERGY STAR, <del>EF &gt;= 2.0,</del> or COP >= 2.0 <sup>34</sup>	\$300
<del>Dishwasher</del>	<del>ENERGY STAR</del>	<del>\$30</del>
<del>Clothes Washer</del>	<del>ENERGY STAR</del>	<del>\$75</del>
Refrigerator	ENERGY STAR	<del>\$50</del> <u>\$25</u>
<del>Dehumidifier</del>	<del>ENERGY STAR</del>	<del>\$10</del>
High-Efficiency Gas, oil, or propane Furnace (fuel switching is for RTS customers only)	AFUE >= 92%	\$550
<del>Light Fixture (includes ceiling fans with light fixture)</del>	<del>ENERGY STAR</del>	<del>Up to \$10</del>
<u>Ductless heat pump (mini-splits)</u>	<u>ENERGY STAR; SEER 15.0, HSPF 8.2</u>	<u>\$100 per 12000 Btu/hr</u>
<u>Ductless heat pump (mini-splits)</u>	<u>ENERGY STAR; SEER 17.0, HSPF 9.5</u>	<u>\$150 per 12000 Btu/hr</u>
<u>Ductless heat pump (mini-splits)</u>	<u>ENERGY STAR; SEER 19.0, HSPF 10.5</u>	<u>\$200 per 12000 Btu/hr</u>

SEER = Seasonal Energy-efficiency Ratio

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric will perform periodic (at least~~

<sup>34</sup> While there is an ENERGY STAR rating for heat pump hot water heaters, it is relatively new and qualifying equipment is not currently available.



Section 3: Program Descriptions  
Residential Sector Programs

~~annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.~~

PPL Electric ~~will track~~<sup>s</sup> and report<sup>s</sup> if a customer switches to electric ~~appliances equipment~~ from gas ~~equipment, appliances or from gas appliances to electric appliances~~. PPL Electric ~~will also report~~<sup>s</sup> data on replacement appliances and systems. This ~~data information will be~~<sup>s</sup> included in PPL Electric's annual report<sup>s</sup> starting in Program Year 2.

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Efficient Equipment Incentive Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 13. Program Schedule and Milestones**

Schedule	Milestones
07/14/2009	Develop detailed work scopes, selection criteria and quality assurance protocols for Administrative CSP.
07/28/2009	Issue RFP for Administrative CSP.
09/22/2009	Execute program implementation contract with selected Administrative CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
12/31/2009 - ongoing	Conduct outreach to equipment dealers, trade allies and other local market actors.
12/01/2009	Develop tracking and allocation procedures.
12/31/2009 – 03/01/2010	Program training.
02/01/2010	Final marketing and customer education materials and program applications.
03/01/2010	Launch program. <sup>26</sup>

#### Evaluation, Measurement, and Verification (EM&V)

~~As described earlier in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy-efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and "net" programs impacts. PPL Electric's Evaluation Plan describes the EM&V requirements for this program.~~

<sup>26</sup> Assumes Commission approval of Plan by 11/30/2009

### Section 3: Program Descriptions Residential Sector Programs

~~While the actual methodology for impact evaluations will be determined by the statewide EE&C Plan Evaluator, PPL Electric expects the impact evaluation of this program will rely primarily on savings estimates established in the TRM and information on measure installations. Where estimates are not available for specific measures, PPL will conduct an engineering review of per-unit savings and verification of installations through field observations or other confirmations (example: via telephone) of a statistically valid sample of participants.~~

~~Since impact evaluation for most programs will require adequate post-implementation data, PPL Electric expects the results of impact evaluations will be filed with the Commission six to nine months after the end of each program year. The impact evaluation results will be used to true-up estimates of gross savings and to adjust gross savings estimates, where such adjustments are warranted.~~

#### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow:~~[Summary of administrative requirements:](#)

- ~~The PPL Electric's staff~~[Customer Programs Specialist will](#) oversees all program operations and program CSPs, and ~~will work~~[s](#) with trade allies, other Pennsylvania Utilities, and stakeholders.
- The Advertising CSP [and C&I CSP](#) will provide external advertising [and marketing](#); ~~including television and print ads.~~
- The Administrative CSP [and C&I CSP](#) will handle customer calls, review and verify applications, process rebates, and track and report customer and program information to PPL Electric. [The C&I CSP also works with C&I trade allies.](#)
- Trade allies (primarily equipment retailers and installers) will provide technical assessment, equipment sales, and installation.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the ~~statewide EE&C Plan Evaluator~~[Statewide Evaluator](#).

#### Estimated Participation

~~Participation levels were estimated by examining the distribution of sales to residential customers, and then were balanced to match overall portfolio savings goals. The overall budget is driven by the goal of attaining the cumulative 2013 savings goals and satisfying the TRC test. The resulting quantity of residential sector installations for each measure is shown below.~~[Estimated participation levels are shown for general guidance only.](#)

**Table 14. Projected Participation**

	<b>Year 1<sup>36</sup></b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
Central Air Conditioners	760	1,520	1,890	1,890	6,060
Room Air Conditioners	4,850	9,700	12,120	12,120	38,790
Programmable Thermostats	1,220	2,420	3,040	3,040	9,720
Air-Source Heat Pumps	500	1,000	1,260	1,260	4,020
Heat Pump Hot Water Heater	30	60	70	70	230
Dishwasher	900	1,790	2,240	2,240	7,170
Clothes Washers	230	450	560	560	1,800
Energy Star Refrigerator	2,730	5,470	6,830	6,830	21,860
Energy Star Dehumidifier	270	530	670	670	2,140
High-efficiency Gas/Oil/Propane Furnace (RTS fuel switching)	125	125	125	125	500
ENERGY STAR® Light Fixtures	4,240	12,720	12,720	12,720	42,400
<b>Total</b>	<b>15,855</b>	<b>35,785</b>	<b>41,525</b>	<b>41,525</b>	<b>134,690</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Central Air Conditioners</u>	<u>340</u>	<u>2,907</u>	<u>1,000</u>	<u>1,000</u>	<u>5,247</u>
<u>Room Air Conditioners</u>	<u>159</u>	<u>4,515</u>	<u>1,000</u>	<u>1,200</u>	<u>6,874</u>
<u>Programmable Thermostats</u>			<u>600</u>	<u>=</u>	<u>600</u>
<u>Air-Source Heat Pumps</u>	<u>1,978</u>	<u>6,559</u>	<u>4,000</u>	<u>4,000</u>	<u>16,537</u>
<u>Heat Pump Hot Water Heater</u>	<u>206</u>	<u>1,543</u>	<u>772</u>	<u>772</u>	<u>3,293</u>
<u>Dishwasher</u>	<u>4,031</u>	<u>17,623</u>	<u>2,863</u>	<u>-</u>	<u>24,517</u>
<u>Clothes Washers</u>	<u>8,945</u>	<u>31,413</u>	<u>4,115</u>	<u>-</u>	<u>44,473</u>
<u>Energy Star Refrigerator</u>	<u>6,047</u>	<u>30,031</u>	<u>8,000</u>	<u>8,000</u>	<u>52,078</u>

<sup>36</sup> PPL Program years are defined as follows: Year 1: 2/1/2010 – 5/31/2010; Year 2: 6/1/2020 – 5/31/2011; Year 3: 6/1/2011 – 5/31/2012; Year 4: 6/1/2012 – 5/31/2013.

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Residential Sector Programs

<a href="#">Energy Star Dehumidifier</a>	<a href="#">644</a>	<a href="#">3,674</a>	<a href="#">952</a>	<a href="#">-</a>	<a href="#">5,270</a>
<a href="#">High-efficiency Gas/Oil/Propane Furnace (RTS fuel switching)</a>	<a href="#">28</a>	<a href="#">98</a>	<a href="#">98</a>	<a href="#">98</a>	<a href="#">322</a>
<a href="#">ENERGY STAR® Light Fixtures</a>	<a href="#">206</a>	<a href="#">529</a>	<a href="#">-</a>	<a href="#">-</a>	<a href="#">735</a>
<a href="#">Ductless heat pumps</a>	<a href="#">-</a>	<a href="#">-</a>	<a href="#">100</a>	<a href="#">100</a>	<a href="#">200</a>
<a href="#">Office Equipment</a>	<a href="#">-</a>	<a href="#">284</a>	<a href="#">-</a>	<a href="#">-</a>	<a href="#">284</a>

### Program Budget, Costs and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of [approximately 60.848](#) ~~29,708~~ MWh/yr and peak load reductions of [approximately 6.8](#) ~~xx~~ MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in [Table 15](#) ~~Table 15~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 15. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	9,175	27,919	14,534	9,220	60,848
Capacity Savings (MW)	1.1	4.2	1.5	1.3	6.8
Total Resource Cost	\$5,276,157	\$23,863,695	\$8,040,739	\$6,555,536	\$43,736,128
Direct Participant Costs	\$3,119,804	\$15,044,073	\$5,837,819	\$5,302,935	\$29,304,632
Direct Utility Costs	\$2,156,354	\$8,819,622	\$2,202,920	\$1,252,601	\$14,431,496
Customer Incentives	\$2,106,255	\$8,794,403	\$2,150,615	\$1,208,272	\$14,259,545
EDC Labor	\$44,679	\$20,475	\$11,990	\$9,618	\$86,762
EDC Materials and Supplies	\$5,420	\$642	\$15,118	\$13,017	\$34,197
CSP Labor	\$0	\$0	\$0	\$0	\$0
Other (Marketing and Trade Ally)	\$0	\$4,101	\$25,197	\$21,695	\$50,992
<b>TRC Test</b>					
NPV Benefits	\$69,215,048				
NPV Costs	\$39,469,805				
Net Benefits (NPV)	\$29,745,242				
<b>Benefit-Cost Ratio</b>	<b>1.75</b>				

Section 3: Program Descriptions  
Residential Sector Programs

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	4,267	7,574	8,934	8,934	29,708
Capacity Savings (MW)	0.6	1	2	2	5
Total Resource Cost	\$1,986,330	\$3,579,198	\$4,354,353	\$4,446,134	\$14,366,015
Direct Participant Costs	\$1,037,280	\$1,719,640	\$2,042,694	\$2,085,591	\$6,885,205
Direct Utility Costs	\$949,050	\$1,859,558	\$2,311,659	\$2,360,543	\$7,480,810
Customer Incentives	\$902,350	\$1,811,458	\$2,261,159	\$2,308,643	\$7,283,610
EDC Labor	\$6,000	\$6,000	\$7,000	\$7,000	\$26,000
EDC Materials and Supplies	\$100	\$100	\$100	\$100	\$400
CSP Labor	\$20,300	\$21,000	\$21,700	\$22,400	\$85,400
CSP Materials and Supplies	\$20,300	\$21,000	\$21,700	\$22,400	\$85,400
<b>TRC Test</b>					
NPV Benefits	\$33,597,473				
NPV Costs	\$12,563,043				
Net Benefits (NPV)	\$21,034,430				
<b>Benefit-Cost Ratio</b>	<b>2.67</b>				

Note: Table 15 was updated to reflect the change in classification of common and direct costs.

## Other Information

PPL Electric's Plan would allow retroactive eligibility for customers who install or commit to install qualifying equipment under this program between July 1, 2009, and Commission approval of the Plan.

## Energy Assessment & Weatherization Program (Residential Sector)

2010-2013

### Objectives

The objectives of the Residential Energy Assessment & Weatherization Program include:

- Provide customers with the opportunity to participate in a walk-through survey or comprehensive energy audit.
- Provide customers with opportunities to reduce their energy costs and increase their energy-efficiency.
- Encourage customers to weatherize their homes by providing rebates.
- Install low-cost energy saving measures as part of both the survey and the audit, which may result in immediate savings.
- Promote other PPL Electric energy-efficiency programs.
- Obtain participation by ~~no less than~~ approximately 5,940 4,300 customers through 2013, with a total reduction of approximately 5,960 2,607 MWh/yr and ~~590~~ 145 kW. Please note that recommendations of the audit/survey are usually implemented in other programs (such as Efficient Equipment, Residential Lighting, and Appliance Recycling) and, therefore, the savings are reported in those programs.

### Target Market

This program targets residential customers with household incomes greater than 150% of the federal poverty level, in single family homes. Participants must have electric heat, electric water heating, and/or air conditioning (central or window units). ~~Table 16~~ Table 16 outlines eligibility parameters.

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**Table 16. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential
<b>Rate Class</b>	RS, RTS, TOU after 1/1/2010
<b>Building Type</b>	Single-family; mobile home
<b>Building Vintage</b>	Existing
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

~~Note: PPL Electric plans to adjust this program over time to conform to statewide standards for energy audits, should they develop, to the maximum extent possible within the constraints of Act 129.~~

The Residential Energy Assessment & Weatherization Program is designed to provide PPL Electric's customers with information on their home's energy performance and recommendations on the most effective, highest priority energy-efficiency actions they can take in their homes. Recognizing the varying economic conditions and interest levels

among PPL Electric's residential customers, the program provides customers with two tracks:

1. A \$50 walk-through survey; and
2. A comprehensive energy audit supported by a customer rebate, which includes diagnostic testing.

The walk-through survey ~~will be~~is delivered by a Residential Energy Survey CSP, which ~~will conduct~~s a thorough visual inspection of the home, evaluate major energy-using equipment (e.g., lighting systems, space conditioning and hot water heating equipment, and appliances), and building envelope characteristics to identify areas for cost-effective efficiency upgrades. The CSP ~~will provide~~s customers with ~~a~~n electronically-generated energy survey report<sup>37</sup> that includes recommendations for appropriate follow-up activities.

The comprehensive energy audit ~~will be~~is delivered through PPL Electric's existing network of Building Performance Institute (BPI) trained and certified energy auditor trade allies. This structure ~~will encourage~~s PPL Electric's existing trade allies to market its program, while helping create a more robust, qualified audit contractor base in PPL Electric's service territory and supporting the local economy. To participate, the auditors must meet specific qualification criteria<sup>38</sup> and perform specific minimum diagnostic tests.<sup>39</sup> Home Performance with ENERGY STAR® audits will be eligible for comprehensive audit rebates.

Participating customers in either the walk-through survey or comprehensive audit:

- ~~Will receive~~Receive installation of low-cost energy saving measures, information on the benefits and features of energy-efficient equipment, an assessment of energy savings opportunities, and recommendations for energy-efficient upgrades;
- ~~Will be~~Are eligible for incentives to install weatherization measures, including attic, wall, and foundation insulation, and duct sealing; and
- ~~Will be~~Are directed to other PPL Electric programs as appropriate for additional incentives on equipment upgrades or participation in demand response programs.

To encourage customers to follow-through on recommendations and implement extensive efficiency upgrades, participants may receive ~~additional~~bonus rebates for the installation of more than one recommended qualifying measures.

### Implementation Strategy

~~PPL Electric may select CSPs to:~~

- ~~1. Perform \$50 walk-through surveys;~~
- ~~2. Oversee comprehensive energy audits; or~~

<sup>37</sup> ~~PPL Electric will review energy audit software proposed by potential CSPs as an evaluation criteria in its selection of walk through survey CSPs.~~

<sup>38</sup> BPI certified or equivalent whole-house assessment training.

<sup>39</sup> Blower door and duct blaster testing required. Infrared cameras may be used as alternative to blower door testing.

~~3-Both~~ PPL Electric selected a Residential Energy Survey CSP to perform the walk-through surveys.

The Administrative CSP ~~will~~ manages customer intake and routing to the appropriate track, processes applications and rebates, tracks and ~~verify~~ verifies program data, and provides customer and transaction information to PPL Electric. The Administrative CSP ~~will~~ refers customers interested in a comprehensive energy audit to independent, BPI certified trade allies who have participated in PPL Electric's BPI training program. PPL Electric's energy-efficiency staff ~~will~~ provide overall strategic direction and program management for the program and (supported by other CSPs) marketing, trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Directing customers ~~Customers may be directed~~ to the program through PPL Electric's marketing activities, the Company Web site, or by contacting an energy auditor. Most customers will enter the program by calling the Administrative CSP.
- The Administrative CSP or the Residential Energy Survey CSP ~~will~~ explain both program tracks to the customer and direct the customer to the appropriate track. For walk-through survey participants, the Residential Energy Survey CSPs ~~will~~ contacts the customer to schedule an appointment. Participants in the comprehensive track will work with one of several certified local energy auditors to schedule an appointment.
- The Residential Energy Survey CSP or the certified auditor ~~will~~ conducts an assessment of the customer's home and directly install simple energy-efficiency measures, inspect major energy-using equipment and building envelope characteristics to identify areas for cost-effective efficiency upgrades. Customers participating in the comprehensive track ~~will~~ receive diagnostic testing in addition to standard visual inspections. These tests ~~will~~ provide more detailed insight into the performance of the home, and can help identify a greater range of energy-saving opportunities. The Survey CSP/auditor also ~~will~~ review additional available financial incentives or programs that may benefit the customer, discuss es best practices for operating home energy systems efficiently, and disseminates s educational materials.
- Customers ~~will~~ receive an audit or survey report, which includes recommendations for appropriate energy-efficiency upgrades and information on incentives available from PPL Electric and other sources. Energy auditors ~~will~~ provide a copy of the audit report to the ~~Administrative CSP~~ Residential Energy Survey CSP for tracking rebates and reporting purposes.
- Auditors may offer immediate installation of weatherization measures to the customer. This may include insulation and/or air sealing.
- Customers in the walk-through survey ~~will~~ issue payment (\$50) to the Residential Energy Survey CSP. Customers in the comprehensive audit track ~~will~~ issue payment to the contractor. Contractors ~~and~~ send ~~a rebate~~ the customers' application with documentation of their audit and any applicable weatherization measures to ~~PPL Electric's Administrative~~ the Residential Energy Survey CSP. The Residential Energy Survey CSP ~~for eligibility verification, tracking and rebate processing~~ provides the list of eligible rebate participants to the Administrative CSP for rebate payment. Customers who install additional recommended measures mail their documentation and proof of payment to the Administrative CSP who processes bonus rebates. The Administrative CSP ~~will~~ mail the rebate directly to the customer.



~~PPL Electric's Administrative CSP will follow up with customers to inquire about their audit and any measures the customer has installed or intends to implement, and to encourage customers to implement recommended measures. The Administrative CSP also will address any quality assurance issues on a case-by-case basis, and will report all activity to PPL Electric monthly.~~

### Risks and Risk Management Strategy

~~Table 17~~ ~~Table 17~~ presents key market risks to an effective Residential Energy Assessment & Weatherization Program, as well as the strategies the program will use to address each risk.

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**Table 17. Risks and Risk Management Strategies**

Risks	Management Strategies
Cost of comprehensive energy audit.	Offer rebates to offset higher incremental cost. Educate customers on the long-term energy cost-saving benefits of higher efficiency equipment. Market program and general efficiency awareness to customers.
Economic environment may limit customer's ability to purchase energy efficient equipment.	
Lack of program awareness among customers and trade allies.	Trade ally training and outreach. Robust marketing strategy. Promote general efficiency awareness to customers and trade allies.
Number of qualified contractors to perform work.	CSP to collaborate with trade schools and other workforce development resources.
Damage done to customers home.	Best practices and quality assurance training with all contractors. Require adequate insurance for CSP and participating auditors. <a href="#">Follow local codes and requirements for insulation and ventilation levels.</a>
Health hazards due to over-tightening a home (i.e., CO, mold, radon).	

### Anticipated Costs to Participating Customers

The customer cost for a walk-through survey ~~will be~~ \$50. If customers implement more than one of the recommended measures, their \$50 audit cost is reimbursed 100% through bonus rebates. The cost of a comprehensive audit may vary depending on the selected auditor's fee structure and services; however, PPL Electric estimates ~~a comprehensive audit's cost at \$500~~ \$450 to \$600. ~~(\$250 post-incentive cost for an all-electric customer; \$400 post-incentive cost for an air conditioning or electric heating only customer).~~ Customers receive \$250 if they have electric heating and central air conditioning. \$150 if they have only main source electric heating or central air conditioning. Additionally, customers have an opportunity to get up to \$400 in bonus rebates if they implement more than one of the measures recommended by the auditor or surveyor. The cost of weatherization measures will vary depending on the type, location, and amount of insulation, air sealing and/or duct sealing performed. PPL Electric will adjust rebate amounts to ensure they are appropriate and to increase/decrease participation as required to meet program objectives.

### ~~Ramp-up Strategy~~

~~PPL Electric anticipates the Residential Energy Assessment & Weatherization Program will be popular with its residential customers and will ramp up significantly over its first year. To accelerate participation, PPL Electric, in conjunction with its Advertising CSP will aggressively market the program to targeted customers, trade allies, dealers, and distributors of high-efficiency equipment and train trade allies to promote the program to their customers.~~

### Marketing Strategy

This program relies on ~~both customer marketing~~ PPL Electric's marketing and promotion by the Residential Energy Survey CSP and free market auditors. PPL Electric's ~~s~~ and its Advertising CSP ~~will work with its Customer Strategy division to create a~~ developed a marketing strategy for the program; ~~this may include~~ that may include:

- ~~Promote~~ Promoting the program in PPL Electric's customer bill ~~insert~~ newsletter "Connect."
- ~~Communicate and provide~~ Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- ~~Advertise using newspaper, radio, and other mass media.~~ Advertising through newspapers, radio, television, or other media or publications.
- Brand marketing material with ENERGY STAR®.
- Presenting program information at seminars, conferences, and community events.
- ~~Coordinate~~ Coordinating advertising opportunities with trade allies.
- Publishing and ~~distribute~~ distributing a program brochure.
- Cross-~~promote~~ promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

~~Based on stakeholder input, PPL Electric will offer two distinct evaluations of home energy performance coupled with direct installation measures to reduce energy use. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.~~

1) An energy survey for which the customer pays \$50 and receives:

- Direct installation of up to six CFLs, one smart strip, one faucet aerator, water heater set-back, and water heater pipe insulation<sup>40</sup> by the Energy Survey CSP during the survey.

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<sup>40</sup> Customer must have electric water heat to receive hot water measures.

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- Recommendations about high-priority efficiency upgrades a customer can make to reduce energy consumption.
- Information on rebates for installation of equipment measures available to residential customers.

2) A whole-house energy audit conducted by a BPI certified energy auditor, which includes:

- A rebate of ~~\$100~~\$150 or \$250 depending on heating and cooling systems;
- Direct installation of up to six CFLs, one smart strip, one faucet aerator, water heater set back, and water heater pipe ~~insulation~~insulation<sup>4123</sup> by the BPI certified energy auditor during the audit.
- Detailed recommendations about efficiency upgrades a customer can make to reduce energy consumption, including estimated measure costs and resulting energy savings based on diagnostic testing, thorough home performance evaluation and engineering-based modeling of results.
- Information on rebates for installation of equipment measures available to residential customers.

Additionally, customers in either Energy Assessment track will be eligible for ~~the following incentives~~ a bonus rebate for installing more than one of the major recommendations listed in the audit or survey report. ÷

- ~~Rebates on infiltration remediation (as audit recommended), such as ceiling or wall insulation (meeting current building code requirements) of 50% of the installed costs, up to a \$700 cap.~~

~~An additional incentive if the customer installs more than one of the major recommendations listed in the audit or survey report. For each eligible measure installed (either weatherization measures, as listed above, or measures installed through the Efficient Equipment Incentive Program), where the total number of installed measures is two or greater, the customer will receive an additional \$50 incentive up to a \$150 cap. The \$50 bonus incentive is designed to encourage customers to take action on the energy assessment recommendations and to reimburse the full cost of energy surveys.~~

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**Table 18. Eligible Measures**

Measure	Eligibility Rating	Incentive
Direct Installation of <u>up to</u> six CFLs, one faucet aerator, one smart strip, water heater set back, hot water pipe insulation	Measure must save electricity, CFLs ENERGY STAR®, aerator 1.5 GPM	Free to customer
Comprehensive Audit	<u>Central</u> Air conditioning and <u>main source</u> electric heat	\$250 <u>incentive</u>
	<u>Central</u> Air conditioning or	\$150 <u>incentive</u>

<sup>41</sup> Customer must have electric water heat to receive hot water measures.

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	<a href="#">main source</a> electric heat	
Walk-through Survey	<a href="#">Central</a> Air conditioning and/or <a href="#">main source</a> electric heat	\$50 customer cost
<del>Infiltration</del>	<del>Audit recommendation</del>	\$0.30/sf up to 70% of total cost
Ceiling insulation	Audit recommendation; Existing & New Structures- Current ASHRAE Standards + R11. See rebate application for details for new construction and for existing construction	
Wall insulation		
Duct sealing	Audit recommendation	\$100
Bonus rebate	> 1 recommended measure installed	\$50/installed measure >1 up to <del>four measures</del> <del>(\$150/100)</del>

~~PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.~~

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Residential Energy Assessment & Weatherization Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 19. Program Schedule and Milestones**

Schedule	Milestones
07/14/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Residential Energy Survey CSP(s).
07/28/2009	Issue RFP for Residential Energy Survey CSP.
08/21/2009	Execute implementation contract with selected CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance and EM&V CSPs.
12/31/2009 - ongoing	Conduct outreach to trade allies, vendors and other local market participants.
12/31/2009 – 03/01/2010	Program training.
02/01/2010	Final marketing and customer education materials and program applications.

Schedule	Milestones
02/01/2010	Purchase direct installation measures.
03/01/2010	Launch program. <sup>42</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. The data from the Tracking System will be used to determine gross, ex ante impacts of programs and to validate the program's a priori planning assumptions. Analysis results will be reported to the Commission in PPL Electric's annual report. [PPL Electric's Evaluation Plan describes the EM&V requirements for this program.](#)~~

~~The actual, ex post net savings of each program will be determined as part of impact evaluations. The methodology and procedural protocols for conducting impact evaluations will be determined by the statewide EE&C Plan Evaluator. The Company will ensure the necessary data for conducting impact evaluations will be available from the Tracking System. This information will include at least the following data:~~

- ~~• Participant contact information, including name, address, participation date, etc.~~
- ~~• Essential structural attributes~~
- ~~• Household characteristics~~
- ~~• Type and frequency of installed measures~~
- ~~• Estimated savings~~
- ~~• Measure cost~~
- ~~• Interval daily electricity consumption~~
- ~~• Climate information to calculate heating and cooling degree information~~

~~PPL Electric's preliminary assessment indicates this information will satisfy the data requirements for verification of program savings.~~

~~Since impact evaluation for most programs will require adequate post-implementation data, PPL Electric expects the results of impact evaluations will be filed with the Commission six to nine months after the end of each program year. The impact evaluation results will be used to true-up estimates of gross savings and to adjust gross savings estimates, where such adjustments are warranted.~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal~~

<sup>42</sup> Assumes Commission approval of Plan by 11/30/2009.

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Section 3: Program Descriptions  
Residential Sector Programs

~~needs. Anticipated administrative requirements and participant roles for the program follow:~~ Summary of administrative requirements:

- ~~The Customer Programs Specialist~~ PPL Electric's staff will oversee ~~all~~ program operations and program CSPs, and ~~will work~~ s with trade allies, other Pennsylvania utilities, and stakeholders.
- The Administrative CSP ~~will track~~ s all program activities, pays rebates, provides customer service, and provides reports s to PPL Electric.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the ~~state EE&C Plan evaluator~~ Statewide Evaluator.

### Estimated Participation

~~Participation rates for this program were developed using housing counts for the single-family market segment and applying central air conditioning saturation rates from PPL Electric data to obtain the technical potential available. The overall budget is driven by the goal of attaining the cumulative 2013 targeted savings goals and satisfying the TRC test. The resulting number of audits and installations of weatherization measures is shown below.~~ Estimated participation levels are shown for general guidance only.

**Table 20. Projected Participation**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
<del>CFLs</del>	<del>2,010</del>	<del>10,040</del>	<del>10,040</del>	<del>13,380</del>	<del>35,470</del>
<del>SmartStrips</del>	<del>330</del>	<del>1,670</del>	<del>1,670</del>	<del>2,230</del>	<del>5,900</del>
<del>Faucet Aerators</del>	<del>240</del>	<del>1,180</del>	<del>1,180</del>	<del>1,570</del>	<del>4,170</del>
<del>Water Heater Setback</del>	<del>80</del>	<del>390</del>	<del>390</del>	<del>520</del>	<del>1,380</del>
<del>Hot Water Pipe Insulation</del>	<del>80</del>	<del>390</del>	<del>390</del>	<del>520</del>	<del>1,380</del>
<del>Infiltration</del>	<del>400</del>	<del>490</del>	<del>490</del>	<del>660</del>	<del>1,740</del>
<del>Insulation</del>	<del>140</del>	<del>740</del>	<del>740</del>	<del>1,000</del>	<del>2,620</del>
<del>Duct Sealing</del>	<del>70</del>	<del>350</del>	<del>350</del>	<del>480</del>	<del>1,250</del>
<b>Total</b>	<b>3,050</b>	<b>15,250</b>	<b>15,250</b>	<b>20,360</b>	<b>53,910</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Surveys</u>	<u>-</u>	<u>902</u>	<u>1,100</u>	<u>1,150</u>	<u>3,152</u>
<u>Audits</u>	<u>-</u>	<u>389</u>	<u>336</u>	<u>400</u>	<u>1,125</u>
<u>Total</u>	<u>-</u>				

		<u>1,291</u>	<u>1,436</u>	<u>1,550</u>	<u>4,277</u>
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### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 5,964 2,607 MWh/yr. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in

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**Table 21**

**Table 21.** Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 21. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	686	924	997	2,607
Capacity Savings (MW)	-	1.4	0.0	0.0	1.5
Total Resource Cost	\$30,002	\$925,486	\$886,201	\$971,909	\$2,813,597
Direct Participant Costs	\$0	\$351,219	\$49,300	\$46,600	\$447,119
Direct Utility Costs	\$30,002	\$574,266	\$836,901	\$925,309	\$2,366,478
Customer Incentives	\$0	\$0	\$114,300	\$128,400	\$242,700
EDC Labor	\$29,842	\$35,536	\$36,000	\$36,000	\$137,378
EDC Materials and Supplies	\$160	\$840	\$0	\$0	\$999
CSP Labor	\$0	\$537,891	\$655,601	\$729,909	\$1,923,400
Other (Marketing and Trade Ally)	\$0	\$0	\$31,000	\$31,000	\$62,000
<b>TRC Test</b>					
NPV Benefits	\$1,006,602				
NPV Costs	\$2,418,240				
Net Benefits (NPV)	-\$1,411,639				
<b>Benefit-Cost Ratio</b>	<b>0.42</b>				

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	342	1,721	1,721	2,177	5,961
Capacity Savings (MW)	0.03	0.2	0.2	0.2	0.6
Total Resource Cost	\$324,800	\$1,269,272	\$1,295,168	\$1,727,945	\$4,617,185
Direct Participant Costs	\$104,405	\$541,462	\$552,833	\$760,668	\$1,959,367
Direct Utility Costs	\$220,395	\$727,810	\$742,335	\$967,278	\$2,657,818
Customer Incentives	\$119,995	\$625,010	\$638,135	\$860,678	\$2,243,818
EDC Labor	\$30,000	\$31,000	\$31,000	\$32,000	\$124,000
EDC Materials and Supplies	\$400	\$400	\$400	\$400	\$1,600
CSP Labor	\$35,000	\$35,700	\$36,400	\$37,100	\$144,200
CSP Materials and Supplies	\$35,000	\$35,700	\$36,400	\$37,100	\$144,200
<b>TRC Test</b>					
NPV Benefits	\$5,007,983				
NPV Costs	\$3,982,148				
Net Benefits (NPV)	\$1,025,835				
<b>Benefit-Cost Ratio</b>	<b>1.26</b>				

Please note that recommendations of the audit/survey are usually implemented in other programs (such as Efficient Equipment, Residential Lighting, and Appliance Recycling) and, therefore, the savings are reported in those programs. That is also the primary reason the benefit-cost ratio for this program is low.

~~Note: Table 21 was updated to reflect the change in classification of common and direct costs.~~



**Compact Fluorescent Lighting Campaign**Residential Lighting Program 2010-2013  
(Residential sector)

Objectives

The objectives of the ~~Compact Fluorescent Lighting (CFL) Campaign~~Residential Lighting Program include:

- Provide a mechanism for customers to easily obtain discounted ENERGY STAR®-qualified CFLs and other energy efficient lighting such as LEDs.
- Develop and execute strategies aimed at transforming the market for ENERGY STAR®-qualified CFLs with the goal of increasing the number of qualified products purchased and installed in PPL Electric's service territory.
- ~~Encourage customers to install CFLs obtained from a give-away program.~~
- Increase consumer awareness and understanding of the energy-efficiency of CFLs and other energy efficient lighting such as LEDs, as well as proper use of CFLs in various lighting applications.
- Promote consumer awareness and understanding of the ENERGY STAR label and the changes associated with the Energy Independence and Security Act (EISA) standards such as new product labeling.
- ~~Promote other PPL Electric energy efficiency programs through CFL package inserts.~~
- Distribute ~~no fewer than approximately 7,125,000~~8,743,000 CFLs through 2013, with a total energy reduction of ~~approximately 292,100~~392,137MWh/yr and a peak load reduction of approximately 45,630-18.7 kWMW.<sup>43</sup>

Target Market

This program ~~will be~~is available to all PPL Electric customers.<sup>44</sup> For the purposes of the Plan, the program allocates all savings and costs to the residential customer sector.

Program Description

This program encourages customers to purchase new ENERGY STAR rated CFL bulbs and other efficient lighting. The program has two components:

1. A retail upstream lighting incentive that will significantly reduce the customer cost of ENERGY STAR® CFL bulbs and other energy efficient lighting such as LEDs. This component will also educate customers and retailers on the EISA standards.
2. CFL giveaway events and activities.

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<sup>43</sup> Combined totals for all target customer segments.

<sup>44</sup> The Plan assumes that large commercial and industrial buildings predominantly use fluorescent tube or other commercial lighting fixtures. All customer sectors, however, may participate.

### Implementation Strategy

~~A CFL~~The Residential Lighting CSP ~~will~~ manages an upstream ~~CFL-residential lighting Campaign~~campaign, including negotiating bulk pricing, recruitment, and coordination with retail stores, marketing and outreach to retailers, and tracking and providing program reports. The ~~selected-Residential Lighting~~ CSP ~~will be encouraged to~~utilizes ~~utilize~~ a broad range of retailers, including big box and chain stores as well as smaller local and independent stores throughout PPL Electric's territory. ~~An additional~~The Residential Lighting CSP ~~may be selected to also~~ delivers ~~the~~ a CFL giveaway ~~program component~~. PPL Electric's energy-efficiency staff ~~will~~ provides overall strategic direction and program management for the program and, supported by other CSPs, promotional, marketing, trade alley support, evaluation, and other administrative functions, including:

- Customers ~~may~~ purchase discounted CFLs and other efficient lighting such as LEDs at ~~a~~ participating retailers. ~~CFL discounts~~ Discounts are applied at the register. Customers may become aware of the program through ~~CFL CSP~~the Residential Lighting CSP, PPL Electric, or retailer marketing and promotional activities.
- Retailers provides documentation of ~~CFL sales results to CFL~~ the Residential Lighting CSP.
- ~~CFL~~The Residential Lighting CSP tracks results and reports monthly to PPL Electric.
- ~~Additional CSP(s) may provide free~~The Residential Lighting CSP provides CFLs to customers through CFL give-away activities and events, and/or by community based organizations, schools, etc.

~~No changes in the implementation strategy are expected in different program years.~~

### Risks and Risk Management Strategy

Table 22~~Table 22~~ presents key market risks to an effective CFL Campaign, as well as the strategies the program will use to address each risk.

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**Table 22. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Cost of energy efficient bulbs.	Provide upstream incentive and giveaways.
Lack of customer awareness.	Robust marketing strategies, including point-of-sale promotions and discounts. CSP outreach to retailers to solicit participation.
Willingness of retailer to stock CFLs.	
Other retail CFL promotions may be more attractive.	
Negative media attention associated with CFL mercury content and CFL disposal.	Ongoing retailer communications, training, outreach, and education.
CFL performance.	Provide customer education and outreach on the proper handling and disposal of CFLs and mercury content.

Proper disposal of CFLs containing mercury.

~~Provide~~ Identify locations for customers to dispose of mercury CFLs, ~~which will be required as part of the CSP contract.~~ Educate customers about proper disposal of CFLs.

### Anticipated Costs to Participating Customers

The average ~~customer cost of a standard CFL under this program is expected to be \$1.50 to \$2.50 (after the incentive).~~ upstream incentive amounts and final prices paid by customers vary for each bulb/package of bulbs. PPL Electric's program CSP continually adjusts upstream incentives and bulb prices to ensure they are appropriate and to control sales levels and savings to meet program objectives.

### Ramp-up Strategy

~~PPL Electric will utilize CFL CSP(s) to deliver this program. In its contractual agreements with the competitively selected CFL CSP, PPL Electric expects to outline specific, aggressive, but achievable CFL distribution goals that ramp up by program year, with penalties for non-compliance. The CFL CFP will be expected to develop and execute a marketing and delivery plan that achieves the goals.~~

### Marketing Strategy

Marketing for this program ~~will be~~ is led by the ~~CFL CSP(s)~~ Residential Lighting CSP with support from PPL Electric's Advertising CSP and ~~internal Customer Strategy division~~ PPL Electric staff. The marketing strategy ~~may include~~ may include:

- ~~Promote~~ Promoting the program in PPL Electric's customer bill ~~insert~~ newsletter, "Connect."
- ~~Communicate~~ Communicating and ~~provide~~ providing access to program information on the Company's Web site, www.pplelectric.com.
- ~~Advertise using newspaper, radio, and other mass media~~ Advertising through newspapers, radio, television, or other media or publications.
- In-store advertising.
- Brand ing marketing material with the ENERGY STAR® and PPL Electric logos.
- Present ing program information at seminars, conferences, and community events.
- ~~Coordinate~~ Coordinating advertising opportunities with trade allies.
- Publish ing a and distribute program brochure.
- Cross-~~promote~~ promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

The CFL ~~CSP(s)~~ Residential Lighting CSP ~~will~~ negotiates bulk pricing and manages the delivery of upstream incentives to participating CFL and LED manufacturers, ~~which are expected to cover approximately 50% of the retail cost of CFLs and 100% of the cost of giveaway bulbs.~~ This encourages the market and customers to increase socket saturation of CFLs, and to increase familiarity with LEDs and other emerging technology.

The measures eligibility requirements, number of participants/bulbs, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details.

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric will perform periodic (at least annual) reviews of its programs, and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.~~

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the CFL Campaign follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 23. Program Schedule and Milestones**

Schedule	Milestones
06/01/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for CFL CSP(s).
6/05/2009	Issue RFP for CFL CSP(s).
08/30/2009	Execute implementation contract with selected CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance and EM&V CSPs.
10/01/2009	Negotiate manufacturer upstream incentive.
09/30/2009	Recruit participating retailers.
11/30/2009	Select and execute contract with manufacturers.
12/01/2009	Finalize marketing and customer education materials.
01/01/2010	Develop tracking and allocation procedures.
01/01/2010	Determine reporting data requirements for program evaluation.
01/01/2010	Launch program. <sup>45</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. The data from the Tracking System will be used to determine gross, ex-ante impacts of programs and to validate the program's a priori planning assumptions. The results of this analysis will be reported to the Commission in PPL~~

<sup>45</sup> Assumes Commission approval of Plan by 11/30/2009.

~~Electric's annual report.~~ PPL Electric's Evaluation Plan describes the EM&V requirements of this program.

~~The actual methodology for impact evaluations will be determined by the statewide EE&C Plan Evaluator. PPL Electric expects impact evaluation of this program will rely mainly on estimates of savings established in the TRM and information on measure installations, including:~~

- ~~• Number of CFLs distributed.~~
- ~~• Sample-based verification of CFLs installed.~~
- ~~• Sample-based verification of baseline CFLs.~~
- ~~• Sample-based verification of location of installations.~~

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~~Since impact evaluation for most programs will require adequate post-implementation data, PPL Electric expects the results of impact evaluations will be filed with the Commission six to nine months after the end of each program year. The impact evaluation results will be used to true-up estimates of gross savings and to adjust gross savings estimates, where such adjustments are warranted.~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program and be supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure, and internal needs. Anticipated administrative requirements and participant roles for the program follow.~~ Summary of administrative requirements:

- ~~The Customer Programs Specialist~~ PPL Electric's staff ~~will~~ oversees all program operations and program CSPs, and ~~will work~~ with trade allies, other Pennsylvania utilities, and stakeholders.
- The CFL Residential Lighting CSP ~~will track~~ tracks all program activities and reports to PPL Electric.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will conduct~~ conducts evaluation, measurement, and verification activities and coordinates with the Statewide Evaluator.

### Estimated Participation

~~Program participation rates were developed using customer count information and trends for similar, successful programs. The overall budget is driven by the goal of attaining the cumulative 2013 targeted savings goals and satisfying the TRC test. The resulting number of CFLs purchased by and given away to residential customers is shown below.~~ Estimated participation levels are shown for general guidance only.

**Table 24. Projected Participation**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
<b>Purchased CFLs</b>	<b>-305,370</b>	<b>-2,035,800</b>	<b>-2,035,800</b>	<b>-2,035,800</b>	<b>-6,412,770</b>
<b>CFL give-aways</b>	<b>-33,930</b>	<b>-226,200</b>	<b>226,200</b>	<b>226,200</b>	<b>-712,530</b>
<b>Total</b>	<b>-339,300</b>	<b>-2,262,000</b>	<b>2,262,000</b>	<b>2,262,000</b>	<b>-7,125,300</b>

	<u><b>Year 1</b></u>	<u><b>Year 2</b></u>	<u><b>Year 3</b></u>	<u><b>Year 4</b></u>	<u><b>Total</b></u>
<u><b>CFLs and LEDs (quantity of bulbs)</b></u>	<u><b>1,342,595</b></u>	<u><b>3,056,236</b></u>	<u><b>2,191,496</b></u>	<u><b>2,152,707</b></u>	<u><b>8,743,034</b></u>

~~Note: Table 24 was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table 24 was updated to reflect the change in classification of common and direct costs. All customer sectors are eligible to purchase discounted lighting but all of the savings will be allocated to the residential sector as approved by the Commission on May 5, 2011 because participants are not specifically identified in this type of upstream discount program.~~

#### Program Budget, Costs, and Cost-effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 292,137–392,137 MWh/yr and peak load reductions of approximately 18.7 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 25~~Table 25~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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Section 3: Program Descriptions  
Residential Sector Programs

**Table 25. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	61,839	145,999	94,234	90,065	392,137
Capacity Savings (MW)	3.6	8.6	6.4	6.3	18.7
Total Resource Cost	\$5,549,213	\$12,499,252	\$8,910,770	\$8,603,327	\$35,562,561
Direct Participant Costs	\$3,471,167	\$7,901,643	\$4,493,480	\$4,489,292	\$20,355,583
Direct Utility Costs	\$2,078,045	\$4,597,608	\$4,417,290	\$4,114,036	\$15,206,979
Customer Incentives	\$1,342,595	\$3,056,236	\$3,363,946	\$3,229,061	\$10,991,838
EDC Labor	\$94,516	\$119,094	\$100,000	\$100,000	\$413,610
EDC Materials and Supplies	\$25,642	\$32,772	\$11,000	\$10,000	\$79,414
CSP Labor	\$500,811	\$1,358,027	\$942,343	\$774,975	\$3,576,156
Other (Marketing and Trade Ally)	\$114,481	\$31,479	\$0	\$0	\$145,960
<b>TRC Test</b>					
NPV Benefits	\$217,161,910				
NPV Costs	\$31,591,741				
Net Benefits (NPV)	\$185,570,169				
<b>Benefit-Cost Ratio</b>	<b>6.87</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	13,911	92,742	92,742	92,742	292,137
Capacity Savings (MW)	2	14	14	14	45
Total Resource Cost	\$2,055,200	\$9,951,108	\$10,160,106	\$10,374,178	\$32,540,592
Direct Participant Costs	\$678,600	\$4,619,004	\$4,716,003	\$4,815,039	\$14,828,646
Direct Utility Costs	\$1,376,600	\$5,332,104	\$5,444,103	\$5,559,139	\$17,711,946
Customer Incentives	\$678,600	\$4,619,004	\$4,716,003	\$4,815,039	\$14,828,646
EDC Labor	\$150,000	\$153,000	\$156,000	\$160,000	\$619,000
EDC Materials and Supplies	\$2,000	\$2,100	\$2,100	\$2,100	\$8,300
CSP Labor	\$273,000	\$279,000	\$285,000	\$291,000	\$1,128,000
CSP Materials and Supplies	\$273,000	\$279,000	\$285,000	\$291,000	\$1,128,000
<b>TRC Test</b>					
NPV Benefits	\$136,096,240				
NPV Costs	\$28,215,200				
Net Benefits (NPV)	\$107,881,041				
<b>Benefit-Cost Ratio</b>	<b>4.82</b>				

Table 25 was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table 25 was also updated to reflect the change in classification of common and direct costs.

## Appliance Recycling Program (Residential Sector)

2009–2013

### Objectives

The objectives of the Appliance Recycling program include:

- Encourage customers to dispose of their existing, inefficient appliances when they purchase new ones or eliminate a second unit that may not be needed.
- Reduce the use of secondary, inefficient appliances.
- Ensure appliances are disposed of in an environmentally responsible manner.
- On-site decommissioning to ensure appliances are not resold in a secondary market.
- Promote other PPL Electric energy-efficiency programs.
- Collect and recycle ~~no fewer than~~ approximately 69,600 57,500 appliances through 2013, with a total reduction of approximately 414,760 74,537 MWh/yr and 13,150 9,591 kW.

### Target Market

The program primarily targets residential customers, but it is available to all PPL Electric customers with a working, residential grade refrigerator, freezer, or room air conditioner unit. Refrigerators must be ~~at least 10~~ between 10 and 30 cubic feet ~~in size. For the purposes of this~~ The estimates in this Plan, the Appliance Recycling program assume all appliances are for the residential sector. However, actual units (savings and costs) are allocated to the appropriate customer sector<sup>46</sup>. Very few non-residential units are expected. ~~allocates budget and attributes savings and impacts only to the residential sector.<sup>47</sup>~~

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<sup>46</sup> The Plan does not income-qualify customers so it will not allocate actual residential units (savings and costs) to the low-income sector.

<sup>47</sup> ~~The Plan does not allocate budget or attribute energy savings for this program to non-residential sectors. The Plan assumes low-income sector customers are most likely to participate in the Low-income WRAP, which may provide a free refrigerator when warranted. Additionally, the Plan assumes non-residential customer sectors will not significantly participate in this program due to the residential unit size limitation of appliances.~~



**Table 26. Customer Eligibility Parameters**

<b>Customers type</b>	All
<b>Rate Class</b>	All
<b>Building Type</b>	All
<b>Building Vintage</b>	All
<b>Building ownership</b>	Owner or tenant

### Program Description

The Appliance Recycling Program offers free pick-up and recycling of inefficient refrigerators, freezers, and room air conditioners. An incentive is paid to a customer for each eligible appliance. Room air conditioners will be picked-up with a refrigerator/freezer but not as a stand-alone service. Eligible appliances must be plugged in and functioning when picked-up.

- ~~Inefficient refrigerator and freezer pick-up and recycling; and~~
- ~~Room air conditioner turn-in events.~~

~~A customer incentive will be offered for customers who turn in eligible appliances. The program provides free pick-up and disposal of refrigerators and freezers. Room air conditioners may be picked up along with larger appliances, but not as a stand-alone service. Units must be plugged in and functioning when picked up.~~

~~PPL Electric will also sponsor turn-in events in its territory where customers can bring their inefficient room air conditioners. Appliances must be in working condition. Customers participating in room air conditioner drop-off events will be given information on PPL Electric rebates available for new ENERGY STAR® room air conditioners.~~

All units are disposed of in an environmentally responsible manner. This involves removing hazardous materials such as chlorinated fluorocarbons from the refrigerant and foam insulation, preparing refrigerant for reclamation, and recycling other materials such as metal and plastic.

### Implementation Strategy

~~An~~ The Appliance Recycling CSP ~~will~~ provides turnkey services to manage and administer the program, including:

- Marketing;
- Call center services, including customer intake and scheduling;
- Processing applications and rebates;
- Tracking program data; and
- Providing customer and transaction information to PPL Electric.

PPL Electric's ~~energy efficiency~~ staff ~~will~~ provides overall strategic direction and program management for the program, ~~and, supported by other CSPs, marketing, evaluation, and other administrative functions.~~

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Key steps in program participation include:

- CSP schedules and executes appliance collection.
- CSP verifies customer and appliance eligibility.
- CSP picks up and transports appliances to recycling facility.
- CSP recycles applicable components and appropriately disposes of remaining components.
- CSP tracks customer data, appliances, and outcomes throughout process.
- CSP process rebate payment and delivers to customers.

~~No changes in the implementation strategy are expected in different program years.~~

### Risks and Risk Management Strategy

~~Table 27~~ Table 27 presents the key market risks to an effective Appliance Recycling Program, as well as the strategies the program will use to address each risk.

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**Table 27. Market Risks and Management Strategies**

Market Risks	Management Strategies
Time required for customer to be available for pick up.	CSP responsible to work with customer to ensure the pick-up is as convenient as possible.
<del>Need to fill out rebate forms.</del>	<del>Provide simple rebate forms.</del> <del>Appliance Recycling CSP helps customers fill out forms.</del>
Lack of program awareness among customers.	Robust marketing strategy, leveraging ENERGY STAR® brand. Consumer education and outreach.
Customers do not see benefit of harvesting qualified appliance(s).	CSP will work with retailers to display information about the benefits to harvesting. Customers receive an incentive for purchasing a new energy efficient room air conditioner or refrigerator. Customized educational materials that highlight the cost to operate an old refrigerator or freezer and explain environmental benefits of eliminating inefficient appliances. <u>CSP's advertising will communicate the benefits of appliance recycling.</u>

### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

### ~~Ramp-up Strategy~~

~~PPL Electric will utilize a turnkey Appliance Recycling CSP to deliver this program. In its contractual agreements with the competitively selected Appliance Recycling CSP, PPL Electric will outline specific, aggressive, but achievable, appliance recycling goals that ramp up by program year and will be reviewed quarterly. The Appliance Recycling CSP will be expected to develop and execute a delivery plan that achieves the goals.~~

## Marketing Strategy

Marketing for this program ~~will be led by the selected~~ is the responsibility of the Appliance Recycling CSP, ~~with support from PPL Electric's Advertising CSP and internal Customer Strategy divisions.~~

The marketing strategy may include:

- ~~Promote~~ Promoting the program in PPL Electric customer bill ~~insert~~ newsletter, "Connect," and other inserts.
- ~~Communicate~~ Communicating and ~~provide~~ providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- ~~CSP to advertise using newspaper, radio, and other mass media.~~ Advertising through newspapers, radio, television, or other media or publications.
- ~~Use existing ENERGY STAR® refrigerator harvesting materials as a marketing resource; include program on the ENERGY STAR® "Find a fridge or freezer recycling program" Web page.~~
- ~~Brand program marketing materials with the ENERGY STAR® label.~~
- Presenting ing program information at seminars, conferences, and community events.
- ~~CSP to distribute~~ Distributing program brochures to CBO's, municipal governments offices, schools, and community organizations, ~~such as Chambers of Commerce.~~
- ~~Distribute bill inserts to all customers that highlight the benefits of appliance recycling.~~
- Cross-~~promote~~ promoting through other PPL Electric programs.
- Promoting "buy new and recycle" with participating retailers.

## Eligible Measures and Incentive Strategy

There are ~~three~~ two ~~distinct~~ incentives associated with the program:

- Free pick-up and disposal of refrigerator or freezer.<sup>48</sup>
- ~~Possible free drop-off events where customers can drop-off and dispose of inefficient room air conditioners.~~
- Appliance ~~rebate~~ recycling incentive.

There is a yearly limit of two ~~rebates~~ incentives for ~~each type of appliance~~ refrigerator/freezer per customer address and up to four room air conditioners. Allowances are made for customer classes other than residential. For example, a government housing authority replacing refrigerators in an apartment may have more than two qualifying units. Appliance eligibility parameters and rebates are shown in Table 28 ~~Table 28~~.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and

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<sup>48</sup> Room air conditioners may be picked up along with larger appliances, but they may not be picked up as a stand-alone item.

incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

Table 28. Eligible Measures

Measure	Eligibility Rating	Incentive
Refrigerator	Working unit; $\geq 10$ CU FT.	\$35
Freezer	Working unit	\$35
Room air conditioner	Working unit	\$25

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria, and/or eligibility ratings in the future as market conditions change.~~

### Implementation Schedule and Milestones

PPL Electric has already solicited competitive bids and selected an Appliance Recycling CSP, which is under contract. Planning and implementation tasks and schedule for the Appliance Recycling Program follow. Note that some tasks are completed. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

Table 29. Program Schedule and Milestones

Schedule	Milestones
04/01/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Appliance Recycling CSP(s).
04/20/2009	Issue RFP for Appliance Recycling CSP(s).
06/30/2009	Execute implementation contract with selected CSP.
<del>08/21/2009— 10/09/2010</del>	<del>Secure Advertising, Quality Assurance and EM&amp;V CSPs.</del>
11/01/2009	Develop customer and marketing materials.
11/01/2009	Develop customer information Web site.
12/01/2009	Develop quality assurance plan approved by PPL Electric.
12/01/2009	Determine reporting data requirements for program evaluation.
10/01/2009	Coordinate with other utilities and stakeholders.
12/01/2009	Launch program. <sup>49</sup>

<sup>49</sup> ~~Assumes Commission approval of Plan by 11/30/2009.~~

### Evaluation, Measurement, and Verification (EM&V)

~~PPL Electric's Evaluation Plan describes the EM&V requirements for this program. As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex-post) savings and net program impacts.~~

~~The actual methodology for impact evaluations will be determined by the statewide EE&C Plan Evaluator. PPL Electric expects impact evaluation of this program will rely mainly on estimates of savings established in the TRM and information on measure installations, including:~~

~~• Number of units removed.~~

~~• Unit characteristics:~~

~~◦ Model~~

~~◦ Size~~

~~◦ Age~~

~~◦ Etc.~~

~~Detailed data on unit characteristics will be collected by the CSP. Procedures and formats for reporting this will be specified in the CSP agreement(s).~~

~~Since impact evaluations for most programs will require adequate post-implementation data, PPL Electric expects the results of impact evaluations will be filed with the Commission six to nine months after the end of each program year. The impact evaluation results will be used to true-up estimates of gross savings and to adjust gross savings estimates, where such adjustments are warranted.~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow: [Summary of administrative requirements](#):~~

- ~~The Customer Programs Specialist~~[PPL Electric's staff](#) ~~will~~ [oversees](#) all program operations and program CSPs, and ~~will work~~ [with](#) trade allies, other Pennsylvania utilities, and stakeholders.

- The Appliance recycling CSP ~~will~~ [track](#) all program activities and reports [monthly](#) to PPL Electric.

~~• The Quality Assurance CSP will oversee quality assurance.~~

- The EM&V CSP ~~will~~ [conduct](#) evaluation, measurement, and verification activities and coordinates [with](#) the ~~statewide EE&C Plan evaluator~~[Statewide Evaluator](#).

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### Estimated Participation

~~Program participation levels were developed using customer counts and applying refrigerator and room air-conditioning saturation rates from market research data to obtain the technical potential available. The resulting quantity of appliances recycled is shown below.~~ Estimated participation levels are shown for general guidance only.

**Table 30. Projected Participation**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Refrigerators and Freezers (not replaced)</u>	<u>5,100</u>	<u>13,779</u>	<u>5,995</u>	<u>5,995</u>	<u>30,914</u>
<u>Refrigerators and Freezers replaced with Energy Star® Appliances</u>	<u>255</u>	<u>1,020</u>	<u>1,020</u>	<u>1,020</u>	<u>3,315</u>
<u>Room Air Conditioners replaced with non-Energy Star® Appliances</u>			<u>360</u>	<u>360</u>	<u>720</u>
<u>Room Air Conditioners</u>	<u>846</u>	<u>2,172</u>	<u>2,496</u>	<u>2,496</u>	<u>8,010</u>
<b>Total</b>	<b>5,355</b>	<b>21,420</b>	<b>21,420</b>	<b>21,420</b>	<b>69,615</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Refrigerators and Freezers (not replaced)</u>	<u>5,145</u>	<u>13,779</u>	<u>5,995</u>	<u>5,995</u>	<u>30,914</u>
<u>Refrigerators and Freezers replaced with Energy Star® Appliances</u>			<u>8,632</u>	<u>8,632</u>	<u>17,264</u>
<u>Room Air Conditioners replaced with non-Energy Star® Appliances</u>			<u>360</u>	<u>360</u>	<u>720</u>
<u>Room Air Conditioners</u>	<u>846</u>	<u>2,172</u>	<u>2,496</u>	<u>2,496</u>	<u>8,010</u>
<b>Total</b>	<b>5,991</b>	<b>15,951</b>	<b>17,483</b>	<b>17,483</b>	<b>56,908</b>

### Program Budget, Costs, and Cost-effectiveness

Over the five-year planning horizon, the program is expected to achieve electricity consumption savings of ~~44,764~~ 73,842 MWh/yr and peak load reductions of approximately 9.4 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in ~~Table 31~~ Table 31. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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Section 3: Program Descriptions  
Residential Sector Programs

**Table 31. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	8,940	24,315	20,293	20,293	73,842
Capacity Savings (MW)	0.2	6.6	2.7	2.7	9.4
Total Resource Cost	\$789,703	\$1,856,379	\$2,311,901	\$2,311,901	\$7,269,884
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$789,703	\$1,856,379	\$2,311,901	\$2,311,901	\$7,269,884
Customer Incentives	\$201,225	\$536,565	\$586,945	\$586,945	\$1,911,680
EDC Labor	\$26,170	\$30,892	\$31,577	\$31,577	\$120,217
EDC Materials and Supplies	\$502	\$49,923	\$4,998	\$4,998	\$60,422
CSP Labor	\$438,226	\$946,005	\$1,688,380	\$1,688,380	\$4,760,992
Other (Marketing and Trade Ally)	\$123,580	\$292,994	\$0	\$0	\$416,574
<b>TRC Test</b>					
NPV Benefits	\$55,493,185				
NPV Costs	\$6,325,917				
Net Benefits (NPV)	\$49,167,268				
<b>Benefit-Cost Ratio</b>	<b>8.77</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	8,828	35,311	35,311	35,311	114,761
Capacity Savings (MW)	1	4	4	4	13
Total Resource Cost	\$771,275	\$2,767,900	\$2,770,000	\$2,773,000	\$9,082,175
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$771,275	\$2,767,900	\$2,770,000	\$2,773,000	\$9,082,175
Customer Compensation	\$184,875	\$739,500	\$739,500	\$739,500	\$2,403,375
EDC Labor	\$105,000	\$107,000	\$109,000	\$112,000	\$433,000
EDC Materials and Supplies	\$1,400	\$1,400	\$1,500	\$1,500	\$5,800
CSP Labor	\$240,000	\$960,000	\$960,000	\$960,000	\$3,120,000
CSP Materials and Supplies	\$240,000	\$960,000	\$960,000	\$960,000	\$3,120,000
<b>TRC Test</b>					
NPV Benefits	\$85,873,711				
NPV Costs	\$7,910,271				
Net Benefits (NPV)	\$77,963,440				
<b>Benefit-Cost Ratio</b>	<b>10.86</b>				

Table 31 was updated to reflect the change in classification of common and direct costs.

## **ENERGY STAR® New Homes ————— 2010-2013** **(Residential Sector)**

### **Objectives**

The objectives of the ENERGY STAR® New Homes program include:

- Promote construction of energy-efficient new homes.
- Educate construction industry professionals and customers about the benefits of ENERGY STAR® new homes.
- Obtain participation by no less than 1,930 customers through 2013, with a total reduction of 5,200 MWh and 590 kW.

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### **Target Market**

The program targets residential, single-family new construction contractors, developers, and home buyers.

**Table 32. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential building contractors, developers and home buyers
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/1/2010
<b>Building Type</b>	Single-family
<b>Building Vintage</b>	New construction
<b>Building ownership</b>	Owner

### **Program Description**

This program encourages construction of energy-efficient new homes addressing both the building shell and electricity-using equipment. The program is based on the U.S. Environmental Protection Agency's ENERGY STAR® New Homes program. Participants will work within the framework of the Residential Energy Services Network (RESNET®) accredited Home Energy Rating System (HERS) to receive a qualifying HERS rating. The program may offer financial incentives for technical assessments (i.e., HERS ratings) and to offset the higher purchase price of new, high-efficiency equipment based on achieving ENERGY STAR® certification.

PPL Electric does not expect to launch this program until mid-2010 at the earliest. While the program's basic design is outlined here, some program details are yet to be determined. PPL Electric believes there are potential advantages associated with developing a statewide New Homes Program with input from the Commission, EDCs, gas utilities, oil dealers, builders, realtors, and other stakeholders. Also, this program has a low benefit-to-cost ratio and, as such, does not provide significant value to the portfolio relative to other programs. The Company expects to refine the program requirements and processes, incentive levels, marketing strategies, and other aspects of the program through the course of these coordination activities.



### Implementation Strategy

PPL Electric will utilize a CSP to provide building contractor training and certification and independent assessment and confirmation of HERS ratings to achieve ENERGY STAR® certification. Trade allies, including builders, developers, and construction professionals will provide project development, implementation, and installation services to comply with program requirements. Participating builders and developers must be HERS-certified and are responsible for meeting the appropriate HERS requirements. PPL Electric's energy efficiency staff will provide overall strategic direction and program management for the program, and supported by other CSPs, marketing, trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Prior to the start of construction, the builder or developer must submit building plans to a RESNET-accredited provider to determine the projected HERS score. The home must achieve a maximum HERS index score of 85, and building specifications must meet several mandatory ENERGY STAR® requirements.
- Following completion of construction, the physical structure must undergo a comprehensive assessment with diagnostic testing to verify the expected pre-construction HERS score has been achieved.
- The participant will submit the program application to PPL Electric's New Construction CSP for verification of program eligibility.
- The New Construction CSP will review the HERS score and all technical documentation to verify the home meets the program's performance requirements.
- Processing rebate checks for qualifying projects.
- Verifying equipment installation for a sample of participants. This will be a part of measurement and verification.

No changes in the implementation strategy are expected in different program years.

### Risks and Risk Management Strategy

Table 33 presents the key market risks to an effective ENERGY STAR® New Homes Program, as well as the strategies the program will use to address each risk.

**Table 33. Market Risks and Management Strategies**

Market Risks	Management Strategies
Cost of HERS rating.	Offer rebate for HERS rating and overall home performance.
Higher cost of energy efficient equipment.	
Lack of awareness among customers and trade allies of high efficiency alternatives.	Robust marketing strategy. Leverage ENERGY STAR® brand. Consumer education and outreach.
Customers value design features and finishes over high efficiency equipment.	
Low trade ally awareness of program.	

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### ~~Anticipated Costs to Participating Customers~~

~~Customer incremental costs (i.e., the cost differential between for energy using equipment in a code level versus ENERGY STAR new home) for an ENERGY STAR<sup>®</sup> rated new home is estimated to be approximately \$1,200.~~

### ~~Ramp-up Strategy~~

~~As discussed, due to the slow economic environment and expected low number of housing starts over the next few years, the additional time required to develop a statewide program, and the long development time for new construction projects, PPL Electric does not anticipate strong initial participation in this program. PPL Electric will work with its selected New Construction CSP, Advertising CSP, internal Customer Strategy division, and external market participants and stakeholders to develop a strategy to ramp up program activities to the greatest extent possible over the initial program years.~~

### ~~Marketing Strategy~~

~~PPL Electric's Advertising CSP will work with the New Construction CSP and PPL Electric's internal Customer Strategy division to create a marketing strategy for this program, which may include:~~

- ~~•Promote ENERGY STAR<sup>®</sup> new homes program to building contractors.~~
- ~~•Promote program in PPL Electric's customer bill insert, "Connect."~~
- ~~•Communicate and provide access to program information on the Company's Web site, www.pplelectric.com.~~
- ~~•Advertise using newspaper, radio, and other mass media.~~
- ~~•Brand marketing material with ENERGY STAR.~~
- ~~•Present program information at seminars, conferences, and community events.~~
- ~~•Coordinate advertising opportunities with trade allies.~~
- ~~•Publish and distribute a program brochure.~~
- ~~•Cross-promote through other PPL Electric programs.~~

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### ~~Eligible Measures and Incentive Strategy~~

~~Final incentives are to be determined based on discussions and coordination with other stakeholders in the state. Initial incentive estimates, below, are structured to offset higher construction costs, based on compliance with program requirements and post-construction HERS score.~~

**Table 34. Eligible Equipment Measures**

Measure	Eligibility Rating	Incentive
Electric heating and cooling customers	Home meets all ENERGY STAR	\$2,000
Electric heating only customers		\$1,000

Section 3: Program Descriptions  
Residential Sector Programs

Measure	Eligibility Rating	Incentive
Cooling-only customers	program requirements	\$750
Geothermal customers		\$1,500

~~PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria, and/or eligibility ratings in the future as market conditions change.~~

#### ~~Implementation Schedule and Milestones~~

~~Planning and implementation tasks and schedule for the ENERGY STAR® New Homes Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.~~

**Table 35. Program Schedule and Milestones**

Schedule	Milestones
12/01/2009	<del>Develop RFP, including scope of work, selection criteria, and quality assurance protocols for New Construction CSP.</del>
01/01/2010	<del>Issue RFP for New Construction CSP.</del>
02/01/2010	<del>Execute implementation contract with selected CSP.</del>
08/24/2009 – 10/09/2010	<del>Secure Advertising, Quality Assurance, and EM&amp;V CSPs.</del>
05/01/2010	<del>Develop marketing and outreach plan and materials.</del>
03/01/2010 – 06/01/2010	<del>Recruit and train participating trade allies.</del>
02/01/2010 – 06/01/2010	<del>Coordinate with other utilities and stakeholders.</del>
06/01/2010	<del>Determine reporting data requirements for program evaluation.</del>
06/01/2010	<del>Launch program.<sup>50</sup></del>

#### ~~Evaluation, Measurement, and Verification (EM&V)~~

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's *a priori* planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net programs impacts.~~

<sup>50</sup> Assumes Commission approval of Plan by 11/30/2009.

### Section 3: Program Descriptions

#### Residential Sector Programs

Although the actual methodology for impact evaluations will be determined by the statewide EE&C Plan Evaluator, PPL Electric expects that impact evaluation of this program will rely mainly on engineering methods including energy simulation modeling for a sample of "typical" projects participating in the program. This analysis typically relies on detailed "as-built" structural and physical data.

#### Administrative Requirements

A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow:

- The Customer Programs Specialist will oversee all program operations and program CSPs and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The Advertising CSP will provide external advertising, including television and print ads.
- The Administrative CSP will handle customer calls, review and verify applications, process rebates, track customer and project data, and report results to PPL Electric.
- The Quality Assurance CSP will oversee quality assurance.
- The EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the statewide EE&C Plan evaluator.

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#### Estimated Participation

Program participation levels were developed using the experience gathered from similar successful programs and estimates of new home construction over the planning period. The resulting number of program participants is shown below.

**Table 36. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participating Homes</b>	480	350	700	700	4,930

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 5,211 MWh. The annual budget allocation, cumulative MWh and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 37. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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Residential Sector Programs

**Table 37. Summary of Projected Benefits, Costs, and Cost Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	486	945	1,890	1,890	5,211
Capacity Savings (MW)	0.1	0.1	0.2	0.2	1
Total Resource Cost	\$501,200	\$946,075	\$1,879,472	\$1,919,281	\$5,246,028
Direct Participant Costs	\$225,000	\$446,688	\$912,136	\$931,291	\$2,515,114
Direct Utility Costs	\$276,200	\$499,388	\$967,336	\$987,991	\$2,730,914
Customer Incentives	\$225,000	\$446,688	\$912,136	\$931,291	\$2,515,114
EDC Labor	\$15,000	\$15,000	\$16,000	\$16,000	\$62,000
EDC Materials and Supplies	\$200	\$200	\$200	\$200	\$800
CSP Labor	\$18,000	\$18,800	\$19,500	\$20,300	\$76,600
CSP Materials and Supplies	\$18,000	\$18,700	\$19,500	\$20,200	\$76,400
<b>TRC Test</b>					
NPV Benefits	\$6,317,232				
NPV Costs	\$4,512,127				
Net Benefits (NPV)	\$1,805,105				
<b>Benefit-Cost Ratio</b>	<b>1.40</b>				

Table 37 was updated to reflect the change in classification of common and direct costs.

## Renewable Energy Program (Residential Sector)

2010-2013

### Objectives

The objectives of the Renewable Energy Program in the residential sector include:

- Provide customers with opportunities to self-generate electricity using clean, renewable resources.
- Encourage customers to install solar photovoltaic systems and geothermal heat pumps.
- Promote strategies that encourage and support market transformation toward clean, renewable energy generation.
- Achieve ~~no less than~~ approximately 1,260 1,600 installed measures through 2013, with a total reduction of approximately 18,500 18.875 MWh/yr and 2,000 5 MW.kW.<sup>51</sup>

### Target Market

PPL Electric's Renewable Energy program ~~will be~~ was available to residential sector customers but closed in 2011 when it was fully subscribed. The program is currently available to and the institutional sector (government, non-profits, and schools) ~~sector customers with on-site resources to supply renewable energy systems.~~ For each of these customers segments, the program ~~will use~~ uses a consistent delivery and administrative strategy, but budgets, savings, and impacts ~~will be~~ are tracked and reported separately. Table 32 ~~Table 32~~ outlines eligibility targets for residential customers.

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**Table 32. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential
<b>Rate Class</b>	RS, RTS, TOU after 1/1/2010
<b>Building Type</b>	Single-family homes
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner

### Program Description

The Renewable Energy program encourages customers to install a solar photovoltaic (PV) array or ground-source heat pump at their home or building. This program ~~will~~ offer a financial incentive in the form of a rebate that reduces the up-front cost of the system. Customers ~~will also~~ are also ~~be~~ encouraged to reduce their loads by installing any applicable energy-efficiency measures prior to installing a renewable energy system.

~~PPL Electric will track and report if a customer switches to electric appliances from gas appliances or from gas appliances to electric appliances. PPL Electric will also report~~

<sup>51</sup> Combined totals for all target customer segments.

~~data on replacement appliances and systems. This data will be included in PPL Electric's annual report.~~

### Implementation Strategy

PPL Electric's Administrative CSP ~~will~~ provides customer intake, eligibility verification, rebate processing, and tracking. Trade allies, primarily PV, heat pump installers, and environmental advocacy groups ~~will~~ help customers understand the features and benefits of installing renewable energy systems, and ~~will~~ help customers fill out program applications. Renewable energy system installers ~~will~~ conduct site feasibility assessments and install eligible technologies at customer sties. Customers ~~will be required to~~ submit a program application with documentation of the equipment purchase and installation(s) for verification and rebate processing. PPL Electric's ~~energy efficiency~~ staff ~~will~~ provides overall strategic direction and program management for the program, and supported by other CSPs, marketing, trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Customers ~~may be~~ are directed to the program through PPL Electric's ~~marketing activities~~, stakeholder outreach, the Company Web site, or by contacting an installer.
- Renewable energy system installation contractors ~~will~~ assess the customer's site to determine the feasibility and cost-effectiveness of renewable energy technology.
- Customers ~~will~~ generally work with the installation contractor to fill out program applications and ensure the required documentation is submitted to the ~~program~~ Administrative CSP for processing.
- Renewable energy trade allies work with customers to schedule and complete the system installation.
- Processing rebate checks for qualified equipment.
- Verifying equipment installation for a sample of participants, which will be a part of measurement and verification.

~~No changes in the implementation strategy are expected in different program years.~~

### Risks and Risk Management Strategy

Table 33~~Table 33~~ presents key market risks to an effective Renewable Energy Program, as well as the strategies the program will use to address each risk.

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**Table 33. Risks and Risk Management Strategies**

Market Risks	Management Strategies
High initial cost of system.	Offer rebates to offset upfront cost. Educate customers on other state and/or federal rebates and incentives. Educate customers on the long-term energy cost-saving benefits.
Time required to fill out rebate forms.	Provide simple rebate forms through a variety of medium (mail-in, online). Allow trade allies to fill in rebate forms for customers at the time of installation.
Customers and trade allies aren't aware of program.	<del>Robust</del> marketing and outreach <del>strategy</del> .

### Anticipated Costs to Participating Customers

The estimated, post-rebate installed cost of a residential PV system is \$1.25/Watt.<sup>52</sup> The estimated post-rebate installed cost of a geothermal system is s \$2000/ton.

### Ramp-up Strategy

~~PPL Electric does not expect to launch the Renewable Energy program until the second quarter of 2010. To ramp up the program, PPL Electric's Advertising CSP will work directly with PPL Electric's Customer Strategy division to develop a marketing campaign. The Company expects pent-up market demand due to public interest in renewable energy and existing state and federal incentives will support initial program participation, with gradually increasing participation throughout the program Plan period.~~

### Marketing Strategy

This program relies on both customer marketing and PV system and ground source heat pump installers and dealers for promotion. The marketing strategy may include: ~~PPL Electric's Advertising CSP will work with its internal Customer Strategy division to create a marketing strategy for the program, which may include:~~

- ~~Promote program in PPL Electric customer bill insert, "Connect."~~
- ~~Communicate~~ Communicating and ~~provide~~ providing access to program information on the Company's Web site, www.pplelectric.com.
- ~~Advertise using newspaper, radio, and other mass media.~~
- ~~Targeted marketing to schools.~~
- Presenting ing program information at seminars, conferences, home shows, and community events.
- Conducting outreach ~~Outreach~~ to and co-op advertising with trade allies (i.e., equipment dealers, distributors, and installers).
- Publish ing and ~~distribute~~ distributing a program brochure.

<sup>52</sup> Includes state incentive of up to \$2.25/watt and Federal incentive of 30% of installed cost.



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- Working closely with state agencies, environmental advocacy groups, and others to promote the program; identify and leverage potential renewable energy projects that may be eligible for the program or are recipients of incentive funding from other sources.
- Cross-promotion-promoting with other PPL Electric programs.

#### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Incentives for the Renewable Energy Program ~~will initially be focus on~~ solar PV systems and ground-source heat pumps, ~~but PPL Electric may expand the program to include more customer classes and technology options (e.g. small wind) in later program years, based on interest and budget.~~ Customers must complete a rebate application and submit documentation of the equipment purchase to PPL Electric's Administrative CSP. Eligible measures are shown in the table below. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

**Table 34. Eligible Equipment Measures**

Measure	Incentive
PV array	\$2/Watt; capped at \$5,000 per residential customer; capped at \$500,000 per institutional customer
Ground-source Heat Pump	\$217/ton; capped at \$1,200 per residential customer; capped at \$6,510 per institutional site and \$30,000 per institutional parent company

Note: PV applicants after 1/29/10 ~~cannot~~ were not eligible to receive a PPL Electric rebate if they also received a PA DEP rebate. Effective ~~March~~ May 2010, the PV portion of the program ~~is~~ was fully subscribed.

~~PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change. PPL Electric may consider including additional renewable energy technologies (e.g., small wind systems, anaerobic digesters, biomass) in later program years, based on customer interest and budget.~~

Section 3: Program Descriptions  
Residential Sector Programs

PPL Electric tracks and reports if a customer switches to electric equipment from gas equipment. PPL Electric will also report data on replacement appliances and systems. This information will be included in PPL Electric's annual report.

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Renewable Energy Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 35. Program Schedule and Milestones**

Schedule	Milestones
<del>Implementation schedule to be determined.</del> <u>January 2010</u>	Conduct outreach to PV installers and other local market participants.
	Develop tracking and allocation procedures.
	Coordinate with other utilities and program administrators regarding training, marketing, eligible equipment and rebate levels and key delivery strategies.
	Develop marketing collateral materials.
	Research and coordinate training needs for participating PV installers.
	Generate training materials and coordinate program training for trade allies and internal staff.
	Develop customer education materials.
	<del>Launch program.</del> <sup>69</sup>
<u>February 2010</u>	<u>Launched GSHP portion of program</u>
<u>March 2010</u>	<u>Launched PV portion of program</u>
<u>May 2010</u>	<u>Closed PV portion of program</u>
<u>January 2011</u>	<u>Closed GSHP portion of program for residential</u>
<u>December 2011</u>	<u>Closed GSHP portion of program for Institutional. Entire program funding is fully subscribed.</u>

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#### Evaluation, Measurement, and Verification (EM&V)

~~Savings for this program will be verified using engineering calculations and technical and operating data collected on a sample of representative projects.~~ PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. Anticipated administrative requirements and participant roles for the program follow.~~ Summary of administrative requirements:

<sup>69</sup> Assumes Commission approval of Plan by 11/30/2009.

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- ~~The Customer Programs Specialist~~ PPL Electric staff ~~will~~ oversees all program operations and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- ~~The Advertising CSP will provide external advertising, including television and print ads.~~
- The Administrative CSP ~~will~~ handles customer calls, reviews and ~~verify~~ verifies applications, processes es rebates, and tracks s and reports s customer and program information to PPL Electric.
- Trade allies (primarily renewable energy system installers) ~~will~~ provide technical assessment and installation.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will~~ conducts s evaluation, measurement, and verification activities.

### Estimated Participation

~~Participation levels were estimated by examining the distribution of sales to residential customers, and evaluating similar programs around the country. The resulting number of installations for each measure is shown below.~~ Estimated participation levels are shown for general guidance only.

**Table 36. Projected Participation**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Photovoltaic systems</u>	4	44	45	45	45
<u>Ground Source Heat Pumps</u>	75	225	300	300	900
<u>Total</u>	79	236	345	345	945

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Photovoltaic systems</u>	-	128	-	-	128
<u>Ground Source Heat Pumps</u>	375	1,054	=	=	1,429
<u>Total</u>	377	1,189	2	=	1,568

~~Note: Table 42 is not updated to reflect closing the program earlier than Year 4 because these data changes are not on the record of this proceeding.~~

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 3,6798,807 MWh/yr. No meaningful peak load reductions are expected. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 37 ~~Table 37~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 37. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	2,770	6,037	-	-	8,807
Capacity Savings (MW)	0.1	0.8	-	-	0.9
Total Resource Cost	\$4,313,285	\$18,011,335	\$0	\$0	\$22,324,620
Direct Participant Costs	\$3,962,695	\$16,450,054	\$0	\$0	\$20,412,749
Direct Utility Costs	\$350,591	\$1,561,280	\$0	\$0	\$1,911,871
Customer Incentives	\$285,385	\$1,509,851	\$0	\$0	\$1,795,236
EDC Labor	\$63,415	\$51,213	\$0	\$0	\$114,628
EDC Materials and Supplies	\$801	\$217	\$0	\$0	\$1,019
CSP Labor	\$989	\$0	\$0	\$0	\$989
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$11,215,625				
NPV Costs	\$20,990,447				
Net Benefits (NPV)	-\$9,774,822				
<b>Benefit-Cost Ratio</b>	<b>0.53</b>				

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	307	919	1,226	1,226	3,679
Capacity Savings (MW)	0.02	0.1	0.1	0.1	0.3
Total Resource Cost	\$301,400	\$845,839	\$1,143,763	\$1,168,110	\$3,459,113
Direct Participant Costs	\$189,975	\$578,371	\$788,554	\$805,114	\$2,362,015
Direct Utility Costs	\$111,425	\$267,468	\$355,209	\$362,996	\$1,097,098
Customer Incentives	\$79,425	\$235,468	\$323,209	\$329,996	\$968,098
EDC Labor	\$15,000	\$15,000	\$15,000	\$16,000	\$61,000
EDC Materials and Supplies	\$200	\$200	\$200	\$200	\$800
CSP Labor	\$8,400	\$8,400	\$8,400	\$8,400	\$33,600
CSP Materials and Supplies	\$8,400	\$8,400	\$8,400	\$8,400	\$33,600
<b>TRC Test</b>					
NPV Benefits	\$4,543,678				
NPV Costs	\$2,992,461				
Net Benefits (NPV)	\$1,551,217				
<b>Benefit-Cost Ratio</b>	<b>1.52</b>				

**Note:** Table 43 was updated to reflect the change in classification of common and direct costs. Table 43 is not updated to reflect closing the program earlier than Year 4 because those data changes are not on the record of this proceeding.

## Other Information

PPL Electric's Plan would allow retroactive eligibility for customers who install or commit to install qualifying equipment under this program between July 1, 2009, and Commission approval of the Plan.

## Direct Load Control Program (Residential Sector)

2010-2013

### Objectives

The objectives of the Direct Load Control program include:

- Provide incentives to customers willing to reduce their energy consumption during summer peak hours.
- Educate customers about energy-efficiency and peak periods.
- Obtain participation by ~~no less than~~ approximately 45,000 ~~50,000~~ customers ~~through 2013~~ in the summer of 2012, with a total reduction of ~~32-35~~ MW.<sup>54</sup>

### Target Market

PPL Electric's Direct Load Control Program ~~will is be~~ available to all customer sectors except the large commercial and industrial sector.<sup>55</sup> The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector. However, PPL Electric ~~expects to is~~ using—use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across all eligible market sectors.

The program targets any customer with a working central air conditioner or heat pump. ~~Water heaters, window air conditioners, and pool pumps are under consideration.~~ Customer equipment must be in good working order and compatible with the PPL Electric control technology. Customer eligibility parameters for the residential sector are outlined below.

**Table 38. Customer Eligibility Parameters**

Customers Type	Residential
Rate Class	RS, RTS, RTD, TOU after 1/1/2010
Building Type	Single-family, townhouses, condominiums
Building Vintage	Existing buildings, new construction
Building ownership	Owner or tenant with owner's approval

### Program Description

The Direct Load Control program ~~will operate~~ s weekdays, generally between ~~12:00 PM noon~~ and ~~7:00~~ 8:00 PM during the peak summer season, from June 1st to September 30<sup>th</sup>. A control device, installed on a customer's central air conditioning/heat pump unit allows the unit to be cycled on and off ~~for 15 minutes of every half hour~~ during peak

<sup>54</sup> Combined total for all target customer segments.

<sup>55</sup> The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector; rather it assumes few large C&I facilities include eligible controllable equipment. These customers are more likely to be eligible for, and participate in the commercial and industrial Curtailment Program.

~~periods. Cycling events are triggered when PPL Electric's service territory electric load is forecasted to reach a given level, or they may apply to the entire peak summer season to increase the likelihood of reducing load during the 100 hours of highest peak load.~~  
Customer incentives will be provided for program participation.

### Implementation Strategy

~~A Demand Response~~The Direct Load Control CSP ~~will provide~~s turnkey services to manage and administer the program, including:

- Marketing;
- Customer intake and service;
- Installing control devices on eligible customer equipment, processing applications, tracking program data; paying incentives to customers; maintaining control devices~~and~~
- Determining the number of participants and the cycling strategy for each device
- Providing firm load reductions by cycling a participant's air conditioner/heat pump
- Providing ~~customer and~~ transaction information to PPL Electric.

PPL Electric is responsible for services such as:

- Overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions.
- Responsible for load forecasting and determining when to initiate load curtailments (i.e. the 50 or more hours of highest demand). The Load Curtailment CSP can declare additional hours if desired.
- ~~PPL Electric will provide load forecasting information to the CSP. The CSP will install and control the device and deliver firm load reductions to PPL Electric Utilities.~~

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~~PPL Electric plans to hire one Demand Response CSP to deliver firm load reductions for the entire Direct Load Control Program.~~

A customer can participate in PJM's demand response programs, PPL Electric's Act 129 demand response programs (Load Curtailment and Direct Load Control), or both. A customer's curtailment service provider for PJM's demand response programs can be the same or a different company than the customer's demand response CSP for PPL Electric's Act 129 demand response programs.

~~PPL Electric expects that its Act 129 demand response CSPs will bid peak load reductions from PPL Electric's Direct Load Control and Load Curtailment Programs into PJM's PRM auction (to the extent that these MWs were not previously committed from PJM's demand response programs) and share benefits with its customers.~~

PPL Electric's demand response programs must be coordinated with PJM's demand response programs and will not require customers to leave PJM's programs or their PJM curtailment service provider and use PPL Electric's demand response CSP ~~(s)~~s exclusively.

Section 3: Program Descriptions  
Residential Sector Programs

~~PPL Electric's energy efficiency staff will provide overall strategic direction and program management for the program, and supported by other CSPs, marketing, evaluation, and other administrative functions. Key steps in program participation include:~~

- ~~1.CSP markets to, enrolls, and contracts with new participants.~~
  - ~~2.CSP determines the number of participants and the applicable load control hours needed to provide the specified firm load reductions to PPL Electric.~~
  - ~~3.CSP schedules customer visits to install DLC unit.~~
  - ~~4.CSP verifies customer and appliance eligibility.~~
  - ~~5.CSP provides customer educational materials about the program and ways to manage energy use and peak demand.~~
  - ~~6.CSP controls units during specified peak periods to provide firm load reductions.~~
  - ~~7.CSP tracks customer data, appliances and outcomes throughout process.~~
  - ~~8.CSP processes and delivers customer incentives.~~
- ~~No changes in the implementation strategy are expected in different program years.~~

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### Risks and Risk Management Strategy

~~Table 39~~Table 39 presents the key market risks to an effective Direct Load Control Program, as well as the strategies the program will use to address each risk.

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**Table 39. Market Risks and Management Strategies**

Market Risks	Management Strategies
Customers do not understand the program.	Robust Marketing Strategy. General customer education and awareness.
Ability to maintain comfort levels with air conditioning cycling.	Use proven technologies that prevent large temperature swings.
AMI Infrastructure compatibility.	Ensure CSP fully understands AMI system.
Customers override control device.	Limit customer access to controls.

### Anticipated Costs to Participating Customers

There are no out-of-pocket costs incurred by customers for this program.

### ~~Ramp-up Strategy~~

~~PPL Electric will utilize a turnkey Demand Response CSP to deliver this program. In its contractual agreements with the competitively selected Demand Response CSP, PPL Electric will outline specific, aggressive, but achievable demand reduction goals that ramp up each program year, with penalties for non-compliance. The CSP will be expected to develop and execute a marketing and delivery plan that delivers firm demand reduction to meet the goals.~~

### Marketing Strategy

~~The Direct Load Control~~ ~~PPL Electric's selected Demand Response~~ CSP will work with ~~the Advertising CSP and~~ PPL Electric's ~~internal Customer Strategy~~ staff division to create a marketing strategy for this program, which may include:

- ~~Promote~~ Promoting the program in PPL Electric's customer bill ~~insert~~ newsletter, "Connect."
- ~~Communicate~~ Communicating and ~~provide~~ providing access to program information on the Company's Web site, www.pplelectric.com.
- ~~Advertise using newspaper, radio, and other mass media~~ Advertising through newspapers, radio, television, or other media or publications.
- Presenting ing program information at seminars, conferences, and community events.
- ~~Coordinate~~ Coordinating advertising opportunities with trade allies.
- Cross-~~promote~~ promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

A ~~direct load control receiver (LCR)~~ Digital Cycling Unit (DCU) will be installed on ~~control equipment~~ the central air conditioners or heat pump by the Direct Load Control CSP at no cost to the customer. Customers participating for the entire peak summer period will receive an end-of-summer incentive of \$32 for participation (or the incentive level determined by the CSP). A customer with more than one ~~appliance~~ air conditioner/heat pump may be eligible for multiple incentives. Incentives for partial summer participation may be pro-rated. Incentives are determined by the Direct Load Control CSP, can change, and can be supplemented with a marketing promotion such as a gift card for enrolling.

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details.~~

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Direct Load Control program follow. Some tasks will be led by PPL Electric; other tasks will be led by CSPs, with oversight from PPL Electric.

**Table 40. Program Schedule and Milestones**

Schedule	Milestones
<del>07/15/2009</del>	Develop RFP, including scope of work, selection criteria, and quality



Section 3: Program Descriptions  
Residential Sector Programs

<a href="#">Sept 2009</a>	assurance protocols for Demand Response CSP ( <a href="#">load curtailment and direct load control</a> ).
<del>08/15/2009</del> <a href="#">Nov 2009</a>	Issue RFP for Demand Response CSP.
<del>11/9/10</del> <a href="#">Jan 2011</a>	Execute implementation contract with <del>selected</del> <a href="#">Direct Load Control</a> CSP. <a href="#">Note: this was delayed pending finalization of demand response protocols (method to determine savings in PA)</a>
<del>08/21/2009 – 10/09/2010</del>	<del>Secure Advertising, Quality Assurance, and EM&amp;V CSPs.</del>
on-going after <del>12/2010</del> <a href="#">Jan 2011</a>	Develop marketing and outreach plan and materials.
<del>Jan 2011</del>	<del>Determine reporting data requirements for program evaluation.</del>
<del>Late 2010/early 2011</del> <a href="#">March 2011</a>	Launch program. <sup>66</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all of the proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's *a priori* planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net programs impacts.~~

~~Actual impacts of the direct load control program will be verified using a statistical comparison of hourly load shapes of program participants between events and a reference (baseline) day. Designation of an appropriate baseline will be decided as part of the EM&V plan for this program. Hourly interval meter readings will be the primary data used in this analysis. These data may be augmented by information on the dwelling unit and household demographics to develop a better understanding of factors affecting demand savings. [PPL Electric's Evaluation Plan describes the EM&V requirements for this program.](#)~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow: [Summary of administrative requirements](#).~~

<sup>66</sup> Assumes Commission approval of Plan by 11/30/2009.

### Section 3: Program Descriptions Residential Sector Programs

- ~~The Customer Programs Specialist~~ PPL Electric's staff ~~will~~ oversees all program operations and program CSPs, and ~~will work~~ s with trade allies, other Pennsylvania utilities, and stakeholders.
- ~~The Advertising CSP and/or the Demand Response CSP(s)~~ The Direct Load Control CSP will provide external advertising, including television and print ads.
- The ~~Demand Response~~ Direct Load Control CSP ~~will~~ handles customer calls; schedules s, and installs s and maintains control devices DLC receivers; administers s the program; reviews s, ~~verify~~ verifies and processes s applications; tracks s program data; processes customer incentives; and reports s program information to PPL Electric.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will~~ conducts evaluation, measurement and verification activities and coordinates s with the statewide ~~EE&C Plan~~ evaluator.

### Estimated Participation

~~Program participation was developed using customer counts, central air conditioning and heat pump saturation rates, and additional market research data to obtain the technical potential available. The resulting number of residential sector Direct Load Control program participants is shown below. Estimated participation levels are shown for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.~~

**Table 41. Projected Participation**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Central AC</u>	<u>—</u>	<u>—4,460</u>	<u>—4,470</u>	<u>—8,930</u>	<u>—17,860</u>
<u>Heat Pumps</u>	<u>—</u>	<u>—2,200</u>	<u>—2,200</u>	<u>—4,400</u>	<u>—8,800</u>
<u>Total</u>	<u>—</u>	<u>—6,660</u>	<u>—6,670</u>	<u>—13,330</u>	<u>—26,660</u>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Total Digital Cycling Units</u>	<u>—</u>	<u>—</u>		<u>45,693</u>	<u>45,693</u>

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve demand reductions of over ~~49~~ 32 MW. The annual budget allocation, cumulative coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in ▲.

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[Table 42](#)

~~Table 42~~ Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 42. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	32.1	32.1
Total Resource Cost	\$57,901	\$831,758	\$2,336,995	\$7,552,594	\$10,779,248
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$57,901	\$831,758	\$2,336,995	\$7,552,594	\$10,779,248
Customer Incentives	\$0	\$0	\$0	\$1,462,176	\$1,462,176
EDC Labor	\$49,988	\$74,398	\$62,992	\$62,992	\$250,369
EDC Materials and Supplies	\$0	\$1,180	\$1,800	\$1,800	\$4,780
CSP Labor	\$7,913	\$756,180	\$2,272,204	\$6,025,626	\$9,061,923
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$1,109,066				
NPV Costs	\$8,827,137				
Net Benefits (NPV)	-\$7,718,071				
<b>Benefit-Cost Ratio</b>	<b>0.13</b>				

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	-	10	19	19
Total Resource Cost	\$290,500	\$1,324,748	\$1,578,996	\$3,085,492	\$6,279,736
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$290,500	\$1,324,748	\$1,578,996	\$3,085,492	\$6,279,736
Customer Compensation	\$0	\$213,248	\$426,496	\$852,992	\$1,492,736
EDC Labor	\$36,000	\$36,000	\$37,000	\$38,000	\$147,000
<del>EDC Materials and Supplies</del>	<del>\$500</del>	<del>\$500</del>	<del>\$500</del>	<del>\$500</del>	<del>\$2,000</del>
CSP Labor	\$254,000	\$35,000	\$35,000	\$35,000	\$359,000
CSP Materials and Supplies	\$0	\$1,040,000	\$1,080,000	\$2,159,000	\$4,279,000
<b>TRC Test</b>					
NPV Benefits	\$1,076,853				
NPV Costs	\$5,320,216				
Net Benefits (NPV)	-\$4,243,363				
<b>Benefit-Cost Ratio</b>	<b>0.20</b>				

Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years ~~2 and 3~~ and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4. ~~(Load reductions will occur only in the Summer of 2012).~~ ~~Table 48 was updated to reflect the change in classification of common and direct costs.~~

## Time of Use Rates 2010-2013 (Residential Sector)

### Objectives

The objectives of Time of Use (TOU) Rates include:

- Educate customers about energy efficiency and peak periods.
- Help customers save money by shifting energy use from peak hours to off-peak hours.
- Obtain participation by no less than 150,500 customers through 2013 from eligible customer sectors, with a total reduction of 61 MW.<sup>67</sup>

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### Target Market

PPL Electric's TOU Rates will be available only to residential and small commercial and industrial customers taking default service from PPL Electric on Time-of-Use rate schedules.<sup>68</sup> The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across all eligible market sectors. Broad customer eligibility parameters for the residential sector are outlined below.

**Table 49. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/1/10
<b>Building Type</b>	All
<b>Building Vintage</b>	All
<b>Building ownership</b>	Owner or individually metered tenant

### Program Description

Participants in the TOU program agree to a rate structure that varies depending on the time of day and the season. Pursuant to the Commission-approved settlement at Docket No. P-2008-2060309 and Act 129, PPL Electric made a separate filing on July 31, 2009 for Commission approval of a Time of Use program for all eligible customers. As filed, the program is similar in format to pilot TOU programs the Company has been conducting since 2002. The program consists of two seasons, each with an on-peak and an off-peak period. The peak or highest rates coincide with peak demand during weekday summer afternoons (June–September), and the early evening weekday hours in the non-summer season (October–May). Customers in the program may save money relative to the Company's flat default service rate by shifting their electricity usage away

<sup>67</sup> Combined total for all eligible target customer segments.

<sup>68</sup> PPL Electric has a real time pricing option for its large commercial and industrial customers which represents the TOU program for these customers. At this time, PPL Electric is not counting large commercial and industrial customer participation in the real time pricing option for purposes of this filing.

~~from peak periods to off-peak periods. Periods, rates, eligibility, enrollment process, and other requirements of the TOU Program are set forth the filing. It is PPL Electric's understanding that the Commission will issue a final order regarding the TOU program prior to January 31, 2010.~~

#### ~~Implementation Strategy~~

~~PPL Electric's proposed rules for its TOU program are set forth in its filing. The Company's rates and regulatory staff and its energy efficiency staff are coordinating the design, development, and implementation of the TOU program. PPL Electric's Advertising CSP will help support program marketing. Key steps in program participation include:~~

- ~~•PPL Electric's Advertising CSP markets to customers (specific vehicles to be used in educating, soliciting, and enrolling customers will be described in the Company's TOU filing).~~
- ~~•PPL Electric verifies eligibility and enrolls customers in the applicable tariff.~~
- ~~•PPL Electric bills customer according to TOU rate tariffs.~~

~~No changes in the implementation strategy are expected in different program years.~~

#### ~~Risks and Risk Management Strategy~~

~~Table 50 presents the key market risks to an effective TOU Rates program, as well as the strategies the Company will use to address each risk.~~

**Table 43. Market Risks and Management Strategies**

Market Risks	Management Strategies
Lack of awareness by customers.	Robust marketing strategy. Customer communications, outreach and education.
TOU rate structure too confusing. customers distrust savings claim.	Customer education materials and case studies. allow to cancel if savings are not realized. Educate customers on use of on-line rate calculator to verify savings. Customers may request to be removed from TOU rate without penalty.

#### ~~Anticipated Costs to Participating Customers~~

~~There are no costs incurred by customers in this program.~~

#### ~~Ramp-up Strategy~~

~~PPL Electric will conduct ongoing customer outreach and marketing, utilizing its Advertising CSP, working in conjunction with its internal Customer Strategy and its Customer Services divisions, to develop education, outreach, and marketing materials and approach. Because this is a new program, PPL Electric anticipates lower participation during the first year, evolving into more significant participation in later program years.~~

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### ~~Marketing Strategy~~

~~PPL Electric's Advertising CSP and PPL Electric's Customer Strategy division will create a marketing strategy for this program, which may include:~~

- ~~•Promote program in PPL Electric's customer bill insert, "Connect."~~
- ~~•Communicate and provide access to program information on the Company's Web site, www.pplelectric.com.~~
- ~~•Advertise using newspaper, radio, and other mass media.~~
- ~~•Direct mail targeting customers with high summer usage and new customers.~~
- ~~•Cross-promote through other PPL Electric programs.~~

~~Specific vehicles to be used in educating, soliciting, and enrolling customers will be described in the Company's TOU filing.~~

### ~~Eligible Measures and Incentive Strategy~~

~~There are no specific incentives associated with this program. Customers may realize savings by managing or shifting energy use from peak times when prices are higher to off-peak time when prices are lower.~~

### ~~Implementation Schedule and Milestones~~

~~Planning and implementation tasks and schedule for the TOU program follow. Some tasks will be led by PPL Electric; other tasks will be led by CSPs, with oversight from PPL Electric.~~

**Table 51. Program Schedule and Milestones**

<b>Schedule</b>	<b>Milestones</b>
7/31/09	File petition by this date with the PUC seeking approval within 60 days.
08/21/2009— 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
10/1/09	Requested date for Commission approval of TOU filing.
10/01/2009	Develop marketing materials.
10/01/2009	Develop participation forms.
01/01/2010	Determine reporting data requirements for program evaluation.
01/01/2010	Launch program. <sup>60</sup>

### ~~Evaluation, Measurement, and Verification (EM&V)~~

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify~~

<sup>60</sup> Assumes Commission approval of EE&C Plan 11/1/2009.

~~gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net programs impacts.~~

~~Actual impacts of TOU Rates will be verified using hourly load data for statistically significant groups of customers. The Company anticipates that analysis will consist of two elements. First, hourly load shapes of program participants will be compared with a analogous group of qualifying non-participants to determine gross load impacts. Second, load profiles of participants after enrolment will be compared with their load profiles before enrollment to determine whether the observed peak/off-peak consumption patterns are indeed attributable to the program.~~

#### ~~Administrative Requirements~~

~~PPL Electric expects this program to be managed by existing staff and supported by functional CSPs and internal marketing and administrative staff. No external staffing is anticipated. Anticipated administrative requirements and participant roles for the program follow:~~

- ~~•PPL Electric's program manager will oversee all program operations, and will work with trade allies, other Pennsylvania utilities, and stakeholders.~~
- ~~•PPL Electric's billing department will manage customer billing according to rate structures.~~
- ~~•The Advertising CSP will provide external advertising, including television and print ads.~~
- ~~•The Quality Assurance CSP will oversee quality assurance.~~
- ~~•The EM&V CSP will conduct evaluation, measurement, and verification activities.~~

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#### ~~Estimated Participation~~

~~Program participation was developed using customer counts, market research data, and the experience of similar, successful programs to obtain the technical potential available. The resulting number of residential sector program participants is shown below.~~

**Table 52. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	-	27,700	27,700	55,390	110,790

#### ~~Program Budget, Costs and Cost Effectiveness~~

~~Over the four-year planning horizon, the program is expected to achieve demand reductions of 44 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost effectiveness for the residential customer sector are shown in Table 53. These estimates are consistent with its existing pilot TOU programs and the specific TOU program design the Company will file with the Commission. Key assumptions used in calculating measure-level savings are shown in Appendix E.~~

Section 3: Program Descriptions  
Residential Sector Programs

**Table 53. Summary of Projected Benefits, Costs, and Cost Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	11	22	44	44
Total Resource Cost	\$1,139,300	\$1,215,300	\$1,215,300	\$558,300	\$4,128,200
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$1,139,300	\$1,215,300	\$1,215,300	\$558,300	\$4,128,200
EDC Labor	\$22,000	\$22,000	\$22,000	\$23,000	\$89,000
EDC Materials and Supplies	\$300	\$300	\$300	\$300	\$1,200
CSP Labor	<del>\$87,000</del>	<del>\$26,000</del>	<del>\$26,000</del>	<del>\$26,000</del>	<del>\$162,000</del>
CSP Materials and Supplies	\$0	\$138,000	\$138,000	\$277,000	\$553,000
Other (Marketing and Trade Ally)	\$1,030,000	\$1,030,000	\$1,030,000	\$233,000	\$3,323,000
<b>TRC Test</b>					
NPV Benefits	\$13,297,809				
NPV Costs	\$3,749,698				
Net Benefits (NPV)	\$9,548,111				
<b>Benefit-Cost Ratio</b>	<b>3.55</b>				



## Energy Efficiency Behavior & Education (Residential Sector)

2010-2013

### Objectives

The objectives of the Energy Efficiency Behavior & Education Program include:

- Educate customers about free (no cost) or very low-cost measures and behaviors changes that ~~can significantly~~ may reduce energy consumption or demand.
- Educate customers about PPL Electric's online resources and energy-efficiency and conservation programs.
- Encourage customers to adopt more energy efficient behaviors and to install energy-efficiency measures in their homes by becoming more aware of how their behavior and practices impact their energy usage, by comparing their electric usage with a controlled group of customers who have a similar usage pattern in the same geographical area, ~~or by other methods.~~
- Obtain participation by ~~no fewer than~~ approximately 100,000 customers through 2013, with a total reduction of ~~approximately 48,100~~ 23,000 MWh ~~/yr and 2 MW.~~

### Target Market

This program targets all residential customers, ~~primarily those that do not qualify for PPL Electric's low-income sector programs.~~<sup>60</sup> Customer eligibility parameters for the residential sector are outlined below.

**Table 43. Customer Eligibility Parameters**

<b>Customers Type</b>	Residential
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/10/2010
<b>Building Type</b>	All
<b>Building Vintage</b>	All
<b>Building ownership</b>	All

### Program Description

The Energy Efficiency Behavior & Education Program is focused on ways customers can implement free or very low-cost measures and behaviors that reduce energy consumption or demand. Such education and awareness is separate from the advertising and promotion of PPL Electric's specific energy-efficiency and demand reduction programs. Awareness and education may include:

- Periodic reports to customers that compare their usage with other, comparable customers in the same geographical area.

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<sup>60</sup> ~~The Plan does not allocate budget or attribute energy savings for this program to the low-income sector, but rather assumes low-income customers are more likely to participate in PPL Electric's low-income-focused education program, E-Power Wise.~~

Section 3: Program Descriptions  
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- Outreach emphasizing the importance of peak load reduction during the peak load season and ways to shift energy use to off-peak periods.
- General conservation tips such as turning down the thermostat, turning off lights, shortening showers, etc.
- Low-cost energy-efficiency tips, such as replacing incandescent lights with CFLs, installing weather stripping, and using power strips.
- Information on tools and resources available through PPL Electric's Web site, such as the smart meter system.
- Use of in-home displays, electricity usage monitors, or other devices that measure the electric consumption of devices including "phantom loads."

~~In addition, PPL Electric may sponsor presentations and demonstrations, increase direct outreach to customers, participate in local energy education events, and provide energy educational materials to local schools, community organizations, and senior citizen groups, among other activities.~~

#### Implementation Strategy

~~PPL Electric will work with its Advertising CSP, its own Customer Strategy division, and may select additional CSPs or community-based organizations to develop messaging, mass media advertising campaigns, grassroots and public awareness activities, school curriculum, Web site content, or other tactics that promote energy efficiency and peak load reduction. Awareness and education can include a broad range of activities that may be undertaken without a great deal of lead time or may be led by activity-specific CSPs; program operations needs may vary by activity.~~ PPL Electric contracted with the Behavior and Education CSP to provide its Home Energy Reporting system. That system uses behavioral science and data analytics to drive reductions in residential energy consumption. That system generates measurable energy savings across the country.

The approach is organized around two concepts -- motivating behavior change and providing relevant, targeted information to the motivated consumer. Relying on data supplied by PPL Electric, the program translates individual usage patterns into meaningful insights coupled with targeted action steps.

The Home Energy Reports provide recipients with a context for understanding their energy use. This is done by dynamically creating a 100-home comparison group for each house that only compares homes of similar square footage. Home comparison groups are defined by a number of customizable variable including proximity (e.g. within 0.25 miles) and census and climate data. Years of behavioral science research have demonstrated that peer-based comparisons are a highly motivating way to present information.

Customers also receive individually targeted savings tips based on their energy usage patterns, housing characteristics, and demographics. Instead of presenting customers with a thick booklet of ideas on how to save energy, the program presents customer with several of the most relevant and immediately actionable suggestions on how to save.

### Risks and Risk Management Strategy

~~Table 44~~Table 44 presents the key market risks to an effective Energy Efficiency Behavior & Education Program, as well as the strategies the program will use to address each risk.

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Table 44. Market Risks and Management Strategies

Market Risks	Management Strategies
Lack of awareness by customers of educational opportunities.	Outreach through traditional and nontraditional mechanisms. Implement a comprehensive marketing strategy.
Lack of time and resources to participate.	Flexible event scheduling. Streamline programs to ensure efficient use of participant's time.

### Anticipated Costs to Participating Customers

There are no costs incurred by customers for this program.

### Ramp-up Strategy

~~PPL Electric will initially utilize its Advertising CSP, working in conjunction with its internal Customer Strategy division to develop education, outreach, and marketing materials, and an approach to ramp up the program.~~

### Marketing Strategy

~~The Energy Efficiency Behavior & Education Program will be dependent upon and coordinate closely with PPL Electric's existing and new marketing activities. The program itself will~~does ~~not require specific marketing; however, promotion of specific awareness and educational events and activities and general education information may include:~~

- ~~•Promote events in PPL Electric customer bill insert, "Connect."~~
- ~~•Communicate and provide access to information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).~~
- ~~•Advertise using newspaper, radio, and other mass media.~~
- ~~•Present awareness information at seminars, conferences, and community events.~~
- ~~•Coordinate advertising opportunities with trade allies.~~
- ~~•Publish and distribute informational brochures.~~
- ~~•Coordinate promotion with community-based organizations, schools, environmental advocacy groups, etc.~~
- ~~•Provide general awareness information to customers via PPL Electric's programs.~~

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### Eligible Measures and Incentive Strategy

~~Specific awareness activities and measures will be determined based on strategic planning activities and solicitation responses from CSPs. In general terms, PPL Electric envisions measures will fall into two categories:~~

- ~~•Peak Load Reduction: PPL Electric will promote peak load reduction during the peak load season by asking customers to reduce or shift energy usage during approximately 10 to 25 of the highest peak load hours of the summer.~~
- ~~•Energy Conservation: PPL Electric will conduct an awareness campaign, with activities focused on low cost/no-cost ways to reduce energy consumption, such as turning down thermostats, turning off lights, and taking shorter showers. Customers will also be encouraged to use PPL Electric's online energy analyzer to monitor energy use.~~

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~~No specific incentives will be provided through this program. Rather, by virtue of providing simple energy conservation education, information, and strategies, customers will gain energy cost savings on their monthly utility bills. PPL Electric will perform periodic (at least annual) reviews of its programs. Specific behavioral messages and educational approaches in this program are expected to evolve over time to correspond with seasonal conditions, and to respond to general customer inquiries, process evaluation results and other factors.~~

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Energy Efficiency Behavior & Education Program follow. Some tasks will be led by PPL Electric; other tasks will be led by CSPs, with oversight from PPL Electric.

**Table 45. Program Schedule and Milestones**

Schedule	Milestones
To be determined	<del>If needed, develop RFP including scope of work, selection criteria and quality assurance protocols for program CSP(s).</del>
	<del>Issue RFP for program CSP(s).</del>
	<del>Execute program implementation contract(s) with selected program CSPs.</del>
<del>08/21/2009 – 10/09/2010</del>	<del>Secure Advertising, Quality Assurance, and EM&amp;V CSPs.</del>
<del>01/01/2010</del>	<del>Conduct research on most viable education and outreach approaches, costs, expected savings, measure life, etc.</del>
<del>03/01/2010</del>	<del>Develop general awareness messaging and materials.</del>
<del>ongoing</del>	<del>Provide outreach to interested stakeholders.</del>
<del>03/15/2010</del>	<del>Post customer information Website.</del>
<del>04/01/2010</del>	<del>Develop quality assurance plan approved by PPL Electric.</del>
<del>04/01/2010</del>	<del>Determine reporting and data requirements for program evaluation.</del>

Schedule	Milestones
04/01/2010	Launch program. <sup>64</sup>

#### Evaluation, Measurement, and Verification (EM&V)

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net program impacts.~~

~~Available evaluation literature suggests regression-based statistical techniques may offer a reasonable basis for estimating savings from this program. These techniques generally involve using consumption histories, and dwelling unit and demographic information, in the context of a research design to derive an estimate of savings. PPL may also conduct surveys to determine customers' adoption of recommended behaviors. PPL Electric will develop a more detailed methodology for evaluating the impacts of its awareness and education initiatives using a methodology consistent with Pennsylvania statewide protocols.~~ [PPL Electric's Evaluation Plan describes the EM&V requirements for this program.](#)

#### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow:~~ [Summary of administrative requirements:](#)

- ~~The Customer Programs Specialist will~~ [PPL Electric's staff](#) ~~oversees~~ [all program operations and program CSPs](#) [the program CSP](#), ~~and will work with trade allies, other Pennsylvania utilities, and stakeholders.~~
- [The program CSP has turnkey responsibility for implementing the program.](#)
- ~~• The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will~~ [conducts](#) [evaluation, measurement, and verification activities.](#)

#### Estimated Participation

Estimated Participation levels ~~for this program~~ are shown ~~below~~ [for general guidance only.](#)

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<sup>64</sup> ~~Assumes Commission approval of Plan by 11/30/2009.~~

**Table 46. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	25,000	25,000	25,000	25,000	100,000

	Year 1	Year 2	Year 3	Year 4	Total
Participants	1	49,789	104,000	104,000	257,790

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 18,100 23,000 MWh/yr. Please note that the expected measure life is 1 year. Therefore, savings are not cumulative over multiple program years unless the results of the impact evaluation determine the measure life exceeds 1 year or savings persist beyond 1 year. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 47 ~~Table 47~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 47. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	13,207	23,504	23,504	23,504
Capacity Savings (MW)	-	-	5.4	5.4	5.4
Total Resource Cost	\$142,066	\$815,014	\$936,160	\$936,160	\$2,829,400
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$142,066	\$815,014	\$936,160	\$936,160	\$2,829,400
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$44,019	\$48,257	\$48,000	\$48,000	\$188,276
EDC Materials and Supplies	\$12,325	\$113,631	\$0	\$0	\$125,955
CSP Labor	\$85,723	\$653,126	\$888,160	\$888,160	\$2,515,169
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$5,466,317				
NPV Costs	\$2,442,469				
Net Benefits (NPV)	\$3,023,848				
<b>Benefit-Cost Ratio</b>	<b>2.24</b>				

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Residential Sector Programs

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	4,525	4,525	4,525	4,525	18,100
Capacity Savings (MW)	1	1	1	1	2
Total Resource Cost	\$685,800	\$699,800	\$714,800	\$729,900	\$2,830,300
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$685,800	\$699,800	\$714,800	\$729,900	\$2,830,300
EDC Labor	\$60,000	\$61,000	\$63,000	\$64,000	\$248,000
<del>EDC Materials and Supplies</del>	<del>\$800</del>	<del>\$800</del>	<del>\$800</del>	<del>\$900</del>	<del>\$3,300</del>
CSP Labor	\$312,500	\$319,000	\$325,500	\$332,500	\$1,289,500
CSP Materials and Supplies	\$312,500	\$319,000	\$325,500	\$332,500	\$1,289,500
<b>TRC Test</b>					
NPV Benefits	\$8,420,885				
NPV Costs	\$2,526,007				
Net Benefits (NPV)	\$5,894,879				
<b>Benefit-Cost Ratio</b>	<b>3.33</b>				

Note: Table 58 was updated to reflect the change in classification of common and direct costs

### 3.2.1. Low-income Programs

#### Low-income WRAP (Low-Income Sector)

2009-2013

##### Objectives

The objectives of Low-income WRAP (Winter Relief Assistance Program) include:

- Assist more low-income customers to reduce their energy use and energy expenses.
- Maintain partnerships with social service agencies, Community Based Organizations (CBOs), and local contractors to ensure maximum and timely assistance.
- Provide a referral stream to low-income programs, including PPL Electric OnTrack, Operation HELP, E-Power Wise (Act 129 program), and LIHEAP.
- Obtain participation by ~~no fewer than~~ approximately 23,500 ~~13,500~~ customers through 2013, with a total reduction of ~~approximately 48,605~~ 21,151 ~~MWh~~ MWh/yr and ~~2,985~~ 1,498 kW.

##### Target Market

The program targets PPL Electric customers at or below 150% of the federal poverty level. The program is available to customers in existing single-family housing and in existing multifamily housing, where 50% or more tenants are low-income qualified. Further, the program aims to reach PPL Electric customers that received WRAP assistance in the past and may be in need of further WRAP services as well as customers that may not have been eligible for low-income assistance due to eligibility rules requiring more than nine months residence in a dwelling. Customer eligibility parameters are outlined below.

**Table 48. Customer Eligibility Parameters**

<b>Customers Type</b>	Low-income qualified residential
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/1/2010
<b>Building Type</b>	Single-family, multifamily with 50% or more residents income qualified
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant with owner's approval

##### Program Description

WRAP is an existing PPL Electric program designed to reduce electric consumption and improve comfort for low-income customers. The program provides free energy audits, energy-efficiency measures, and energy education to income-qualified participants.

PPL Electric will increase the funding (approximately 60 increase) for this program under its Act 129 program portfolio, which will support project delivery to more customers, will help fill the gaps to address housing falling outside PPL Electric's existing WRAP



program eligibility (as discussed above), and increase the range of efficiency and safety measures that may be installed in each home.

### Implementation Strategy

PPL Electric funds, administers, monitors, and recruits customers to participate in WRAP. The program is delivered by CBOs and private contractors, which provide income verification and energy audits with direct installation measures. CBOs also coordinate, under the direction of PPL Electric, the installation of larger equipment measures (e.g., weatherization, heating system equipment, appliances, etc.), minor repairs, and safety measures. PPL Electric also uses contractors to conduct third-party inspections. CBOs that currently deliver PPL Electric's WRAP program will continue to provide these services. Key steps in program participation include:

- CBOs, in conjunction with PPL Electric staff and CSPs market to and recruit customers.
- Customers provide documentation of income eligibility, which is verified by CBOs.
- CBOs complete on-site energy audits, directly install energy-efficiency measures and evaluate eligibility for larger energy-efficiency measures, such as building weatherization and heating equipment.
- CBOs coordinate, where appropriate, with equipment installation contractors for measure installation.
- CBOs document and report all audit results and equipment installations to PPL Electric.

~~No changes in the implementation strategy are expected in different program years.~~

### Risk and Risk Management Strategy

~~Table 49~~ Table 49 presents the key market risks to an effective Low-income WRAP Program, as well as the strategies the program will use to address each risk.

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**Table 49. Market Risks and Management Strategies**

Market Risks	Management Strategies
Customers reluctant to ask for help.	Provide audits and measures free for income-qualified customers. Market to customers through CBOs and other community organizations. Provide discreet qualification process and customer confidentiality.
Lack of program awareness.	Market to customers through traditional (CBO) and non-traditional (hospital waiting rooms) organizations. Use grassroots marketing tactics and provide detailed information explaining the benefits of the program.
Need to verify customer eligibility. Customers reluctant to share income information.	Work with CBOs to verify customer eligibility. Deliver program through CBOs to retain customer confidentiality.

Market Risks	Management Strategies
If multi-unit building has a single meter, the landlord, not the customer, will benefit from energy reductions.	Work with landlords to pass efficiency benefits on to customers.
Wage requirements for contractors.	Ensure the program is in compliance with wage requirements.

### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

### Ramp-up Strategy

~~Low-income WRAP is an existing PPL Electric program that enjoys significant participation. PPL Electric has discussed options for ramping up the program with CBOs and other stakeholders, and has identified several strategies to address: 1) increasing customer participation; and 2) workforce development to ensure CBOs are able to deliver services at the level required to meet Plan goals. Increasing customer participation strategies include: marketing to customers through community organizations (senior centers, head start programs, churches, housing authorities, etc.), expanding customer eligibility limits, and increasing eligible measures that may be installed in individual housing units. Through stakeholder interactions, CBOs have indicated they are able to increase staffing levels to support the program.~~

### Marketing Strategy

PPL Electric will conduct marketing through its existing WRAP infrastructure, but it plans to ramp-up marketing efforts to increase the program's reach to new customers. New marketing activities may include:

- Outreach through existing CBO agencies and the e-power team (PPL Electric's current education outreach program).
- Present program information at seminars, conferences, and community events.
- Active marketing and outreach through community groups and human services organizations that interact with low-income customers, such as Visiting Nursing Association, social work staff at hospitals, AARP, senior centers and community centers, Head Start centers, DEPW, county agencies, agricultural extension agencies, churches, housing authority, PHFA, county commissioners, etc.
- Grassroots marketing in low-income neighborhoods.
- Promote program in PPL Electric's customer bill ~~insert~~[newsletter](#), "Connect."

~~• Publish and distribute program brochure.~~

- Cross-market through other PPL Electric low-income programs.

### Eligible Measures and Incentive Strategy

All services and measures are provided to income-qualified customers at no cost. Installed measures must save energy provided by PPL Electric. CBOs will be encouraged to combine Act 129 funding with federal, state, or other human services funding to provide a whole-house energy-efficiency solution. Funded measures may include the following. A complete list of measures is provided in Appendix G. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

#### Low-Income Single-Family:

- Energy Audit
- Energy Education: customer in-home education on ways to save energy
- ENERGY STAR® CFLs and fixtures<sup>62</sup>
- ENERGY STAR® refrigerator
- Electric heat or central air conditioning:
  - Seal drafts and air leaks around windows and doors
  - Insulate walls and ceilings
- Electric water heat:
  - Replace water heater or install electric heat pump water heater
  - Water heater tank wrap
- Low-flow showerheads<sup>6263</sup>
- Faucet aerators<sup>6263</sup>
- Water heater pipe insulation
- Safety measures

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#### Low-Income Multifamily:

- All services/measures listed above for Low-Income Single-Family
- Combined Heat and Power Systems

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric performs an annual review of rebate levels and performance criteria and may adjust rebates and/or eligibility ratings in the future as market conditions change.~~

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<sup>62</sup> Program provides as many CFLs, lighting fixtures, low flow shower heads and faucet aerators as are needed in a given home.

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for Low-income WRAP follow. Some tasks will be led by PPL Electric; other tasks will be led by CBOs, with oversight from PPL Electric.

**Table 50. Program Schedule and Milestones**

Schedule	Milestones
09/01/2009	Develop participation standards and delivery guidelines for Act 129-funded WRAP program (where they differ from existing program) with state low-income departments and community-based organizations.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
09/01/2009	Develop marketing plan and materials.
11/01/2009	Determine reporting and data requirements for program evaluation.
11/01/2009	Develop tracking and allocation procedures.
ongoing	Coordinate with other utilities and stakeholders.
10/01/2009	Confirm CBOs have ramped up staffing and capabilities to meet the program requirements.
11/01/2009	Launch program. <sup>63</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Data from the Tracking System will be used to determine gross, ex ante impacts of programs and to validate the program's a priori planning assumptions. The results of this analysis will be reported to the Commission in PPL Electric's annual report.~~

~~The actual, ex-post net savings of each program will be determined as part of impact evaluations. The methodology and procedural protocols for conducting impact evaluations will be determined by the statewide EE&C Plan Evaluator. The Company will ensure the necessary data for conducting impact evaluations will be available from the Tracking System. At a minimum, these data will include the following:~~

- ~~• Participant contact information, including name, address, participation date, etc.~~
- ~~• Essential structural attributes~~
- ~~• Household characteristics~~
- ~~• Type and frequency of installed measures~~
- ~~• Estimated savings~~

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<sup>63</sup> Assumes Commission approval of Plan by 11/30/2009.

• ~~Measure cost~~

• ~~Interval daily electricity consumption~~

• ~~Climate information to calculate heating and cooling degree information~~

~~PPL Electric's preliminary assessment indicates this information will satisfy the data requirements for verification of program savings.~~

~~Since impact evaluation for most programs will require adequate post-implementation data, PPL Electric expects the results of impact evaluations will be filed with the Commission six to nine months after the end of each program year. The impact evaluation results will be used to true-up estimates of gross savings and to adjust gross savings estimates, where such adjustments are warranted. [PPL Electric's Evaluation Plan describes the EM&V requirements for this program.](#)~~

### Administrative Requirements

~~PPL Electric expects this program to be managed by existing staff and supported by internal marketing and administrative staff. CBOs will add staff as needed to support program delivery. Anticipated administrative requirements and participant roles for the program follow. [Summary of administrative requirements:](#)~~

- PPL Electric's WRAP Program Manager ~~will continue to manage~~ [s](#) all aspects of this program, including reporting activities and results directly associated with Act 129 funding. ~~PPL Electric will provide annual reports to the Commission.~~
- CBOs will track program activities and report to PPL Electric.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will conduct~~ [s](#) evaluation, measurement, and verification activities and coordinates [s](#) with the statewide EE&C Plan evaluator.

### Estimated Participation

~~Program participation was developed using existing program information and market research data to obtain the technical potential available. The resulting number of program participants is shown below. [Estimated participation levels are shown for general guidance only.](#)~~

**Table 51. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Single-Family	2,970	2,970	2,970	2,970	11,880
Multi-Family	1,720	2,510	3,180	4,300	11,710
<b>Total</b>	<b>4,690</b>	<b>5,480</b>	<b>6,150</b>	<b>7,270</b>	<b>23,590</b>

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	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Participants</u>	<u>649</u>	<u>4,455</u>	<u>4,800</u>	<u>3,596</u>	<u>13,500</u>

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 48,695 21,151 MWh/yr and peak load reductions of approximately 1.5 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 52 Table 52. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 52. Summary of Projected Benefits, Costs, and Cost-effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	1,200	5,425	8,305	6,222	21,151
Capacity Savings (MW)	0.1	0.7	0.7	0.5	1.5
Total Resource Cost	\$3,021,946	\$9,417,118	\$9,150,969	\$7,082,674	\$28,672,707
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$3,021,946	\$9,417,118	\$9,150,969	\$7,082,674	\$28,672,707
Customer Incentives	\$2,710,269	\$8,671,212	\$0	\$0	\$11,381,481
EDC Labor	\$303,731	\$731,445	\$753,388	\$775,990	\$2,564,554
EDC Materials and Supplies	\$7,946	\$14,461	\$35,181	\$36,836	\$94,424
CSP Labor	\$0	\$0	\$8,342,400	\$6,249,848	\$14,592,248
Other (Marketing and Trade Ally)	\$0	\$0	\$20,000	\$20,000	\$40,000
<b>TRC Test</b>					
NPV Benefits	\$26,489,139				
NPV Costs	\$25,209,436				
Net Benefits (NPV)	\$1,279,703				
<b>Benefit-Cost Ratio</b>	<b>1.05</b>				

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	3,943	4,423	4,829	5,500	18,695
Capacity Savings (MW)	1	1	1	1	3
Total Resource Cost	\$5,964,840	\$6,744,952	\$7,431,635	\$8,515,939	\$28,657,367
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$5,964,840	\$6,744,952	\$7,431,635	\$8,515,939	\$28,657,367
Customer Incentives	\$5,804,840	\$6,580,952	\$7,263,635	\$8,343,939	\$27,993,367
CSP Labor	\$80,000	\$82,000	\$84,000	\$86,000	\$332,000
CSP Materials and Supplies	\$80,000	\$82,000	\$84,000	\$86,000	\$332,000
<b>TRC Test</b>					
NPV Benefits	\$20,262,126				
NPV Costs	\$25,341,823				
Net Benefits (NPV)	-\$5,079,696				
<b>Benefit-Cost Ratio</b>	<b>0.80</b>				

**Note:** Table 63 was updated to reflect the change in classification of common and direct costs.

## E-Power Wise (Low-Income Sector)

2010-2013

### Objectives

The objectives of the E-Power Wise Program include:

- Provide quality energy conservation and efficiency education to low-income customers; so they can make informed choices about their energy use.
- Provide information about low-cost/no-cost energy-efficiency strategies low-income customers can use in their homes.
- Provide low-income customers with energy-efficiency measures in free take-home energy-efficiency kits.
- Obtain participation by ~~no fewer than~~ approximately 7,200-9,050 customers through 2013 with a total reduction of approximately 4,080-4,605-4,268 MWh/yr ~~and 150 kW~~.

### Target Market

The program targets PPL Electric customers at or below 150% of the Federal poverty level. The program is available to customers in existing single-family housing and in existing multifamily housing where ~~50% or more tenants are low-income qualified~~ each unit is metered (not master-metered). ~~In particular, the program aims to reach low-income senior citizens.~~ Customer eligibility parameters for the residential sector are outlined below.

**Table 53. Customer Eligibility Parameters**

<b>Customers Type</b>	Low-income qualified residential
<b>Rate Class</b>	RS, RTS, RTD, TOU after 1/1/2010
<b>Building Type</b>	Single-family, multifamily with 50% or more residents income qualified
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant

### Program Description

The E-Power Wise Program, delivered via CBOs, non-profit organizations, and ~~for a GSP~~ direct mail will provide low-income customers with energy-efficiency education and low cost energy-efficiency measures for self installation. The E-Power Wise Program consists of ~~four main~~ the following ~~program~~ components:

- Train-the-trainer sessions for CBO staff. These sessions provide essential tools needed to introduce energy education and low-cost energy-efficiency measures to their low-income clients.
- Energy education workshops ~~(or one-on-one training with agency staff~~ on a limited basis). CBOs will assist in recruiting participants through day-to-day interactions with

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their clients. Participants can attend a one-hour energy-education workshop, to be held days, evenings, and weekends.

- Energy Kits. During the workshop or other CBO interactions, customers may receive an Energy Efficiency Savings Kit. Each kit will include multiple energy-saving measures, such as compact fluorescent lamps, faucet aerators, and high-efficiency showerheads. Workshops and one-on-one interactions will include education about the measures in the kit, instructions for their proper installation, and energy-efficient behaviors.
- Direct mail to qualified customers will include energy conservation education and a card the customer returns to receive an energy savings kit.
- Surveys and reporting. All participants are asked to complete and return a survey that documents their actions and will be used to evaluate and report on program impacts.

### Implementation Strategy

The E-Power Wise CSP ~~will~~ manages all aspects of the program including:

- ~~Developing r~~Relationships with CBOs and non-profit organizations.
- ~~Identifying Hiring~~ qualified trainers.
- Designing and implementing the train-the-trainer program.
- Designing and implementing the program curriculum.
- ~~Managing the delivery and distribution of the energy kits.~~ Production, delivery, distribution, and inventory of the energy kits.
- Recording and reporting program metrics.

PPL Electric's ~~energy efficiency~~ staff ~~will~~ provides overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions. ~~No changes in the implementation strategy are expected in different program years.~~

### Risk and Risk Management Strategy

Table 54 ~~Table 54~~ presents the key market risks to an effective E-Power Wise Program, as well as the strategies the program will use to address each risk.

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**Table 54. Market Risks and Management Strategies**

Market Risks	Management Strategies
CBOs unaware of program.	Marketing directed at CBOs.
Customers unaware of program; reluctant to ask for help.	Highlight "free kit" incentive in marketing program. Market to customers through CBOs and other community organizations. Provide discreet qualification process and customer confidentiality.



Market Risks	Management Strategies
Need to verify customer eligibility; customers reluctant to share income information.	Use approved list of government funded programs as qualifiers for program (ex. Food Stamps). For those not receiving a government program, provide income application verification process.
Individual customers living in a multi-unit, master-metered building, with electric included in rent, will not see savings benefits from the kits.	Work with landlords to pass efficiency benefits on to customers.
<a href="#">Kit inventory management at CBOs</a>	<a href="#">Closely monitor kit distribution, disbursement, and card return. Monthly inventory reports and field audits.</a>

### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

### ~~Ramp-up Strategy~~

~~PPL Electric will utilize a turnkey E-Power Wise CSP to deliver this program. In its bid solicitation for a contractor, and in the CSP contract, the Company will emphasize the importance of marketing the program to CBO and other community organizations, particularly emphasizing senior citizen community groups. PPL Electric's internal Customer Strategy division also will work with the CSP to develop a targeted marketing strategy. The CSP contract will include provisions for reaching program participation goals that ramp up over each program year and may include penalties for non-compliance.~~

### Marketing Strategy

The E-Power Wise CSP, ~~with assistance from PPL Electric, will lead marketing for this program through its~~ utilizes PPL Electric's existing WRAP program infrastructure to initially market the program to CBOs. Marketing efforts ~~will~~ seek to increase the program's reach to low-income customers who are not aware of PPL Electric's low-income initiatives. Marketing ~~will be~~ is directed to:

- ~~CBOs agencies.~~
- Community groups and human services organizations that interact with low-income customers, such as: Visiting Nursing Association, social work staff at hospitals, AARP, senior centers and community centers, Head Start, DEPW, County agencies, agricultural extension agencies, churches, housing authority, PHFA, county commissioners, etc.
- Grassroots marketing in low-income neighborhoods.
- Cross-marketing with other PPL Electric low-income programs.

### Eligible Measures and Incentive Strategy

Free services/measures provided through the E-Power Wise program include:

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- Train-the-trainer opportunity for CBOs.
- Energy-efficiency educational workshops.
- An Energy Home Savings Kit, which may include:
  - Two CFLs, one 14-watt (equivalent to a 60-watt incandescent), and one 19-watt (equivalent to a 75-watt incandescent).
  - Low-flow showerhead.
  - Faucet aerators for the kitchen and bathroom.
  - Educational materials.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. Additional measures may be included in energy kits, depending on selected CSP products and other factors.

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric performs an annual review of rebate levels and performance criteria, and may adjust rebates and/or eligibility ratings in the future as market conditions change.~~

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the E-Power Wise program follow. Some tasks ~~will~~ are be led by PPL Electric; other tasks ~~will~~ are be led by the program CSP and/or by CBOs, with oversight from PPL Electric.

**Table 55. Program Schedule and Milestones**

Schedule	Milestones
07/06/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for program CSP.
07/17/2009	Issue RFP for program CSP.
09/15/2009	Execute program implementation contract with selected program CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
10/15/2009	Work with state low-income departments and community-based organizations to develop a delivery process.
11/01/2009	Develop marketing materials.
11/01/2009	Design customer survey.
11/01/2009	Develop program delivery process and protocols.
11/01/2009-	Provide program delivery training to appropriate participants.

ongoing	
01/15/2010	Determine reporting and data requirements for program evaluation.
01/15/2010	Develop tracking and allocation procedures.
01/15/2010	Develop quality assurance plan.
<del>10/15/2009-ongoing</del>	<del>Coordinate with other utilities and stakeholders.</del>
01/15/2010	Launch program. <sup>64</sup>

### Evaluation, Measurement, and Verification (EM&V)

PPL Electric's Evaluation Plan describes the EM&V requirements for this program. ~~As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all of the proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net impacts of programs.~~

~~The impact evaluation will determine energy savings the program generates through delivery of energy education, including the energy efficiency measures kit. Energy savings are expected to accrue through installation of measures the kit includes and from implementation of energy-saving behaviors in participant households. While the actual methodology for impact evaluations will be determined by the statewide Evaluator, PPL Electric expects impact evaluation of this program will rely primarily on a statistical analysis of actual electricity use, using a longitudinal analysis of consumption histories, involving a comparison of pre- to post-program change in energy participants' electricity consumption, using regression analysis. The analysis would rely on the following data:~~

- ~~•Interval daily electricity consumption~~
- ~~•Household characteristics~~
- ~~•Behavioral energy-saving actions taken in the home~~
- ~~•Estimated savings~~
- ~~•Measure cost~~
- ~~•Climate information to calculate heating and cooling degree information~~

~~Data on household characteristics and conservation practices will be collected through a survey of a random sample of participants. As part of these surveys data will also be obtained on participants' satisfaction with services provided under the program.~~

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### Administrative Requirements

~~PPL Electric expects this program to be managed by existing staff and supported by internal marketing and administrative staff. CBOs will add staff as needed to support~~

<sup>64</sup> Assumes Commission approval of Plan by 11/30/2009.

Section 3: Program Descriptions  
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~~program delivery. Anticipated administrative requirements and participant roles for the program follow:~~ Summary of administrative requirements:

- PPL Electric's ~~Program Manager~~ staff ~~will~~ oversees all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The Advertising CSP ~~will~~ provides external advertising including television and print ads.
- The E-Power Wise CSP ~~will~~ administers the program, coordinates workshop logistics, delivers training, ~~supply~~ supplies efficiency kits, receives and analyzes customer surveys, and reports results.
- ~~CBOs~~ The E-Power Wise CSP and the Administrative CSP ~~will~~ handle customer calls direct customers on how to participate in the program.
- CBOs will verify customers' income eligibility.
- ~~The Quality Assurance CSP will oversee quality assurance.~~
- The EM&V CSP ~~will~~ conducts evaluation, measurement, and verification activities.

#### Estimated Participation

~~Participation levels for this program were developed using customer counts and market research data to obtain the available technical potential. The resulting number of program participants is shown below:~~ Estimated participation levels are shown for general guidance only.

**Table 56. E-Power Wise Projected Participation**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Energy-efficiency Kits</u>	<u>750</u>	<u>2,350</u>	<u>2,250</u>	<u>1,850</u>	<u>7,200</u>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Energy-efficiency Kits</u>	<u>-</u>	<u>4,050</u>	<u>2,749</u>	<u>2,249</u>	<u>9,048</u>

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 4,080 4,268 MWh/yr. No meaningful peak load reductions are expected. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential-low-income~~ customer sector are shown in Table 57 ~~Table 57~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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Section 3: Program Descriptions  
Low-Income Sector Programs

**Table 57. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	2,119	1,182	967	4,268
Capacity Savings (MW)	-	0.3	0.2	0.2	0.6
Total Resource Cost	\$32,449	\$193,854	\$212,763	\$178,558	\$617,624
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$32,449	\$193,854	\$212,763	\$178,558	\$617,624
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$27,877	\$32,582	\$34,000	\$32,000	\$126,460
EDC Materials and Supplies	\$4,572	\$183	\$200	\$200	\$5,154
CSP Labor	\$0	\$161,089	\$178,563	\$146,358	\$486,010
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$2,474,791				
NPV Costs	\$536,099				
Net Benefits (NPV)	\$1,938,692				
<b>Benefit-Cost Ratio</b>	<b>4.62</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	113	353	338	278	1,080
Capacity Savings (MW)	0.02	0.05	0.05	0.04	0.1
Total Resource Cost	\$118,975	\$193,371	\$191,974	\$176,221	\$680,542
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$118,975	\$193,371	\$191,974	\$176,221	\$680,542
Customer Incentives	\$33,375	\$106,771	\$104,374	\$87,621	\$332,142
EDC Labor	\$45,000	\$46,000	\$47,000	\$48,000	\$186,000
EDC Materials and Supplies	\$600	\$600	\$600	\$600	\$2,400
CSP Labor	\$20,000	\$20,000	\$20,000	\$20,000	\$80,000
CSP Materials and Supplies	\$20,000	\$20,000	\$20,000	\$20,000	\$80,000
<b>TRC Test</b>					
NPV Benefits	\$681,667				
NPV Costs	\$602,499				
Net Benefits (NPV)	\$79,168				
<b>Benefit-Cost Ratio</b>	<b>1.13</b>				

Note: Table 68 was updated to reflect the change in classification of common and direct costs

## Direct Load Control Program (Low-Income Sector)

2010-2013

Low-income customers are eligible to participate in this program but PPL Electric has included all forecasts in the residential section of this EE&C Plan. PPL Electric will not income-qualify this program's participants.

### **Objectives**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Target Market**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Program Description**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Implementation Strategy**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Risk and Risk Management Strategy**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Anticipated Costs to Participating Customers**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Ramp-up Strategy**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Marketing Strategy**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Eligible Measures and Incentive Strategy**

~~Please see Section 3.2, under Direct Load Control Program.~~

### **Implementation Schedule and Milestones**

~~Please see Section 3.2, under Direct Load Control Program.~~

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~~Evaluation, Measurement, and Verification (EM&V)~~  
~~Please see Section 3.2, under Direct Load Control Program.~~

~~Administrative Requirements~~  
~~Please see Section 3.2, under Direct Load Control Program.~~

~~Estimated Participation~~  
~~Estimated low-income sector program participation is shown below.~~

~~Table 69. Projected Participation~~

	Year 1	Year 2	Year 3	Year 4	Total
Central AC	-	900	890	1,790	3,580
Heat Pumps	-	440	440	880	1,760
<b>Total</b>	-	<b>1,340</b>	<b>1,330</b>	<b>2,670</b>	<b>5,340</b>

~~Program Budget, Costs, and Cost-Effectiveness~~

~~Over the four-year planning horizon, the program is expected to achieve demand reductions of approximately 4 MW. The annual budget allocation, cumulative MWh and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 70. Key assumptions used in calculating measure-level savings are shown in Appendix E.~~

~~Table 70. Summary of Projected Benefits, Costs and Cost-Effectiveness~~

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	-	2	4	4
Total Resource Cost	\$58,100	\$264,852	\$315,604	\$619,108	\$1,257,664
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$58,100	\$264,852	\$315,604	\$619,108	\$1,257,664
Customer Compensation	\$0	\$42,752	\$85,504	\$171,008	\$299,264
EDC Labor	\$7,000	\$7,000	\$7,000	\$8,000	\$29,000
<del>EDC Materials and Supplies</del>	<del>\$100</del>	<del>\$100</del>	<del>\$100</del>	<del>\$100</del>	<del>\$400</del>
CSP Labor	\$51,000	\$7,000	\$7,000	\$7,000	\$72,000
CSP Materials and Supplies	\$0	\$208,000	\$216,000	\$433,000	\$857,000
<b>TRC Test</b>					
NPV Benefits	\$215,888				
NPV Costs	\$1,065,381				
Net Benefits (NPV)	-\$849,493				
<b>Benefit-Cost Ratio</b>	<b>0.20</b>				

~~Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4. Load reductions will occur only in the Summer of 2012. Table 70 was updated to reflect the change in classification of common and direct costs.~~

~~Time of Use Rates~~ ~~2010-2013~~  
~~(Low-Income Sector)~~

~~Objectives~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Target Market~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Program Description~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Implementation Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Risk and Risk Management Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Anticipated Costs to Participating Customers~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Ramp-up Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Marketing Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Eligible Measures and Incentive Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Implementation Schedule and Milestones~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Evaluation, Measurement, and Verification (EM&V)~~

~~Please see Section 3.2, under Time of Use Rates.~~



Section 3: Program Descriptions  
Low-Income Sector Programs

**Administrative Requirements**

Please see Section 3.2, under Time of Use Rates.

**Estimated Participation**

Estimated low-income sector program participation is shown below.

**Table 71. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	—	5,550	5,560	11,100	22,210

**Program Budget, Costs, and Cost-Effectiveness**

Over the four-year planning horizon, the program is expected to achieve demand reductions of 9 MW. The annual budget allocation, cumulative MWh and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 72. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 72. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	2	4	9	9
Total Resource Cost	\$229,100	\$244,100	\$244,100	\$113,100	\$830,400
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$229,100	\$244,100	\$244,100	\$113,100	\$830,400
EDC Labor	\$4,000	\$4,000	\$4,000	\$5,000	\$17,000
EDC Materials and Supplies	\$100	\$100	\$100	\$100	\$400
<del>CSP Labor</del>	<del>\$18,000</del>	<del>\$6,000</del>	<del>\$6,000</del>	<del>\$6,000</del>	<del>\$36,000</del>
CSP Materials and Supplies	\$0	\$28,000	\$28,000	\$56,000	\$112,000
Other (Marketing and Trade Ally)	\$207,000	\$207,000	\$207,000	\$47,000	\$668,000
<b>TRC Test</b>					
NPV Benefits	\$2,665,961				
NPV Costs	\$754,177				
Net Benefits (NPV)	\$1,911,784				
<b>Benefit-Cost Ratio</b>	<b>3.53</b>				

### 3.3. Small Commercial and Industrial Sector Programs

#### Efficient Equipment Incentive Program (Small Commercial and Industrial Sector)

2010-2013

##### Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Target Market

~~As described in~~ Please see Section 3.2, under Efficient Equipment Incentive Program. PPL Electric's Efficient Equipment Incentive Program will be available to all customer sectors. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector.<sup>65</sup> However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across all market sectors. Table 58 outlines eligibility targets for the small commercial and industrial sector.

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**Table 58. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial & industrial, small
<b>Rate Class</b>	GS1, GS3, GH1, <u>GH2</u> , <del>IS1, SLAL</del> , TOU after 1/1/10
<b>Building Type</b>	Small commercial, small industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### Program Description

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Implementation Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Risk and Risk Management Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Anticipated Costs to Participating Customers

Please see Section 3.2, under Efficient Equipment Incentive Program.

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<sup>65</sup> ~~The Plan does not attribute budget or energy savings for this program to the low-income sector, but rather assumes that low-income sector customers will take advantage of higher incentives available through the Low-income WRAP program. Low-income customers, however, may participate.~~

### ~~Ramp-up Strategy~~

~~Please see Section 3.2, under Efficient Equipment Incentive Program.~~

### Marketing Strategy

In addition to the marketing strategy and tactics discussed Section 3.2, under Efficient Equipment Incentive Program, PPL Electric may use the following marketing strategies to promote this program to its ~~small~~-commercial and industrial customers (small C&I, large C&I, governmental, schools, and non-profits):

- Targeted marketing to business trade associations, building owner/manager associations, economic development organizations, customer advocacy groups, and trade allies such as architects and engineers, real estate developers, energy services companies, HVAC companies, lighting contractors, and other equipment dealers and installers.
- Specific outreach to reach individual tenants as well as building owners and property managers in leased commercial buildings to encourage participation in the program.
- Outreach to facility managers and engineers to encourage installation of new energy-efficient technologies and adoption of best operating practices.
- Targeted marketing to specific sectors identified as having a high level of unrealized energy-efficiency potential, such as office buildings and data centers.
- Providing outreach and education to trade allies and C&I customers.
- Establishing an authorized trade ally process to engage them in this program.
- Targeted marketing for the direct install alternative that allows customers to implement lighting and refrigeration measures more easily and quickly.

### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Rebates ~~will~~ can be a fixed amount per device, ~~or based on savings (i.e. \$/kWh annual savings).~~ Rebates can be paid by check or a prepaid debit card to customers or trade ally contractors who complete a rebate application and submit documentation of the equipment purchase to PPL Electric's ~~Administrative CSP~~. Rebates cannot exceed the cost of the measure. Customers interested in installing multiple measures and/or implementing an extensive, whole-facility efficiency solution will be directed to the Commercial and Industrial Custom Incentive Program.

~~Table 59~~ Table 59 shows PPL Electric's ~~proposed~~ list of eligible equipment, incentive levels, and efficiency qualifications. While ~~small~~-commercial & industrial customers are generally eligible for all equipment under the Efficient Equipment Incentive Program, only equipment deemed appropriate for the commercial & industrial sector (small C&I and large C&I) is shown in the table below. Additional equipment measures included in the program may be found in the Efficient Equipment Incentive Program descriptions associated with the residential (Section 3.2), ~~and~~ governmental/non-profit (Section 3.5) sectors identified in this Plan.

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Section 3: Program Descriptions  
Small Commercial and Industrial Sector Programs

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector.

**Table 59. Eligible Equipment Measures**

Measure	Eligibility Rating	Incentive
<del>Cooling Tower Two-Speed Fan Motor</del>	<del>Replace one-speed fan motor</del>	<del>\$1/ton</del>
<del>Chiller Pipe Insulation</del>	<del>R-6</del>	<del>\$1.60/linear foot</del>
Water-Cooled Chiller, <del>Screw Chiller</del> <u>electronically operated, positive displacement</u>	<del>High Efficiency kW/ton = 0.62</del> <u>See rebate form for eligibility</u>	<del>\$7/ton, \$10/ton</del>
Water-Cooled Chiller, <del>Screw Chiller</del> <u>electronically operated, centrifugal</u>	<del>Premium Efficiency kW/ton = 0.574</del> <u>See rebate form for eligibility</u>	\$10/ton
Air-cooled, electrically operated chiller	<del>Full load efficiency = 1.129 kW/ton max; partial load efficiency = 0.864 kW/ton max</del> <u>See rebate form for eligibility</u>	\$7/ton
(DX) Packaged Air Conditioner System, <u>&gt;5.4 tons</u>	11.5 EER	\$55/ton
	12.0 EER	\$80/ton
	12.5 EER	\$105/ton
(DX) Packaged Air-Source Heat Pump, <u>&gt;5.4 tons</u>	<u>11.5 EER, 3.5 COP</u>	<u>\$75/ton</u>
	<u>12.3 EER, 3.8 COP</u>	<u>\$160/ton</u>
<u>Central air conditioner (&lt;5.4 tons)</u>	<u>SEER 16</u>	<u>\$100/unit</u>
<del>Programmable Thermostat</del>	<del>ENERGY STAR<sup>66</sup> - or 5 + 1 + 1 at a minimum</del>	<del>Up to \$50/unit</del>
Heat Pump - Air Source, <u>central ducted, &lt;5.4 tons</u>	<del>EER=11.0, COP=3.5</del> <u>SEER 15</u> <u>SEER &gt;=16</u>	<del>\$75/ton, \$100/unit</del> <u>\$200/unit</u>
<u>ENERGY STAR® Ductless mini-split heat pump</u>	<u>SEER 15.0, HSPF 8.2</u> <u>SEER 17.0, HSPF 9.5</u> <u>SEER 19.0, HSPF 10.5</u>	<u>\$100 per 12,000 Btu/hr</u> <u>\$150 per 12,000 Btu/hr</u> <u>\$200 per 12,000 Btu/hr</u>
<del>Heat Pump - Air Source</del>	<del>EER=11.8, COP=3.8</del>	<del>\$160/ton</del>
<u>Room air conditioner</u>	<u>ENERGY STAR®</u>	<u>\$25/unit</u>
Motors	Premium Efficiency	see rebate chart on E-power web site

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<sup>66</sup> ENERGY STAR will discontinue rating programmable thermostats after 12/31/2009. PPL Electric will determine appropriate equipment qualification guidelines when this occurs.

Section 3: Program Descriptions  
Small Commercial and Industrial Sector Programs

Measure	Eligibility Rating	Incentive
Lighting Power Density Reduction (includes occupancy sensors, lighting, daylighting controls)	45% LPD Reduction from <del>Code</del> levels <u>current ASHRAE standard for space type or for ASHRAE whole building approach</u>	\$0.35/watt reduced <u>up to 50% of equipment cost</u>
<u>PTAC/PTHP</u>	<u>PTAC based on cooling capacity and EER.</u> <u>PTHP based on EER and COP</u>	<u>See rebate chart on E-power web site</u>
<u>Electric heat pump water heaters</u>	<u>ENERGY STAR®</u>	<u>\$300/unit</u>
<u>Residential-sized refrigerator</u>	<u>ENERGY STAR®</u>	<u>\$25/unit</u>
Anti-Sweat Heater Controls	Variable Temperature Controls (Humidistat)	\$34/case door
Commercial Reach-In Refrigerator	ENERGY STAR	\$70/unit
Refrigeration Compressor VSD Retrofit	VSD Control	\$70/HP
<del>Demand Control Defrost – Hot Gas</del>	<del>Refrigerant Defrost w/ Hot Gas</del>	<del>\$85/case door</del>
Display Cases	High-Efficiency <u>see incentive application for details</u>	\$40/case
Floating Head Pressure Control	N/A	\$20/ton
High-Efficiency Case Fans	High-Efficiency Permanent Split Capacitor (PSC) Motor or ECM	\$20/fan
High-Efficiency Compressor	• 15% efficient (base = 40% Efficiency)	\$280/ton
High-Efficiency Evaporator Fans - Walk-ins	N/A	\$50/fan motor
Commercial Ice Maker	ENERGY STAR	\$115/unit
<del>Faucet Aerators</del>	<del>1.5 GPM</del>	<del>\$0.50/unit</del>
Steam Cookers	ENERGY STAR	\$40/unit
CFL (screw-in bulbs for commercial use)	ENERGY STAR; non-residential rate classes only; up to 1000 ENERGY STAR bulbs; cannot be previously discounted by PPL CFL Program; not for inventory or new construction.	50% of the cost of the bulb up to \$1.50/bulb
CFL Pin-Base Fixtures	ENERGY STAR	\$30/fixture <u>for commercial customers; \$5/fixture for residential customers</u>
Daylighting Controls	<del>Dimming Continuous, Fluorescent Fixtures</del> <u>On/off, stepped, or continuous dimming. Fluorescent fixtures with calibration and commissioning of system to ensure system performance</u>	\$35/controlled fixture
LED Exit Lighting	5 Watts or less <u>face</u> , must replace incandescent or CFL exit sign. <u>Must replace fixture, not retrofit kit</u>	\$15/unit
Occupancy Sensors	Wall, fixture, or Ceiling-mounted Lighting Sensor. <u>Passive infrared or ultrasonic</u>	Up to \$45/sensor

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Measure	Eligibility Rating	Incentive
<a href="#">Occupancy sensors used with daylighting controls</a>	<a href="#">Wall, fixture, or ceiling-mounted lighting sensor. Passive infrared or ultrasonic. Used in conjunction with daylighting controls.</a>	<a href="#">Up to \$25/sensor</a>
<del>Time Clocks and Timers</del>	<del>must reduce operating hours by at least 20%</del>	<del>Up to \$100/unit</del>
High-Pressure Sodium	$\geq$ 65 watts and $\leq$ 300 watts, must replace mercury vapor lamps	\$40/lamp
Pulse Start Metal Halide/Ceramic Metal Halide	$\leq$ 320 Watt	\$25/fixture
	$>$ 320 Watt	\$50/fixture
<del>Energy Star Office Equipment</del>	<del>ENERGY STAR</del>	<del>See rebate amounts listed for each type of equipment on PPL's E-power web site.</del>
De-lamp and Install Reflectors	<del>Remove existing ballast and lamps and install electronic ballast, reflector, and one less T8 or T5 lamp than original fixture</del> <a href="#">Replace existing T12 fixture with T8 or T5 fixture with one or more lamps removed than the original number of lamps. Retrofitted fixture must include an electronic ballast and reflector. This measure does not require a new fixture to be installed. Removing lamps from a fixture that is not being retrofitted is not eligible.</a>	<del>\$50/fixture</del> <a href="#">Varies from \$10 - \$30 per lamp installed in new fixture or retrofit kit depending on length of lamps and number of lamps removed. See table on E-power web site.</a>
Fluorescent High Bay Fixtures Lighting Package	High Bay Lighting - T5HO fixture, $>$ <del>125</del> <a href="#">100</a> watts <del>installed in area with ceiling height <math>&gt;</math> 15 ft</del>	\$16/lamp
	High Bay Lighting - T8r fixture, $>$ <del>125</del> <a href="#">100</a> watts <del>installed in area with ceiling height <math>&gt;</math> 15 ft</del>	\$12/lamp
T8 or T5 Light Fixtures	<del>Must replace T12</del> <a href="#">Replace fixture 2-3, or 4-lamp fixture with T5 or T8 lamps and ballast</a>	<del>\$14/fixture</del> <a href="#">\$4/lamp</a>
High performance T8 <del>fixtures</del> <a href="#">lamps</a>	Replacing T12 lamp fixtures; must be listed on the CEE database	<del>\$10/fixture</del> <a href="#">\$6/lamp</a>
High performance T8 <del>fixtures</del> <a href="#">lamps</a>	Replacing T8 fixtures; must be listed on the CEE database	<del>\$5/fixture</del> <a href="#">\$1/lamp</a>
LED Fixtures	ENERGY STAR; $\leq$ 15 watts	\$15/fixture retrofit kit
Cold cathode lamps	$\geq$ 2 watt and $\leq$ 8 watt lamps	\$3/lamp
<a href="#">Direct Discount for lighting and refrigeration</a>	<a href="#">Lighting and refrigeration</a>	<a href="#">Various based on \$/kWh annual savings. Rebate capped at project cost</a>
ASD/VSD	VFDs with motor HP $>$ 5 and $\bullet$ 200	\$30/HP
Ceiling Insulation & Wall Insulation	Existing & new structures- <a href="#">based on current ASHRAE Standards <del>+ R11</del></a> . See rebate application for details for new construction ( <a href="#">R11 over code</a> ) and for existing construction ( <a href="#">add minimum R11 to meet or exceed code</a> )	\$0.30/sf up to 70% of installed cost

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Measure	Eligibility Rating	Incentive
Residential Size Refrigerator	ENERGY STAR	\$50

EER = Energy-efficiency Rating  
GPM = Gallons per minute  
LPD = Lighting Power Density

VFD = Variable Frequency Drive  
HP = Horse Power

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. However, PPL Electric performs an annual review of rebate levels and performance criteria and may adjust rebates and/or eligibility ratings in the future as market conditions change.~~

PPL Electric tracks and reports if a customer switches to electric equipment from gas equipment. PPL Electric will also report data on replacement appliances and systems. This information will be included in PPL Electric's annual report.

### Implementation Schedule and Milestones

Please see Section 3.2, under Efficient Equipment Incentive Program.

### Evaluation, Measurement, and Verification (EM&V)

~~PPL Electric's Evaluation Plan describes the EM&V requirements for this program. This program targets common end uses such as lighting and HVAC. The impact evaluation will therefore be measure-specific and may include pre- and post-installation inspections. Final determination of the impact evaluation methodology will occur after the statewide EM&V protocol has been developed.~~

~~PPL Electric expects that for all measures in the TRM, verification of savings will be based on a sample-based validation of installations and operating conditions. For lighting measures, the analysis will be based primarily on engineering validation and will have three components: verification of installation (measure count), calculation of saving (wattage differential), and verification of full-load hours.~~

~~Run-time is a key parameter in calculation of savings from lighting retrofits. PPL Electric expects the impact evaluation will include verification of operating hours using light loggers on a sample of installations. The number of points to be monitored will be based on a sample stratified to represent functional areas and variability of savings within each functional area using a 90/10 criterion.~~

~~The analysis of HVAC savings will be based on expected values in the TRM for measures in the TRM. For measures not in the TRM, savings may be validated using engineering calculations, calibrated with site-specific data, including climate conditions, and selective interval recording of key parameters, such as run-time. Data necessary for verification savings in this program will consist of the following:~~

- ~~•Engineering estimates of savings for each measure installed under the program, according to technical studies;~~
- ~~•Facility characteristics;~~

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- Daily weather data from local weather stations to calculate HDD and CDD; and
- Status and interval data for key equipment parameters.

### Administrative Requirements

Please see Section 3.2, under Efficient Equipment Incentive Program.

### Estimated Participation

Estimated participation for each measure is shown below. [Estimated participation levels are shown for general guidance only.](#)

**Table 60. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower Two-Speed Fan Motor	-	-8	-8	15	31
Pipe Insulation	-8	23	31	38	-100
(DX) Packaged Air Conditioner System	23	138	184	-230	-575
Thermostat--Programmable	138	711	995	1,278	3,122
Heat Pump--Air Source	-	15	31	46	92
Meters	46	230	321	-413	1,010
Anti-Sweat Heater Controls	23	115	153	-199	-490
Commercial Reach-In Refrigerator	-8	31	38	46	-123
Compressor VSD Retrofit	-	-8	15	15	38
Display Cases	38	184	260	-337	-819
Floating Head Pressure Control	-	-8	15	15	38
High-Efficiency Case Fans	337	-1,668	-2,333	2,999	7,337
High-Efficiency Compressor	337	-1,668	-2,333	2,999	7,337
High-Efficiency Evaporator Fans--Walk-ins	337	-1,668	-2,333	2,999	7,337
Ice Maker	-	-8	-8	8	24
Faucet Aerators	819	-4,093	-5,730	7,367	18,009
Steam Cookers	-	-4	-4	4	3
CFL	-2,295	-11,475	-16,065	20,655	50,490



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	Year 1	Year 2	Year 3	Year 4	Total
CFL Pin-Base Fixtures	574	-2,869	-4,016	5,164	12,623
Daylighting Controls	31	153	207	-268	-659
LED Exit Lighting	291	-1,469	-2,050	2,647	6,457
Occupancy Sensors	31	153	207	-268	-659
Time Clocks and Timers	122	597	834	1,071	2,624
High-Pressure Sodium	-	15	15	23	53
Pulse Start Metal Halide—Exterior	329	-1,637	-2,295	2,945	7,206
Energy Star Office Equipment	383	-1,974	-2,739	3,519	8,615
Delamping and Install Reflectors	-8	38	54	69	-169
Fluorescent High-Bay Fixtures Lighting Package	-1,071	-5,355	-7,497	9,639	23,562
T8 Lighting Package	132,192	660,960	925,344	1,189,728	2,908,224
Ceiling Insulation	-8	15	31	38	92
Wall Insulation	-8	15	31	38	92
Case Fans with ECM Motors	222	1,109	1,553	1,997	4,881
<b>Total</b>	<b>141,133</b>	<b>705,695</b>	<b>987,919</b>	<b>1,270,188</b>	<b>3,101,960</b>

	Year 1	Year 2	Year 3	Year 4	Total
Appliances	103	1,070	610	700	2,483
Commercial Reach-In Refrigerator	-	139	50	50	239
Controls	42	946	100	100	1,188
Direct Discount Projects	-	-	2,500	2,500	5,000
Energy Star Office Equipment	-	322	458	458	1,238
HVAC	24	256	310	289	879
Lighting Projects	10	1,368	731	748	2,857
Motors	-	7	11	11	29
<b>Total</b>	<b>179</b>	<b>4,108</b>	<b>4,770</b>	<b>4,856</b>	<b>13,913</b>

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 484,070 321,847 MWh/yr and peak load reductions of approximately 38.4 kMW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential~~ small C&I customer sector are shown in Table 61 ~~Table~~

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64. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 61. Summary of Projected Benefits, Costs and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	85	84,988	117,892	118,881	321,847
Capacity Savings (MW)	0.0	18.4	20.0	20.2	38.4
Total Resource Cost	\$38,637	\$56,813,379	\$37,825,924	\$38,846,472	\$133,524,412
Direct Participant Costs	\$23,786	\$48,805,325	\$14,997,669	\$1,598,963	\$65,425,743
Direct Utility Costs	\$14,851	\$8,008,054	\$22,828,255	\$37,247,509	\$68,098,669
Customer Incentives	\$14,385	\$7,931,286	\$19,554,481	\$33,782,148	\$61,282,300
EDC Labor	\$415	\$62,330	\$97,233	\$124,006	\$283,984
EDC Materials and Supplies	\$50	\$1,955	\$122,600	\$167,832	\$292,438
CSP Labor	\$0	\$0	\$2,849,607	\$2,893,803	\$5,743,410
Other (Marketing and Trade Ally)	\$0	\$12,483	\$204,334	\$279,720	\$496,538
<b>TRC Test</b>					
NPV Benefits	\$139,202,882				
NPV Costs	\$115,910,833				
Net Benefits (NPV)	\$23,292,049				
<b>Benefit-Cost Ratio</b>	<b>1.20</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	21,961	109,870	154,112	198,127	484,070
Capacity Savings (MW)	4	20	28	36	87
Total Resource Cost	\$6,804,020	\$33,261,543	\$47,480,182	\$62,196,457	\$149,742,202
Direct Participant Costs	\$4,110,352	\$21,047,370	\$30,073,756	\$39,439,958	\$94,671,437
Direct Utility Costs	\$2,693,668	\$12,214,172	\$17,406,426	\$22,756,499	\$55,070,765
Customer Incentives	\$2,324,068	\$11,837,572	\$17,021,826	\$22,363,799	\$53,547,265
EDC Labor	\$47,000	\$47,000	\$48,000	\$49,000	\$191,000
EDC Materials and Supplies	\$600	\$600	\$600	\$700	\$2,500
CSP Labor	\$161,000	\$164,500	\$168,000	\$171,500	\$665,000
CSP Materials and Supplies	\$161,000	\$164,500	\$168,000	\$171,500	\$665,000
<b>TRC Test</b>					
NPV Benefits	\$432,272,637				
NPV Costs	\$127,681,901				
Net Benefits (NPV)	\$304,590,736				
<b>Benefit-Cost Ratio</b>	<b>3.39</b>				

~~Note: Table 76 was updated to reflect the change in classification of common and direct costs~~

## Other Information

PPL Electric's Plan would allow retroactive eligibility for customers who install or commit to install qualifying equipment under this program between July 1, 2009, and Commission approval of the Plan.

## Commercial and Industrial Custom Incentive Program      2010-2013 (Small Commercial and Industrial Sector)

### Objectives

The objectives of the Commercial and Industrial (C&I) Custom Incentive Program include:

- Encourage the installation of high-efficiency equipment not included in PPL Electric's Efficient Equipment Incentive Program by C&I customers in new and existing facilities.
- Encourage equipment repairs and optimization and operational or process changes that reduce electricity consumption and peak demand.
- Encourage a "whole facility" approach to energy-efficiency.
- Increase customer awareness of the features and benefits of electric energy efficient equipment.
- Increase the market penetration of high-efficiency equipment.
- Support emerging technologies and non-typical efficiency solutions in cost-effective applications.
- Encourage advanced energy-efficiency strategies required for certification by national market transformation programs such as Leadership in Energy and Environmental Design (LEED), Architecture 2030, ENERGY STAR Buildings, or Energy Policy Act of 2005 (EPA) tax credits.
- Obtain ~~participation by no less than 400 customers through 2013, with a total reduction of approximately 140,460~~196,707 MWh/yr and ~~27-13~~13 MW.<sup>67</sup>

### Target Market

PPL Electric's C&I Custom Incentive Program targets all new and existing commercial and industrial facilities.<sup>68</sup> The program will be available for any type of new or replacement energy efficient equipment not eligible for a prescriptive rebate through PPL Electric's Efficient Equipment Incentive Program or for an extensive package of energy-efficiency measures. The program will also cover retro-commissioning, repairs, optimization, and operational or process changes. All measures, packages of measures, and process changes must be cost-effective as substantiated through a technical analysis.

The Plan divides the program into ~~individual C&I~~ small C&I, large C&I and governmental/non-profit market sectors, with target customers, ~~and approximate~~ participation, budgets, savings and impacts broken out for each sector. However, PPL

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<sup>67</sup> Combined total for all target customer segments.

<sup>68</sup> This includes municipal, institutional and other buildings used by governmental/non-profit sector customers.

Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across ~~the C&I~~ all of these customer market sectors. ~~Table 62~~ Table 62 outlines eligibility parameters for the small commercial and industrial sector.

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**Table 62. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
<b>Building Type</b>	Small commercial, small industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

The Commercial and Industrial Custom Incentive Program provides a delivery channel and financial incentives to customers installing individual equipment measures or systems not covered by the Efficient Equipment Incentive Program, extensive energy-efficiency projects, retro-commissioning, repairs, equipment optimization, and operational and process improvements that result in cost-effective energy-efficiency savings. To qualify for financial incentives, eligible customers ~~will be~~ are required to provide documentation that their proposed efficiency upgrades pass PPL Electric's cost-effectiveness threshold and technical criteria.

PPL Electric ~~will provide~~ s 50% of the cost of a technical study, and may provide additional reimbursement following successful implementation of a cost-effective project. Reimbursements may be reduced based on type or size. PPL Electric does not plan to offer technical study reimbursements during Program Year 4. The program offers performance-based incentives based on avoided or reduced kilowatt hours (kWh) and peak demand reduction resulting from the project. Incentives ~~will be~~ are subject to an annual cap for each project and for each participating customer. Incentives cannot exceed 50% of total project cost, less in-house labor.

New commercial construction projects that include extensive, advanced energy-efficiency specifications are eligible for incentives under this program. PPL Electric ~~will encourage~~ s customers building new facilities to pursue advanced building performance certification such as LEED or ENERGY STAR Buildings.

PPL Electric ~~will track~~ s and report s if a customer switches to electric ~~appliances equipment~~ from gas ~~appliances equipment, or from gas appliances to electric appliances.~~ PPL Electric will also report data on replacement appliances and systems. This ~~data~~ information will be included in PPL Electric's annual report.

### Implementation Strategy

This program relies on both CSPs and trade allies for implementation. PPL Electric's ~~Administrative CSP, or the C&I CSP will~~ s handle customer intake and routing and ~~will process~~ es program applications. Trade allies, such as energy engineering and energy service firms, ~~will~~ work directly with customers to: help identify and flesh out project ideas; perform technical analyses, project development, and project implementation on behalf of the customer; and may also bring projects to PPL Electric. ~~PPL Electric's~~

~~Quality Assurance and Technical Review~~The C&I CSP ~~will~~ performs technical analyses of applications; confirms scope, cost, and potential energy savings of proposed projects; conducts field verification of completed projects; and ~~adjust~~helps to determine the reported energy and peak load savings from installed projects, ~~if appropriate~~. The EM&V CSP conducts independent evaluations to determine verified savings.

PPL Electric's ~~energy-efficiency~~ staff ~~will~~ provides overall strategic direction and program management for the program and, supported by other CSPs, marketing, trade ally support, evaluation, and other administrative functions. The project development process for the Custom Incentive Program is more fluid than other programs and may not follow a precise work path. The following workflow is an example of a typical scenario through which an equipment-based custom efficiency project may proceed:

- Customers may be directed to the program through marketing efforts, a trade ally or program contractor, a PPL Electric Key Account Manager, or other PPL Electric EE&C programs.
- A trade ally (e.g., energy services firms, engineering firms, providers of energy-efficiency products and services, etc.) works with the customer to evaluate their facility's energy-efficiency opportunities and develop potential project ideas.
- A professional engineering firm or other qualified contractor, under contract to the customer, performs a detailed technical study of potential projects and evaluates their cost-effectiveness.
- The ~~Technical Review~~C&I CSP evaluates the customer's technical study report to qualify projects. This involves confirming project incremental cost and potential energy and capacity savings data and evaluating cost-effectiveness.
- Customers will schedule installation of eligible high-efficiency equipment upgrades, operational or process changes, or other eligible measures directly with an installation contractor.
- Verifying equipment installation, operational, or process changes or other eligible work for all participants, which will be a part of the measurement and verification process.
- Processing rebates for qualified equipment or extensive building efficiency projects.

~~No changes in the implementation strategy are expected in different program years.~~

### Risk and Risk Management Strategy

Table 63~~Table 63~~ presents key market risks to an effective Custom Incentive Program, as well as the strategies the program will use to address each risk.

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**Table 63. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Higher first cost of energy efficient equipment.	Offer customized incentives on equipment and technical study to offset higher cost.
Not a high priority; limited access to discretionary cash/credit.	

Market Risks	Management Strategies
Lack of program awareness and "emergency replacement" scenario among target customers.	Robust marketing strategy, which markets to decision makers and facility operators to facilitate understanding of capital budget and operating concerns.  Marketing to equipment dealers, distributors and installers and other trade allies.
Low dealer, customer, and trade ally awareness.	
Procurement policies that specify low first-cost instead of life-cycle cost.	
Tenant/landlord issues.	

#### Anticipated Costs to Participating Customers

~~Customer incremental costs (i.e. the cost differential between standard and high efficiency measures) will vary depending on the type of equipment or project installed or other work performed.~~ In general, measure rebates are designed to cover approximately 50% of the customer incremental cost of the project, up to a cap of \$500,000 per customer site per year, or \$2 million per parent company per year for customers with multiple facilities. not to exceed 50% of project cost (less in-house labor).

#### Ramp-up Strategy

~~The C&I Custom Incentive Program is expected to be an attractive option for C&I customers with more complex buildings and building equipment (e.g., data centers, industrial process facilities) and for larger customers served by the Company's key account management staff. To ramp up the program, PPL Electric will implement a targeted marketing campaign designed to reach customers most likely to participate. PPL Electric's key account managers will be trained to explain the program and its benefits to key accounts, identify participants, and sell the program. PPL Electric will also reach out to technical energy services firms to help promote the program to their clients. Because this is a new program, however, PPL Electric expects participation to be somewhat modest during the first year, and ramp up steadily over the following years.~~

#### Marketing Strategy

This program relies on both customer marketing and trade ally promotion. ~~PPL Electric's Advertising CSP, and the C&I CSP will work with its internal Customer Strategy division to~~ developed ~~create~~ a marketing strategy, which may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertise using newspaper, radio, and other mass media.
- Present program information at seminars, conferences, and industry events.
- Coordinate advertising opportunities with trade allies.
- Publish and distribute program brochure.
- Targeted marketing to high-potential market sectors.

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- One-on-one marketing to C&I customers through key account managers and the Technical Review CSP.
- Outreach and targeted marketing to facility managers and building or process engineers, building owners and managers associations, HVAC contractors, energy services firms, architects and engineers, real estate developers, economic development organizations, customer advocacy groups, trade associations, and other trade allies to encourage installation of new energy efficient technologies and adoption of best operating practices.
- Specific outreach to individual tenants as well as building owners and property managers in leased commercial buildings to encourage participation in the program.
- Targeted marketing to specific sectors identified as having a high level of unrealized energy-efficiency potential, such as manufacturing and data centers.

### Eligible Measures and Incentive Strategy

~~This program will provide three distinct financial incentives:~~

- ~~• Whole building, equipment, or process improvement technical study~~
- ~~• Performance-based custom incentive based on electricity saved~~
- ~~• Peak demand reduction incentive~~

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Table 64 Table 64 shows PPL Electric's proposed incentive levels

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**Table 64. Eligible Equipment Measures**

Measure	Qualification	Incentive
Technical study	Performed by professional engineer or other qualified firm	50% of technical study cost. Another 50% of technical study cost may be rebated if customer proceeds with the project. Capped at \$100,000 total incentive per calendar year.
Equipment, project or process improvement Incentive	1.0 benefit-to-cost ratio	\$0.10/kWh saved (first year savings) based on technical study results, up to \$500,000 per customer site per year or \$2 MM per parent company per year for customers with multiple sites. Caps are per calendar year. Incentive cannot exceed 50% of the incremental cost.
<del>Peak demand incentive</del>	<del>≥ 5% facility demand reduction during summer peak period</del>	<del>20% bonus, within the cost caps described above.</del>

The per customer site cap is defined as one building with one or more meters. Multiple sites and parent company cap will apply to a campus setting or multiple buildings (on the same property or in different locations) with a common owner.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility

rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. PPL Electric will perform periodic (at least annual) reviews of its programs, and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the C&I Custom Incentive Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 65. Program Schedule and Milestones**

Schedule	Milestones
08/01/2009	Develop work scope, evaluation criteria, and performance protocols.
08/14/2009	Issue RFP for Conservation Service Provider.
10/09/2009	CSP under contract.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
03/01/2010-04/01/2010	Train internal staff and trade allies.
03/01/2010-ongoing	Outreach to professional engineering firms, equipment dealers, trade allies, and other local market actors.
04/01/2010	Develop tracking and allocation procedures.
02/01/2010	Determine customer contractor qualification requirements.
03/01/2010	Finalize marketing approach details and customer outreach materials.
04/01/2010	Determine data requirements for program evaluation.
04/01/2010	Launch program. <sup>69</sup>

#### Evaluation, Measurement, and Verification (EM&V)

PPL Electric's Evaluation Plan and Site Specific M&V Plans describe the EM&V requirements for this program and specific projects. The measurement and verification analysis for custom measures will be based on regression-based statistical billing analysis using a Statistically Adjusted Engineering (SAE) specification. The advantage of this specification is it will provide estimates of actual savings realization rates for groups of measures affecting the end uses targeted by the program.

<sup>69</sup> Assumes Commission approval of Plan by 11/30/2009.



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~~Energy simulation modeling may be used in more complex projects involving multiple measures with interactive effects. The simulation modeling will use the Department of Energy's DOE2, eQuest, or an ASHRAE Standard 140 compliant tool. The models will be informed with directly observed characteristics for local climate and possibly selective metering of certain equipment. Final determination of the impact evaluation methodology will occur after publication of the statewide EM&V protocols.~~

~~Monitoring of certain equipment in existing buildings may be necessary to calibrate the energy simulation models. In such cases, end uses would be monitored for the entire cooling and/or heating season, although a period of at least three weeks during cooling or heating seasons would be sufficient under the International Performance Measurement and Verification Protocols (IPMVP) Option B. The impacts estimated under Option B will be weather-normalized to long-term average weather data. End-use data will be applied to energy simulation, consistent with the IPMVP Option D for use in the demand and energy impact calculations.~~

#### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff and key account managers. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow~~[Summary of administrative requirements:](#)

- ~~The Customer Programs Specialist~~[PPL Electric's staff](#) ~~will~~ [oversees](#) all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- ~~Administrative CSP~~[The C&I CSP](#) ~~will~~ [handles](#) customer calls, ~~direct customers to the technical CSP for~~ support, and process[es](#) rebates.
- Trade Allies will engage manufacturers and engineers.
- ~~Quality Assurance CSP will oversee quality assurance.~~
- EM&V CSP ~~will~~ [conducts](#) evaluation, measurement, and verification activities.

#### Estimated Participation

~~Participation levels were estimated by examining the distribution of sales to commercial customers and the experience of similar, successful programs. Then, participation levels were developed that would contribute to overall portfolio savings goals. The overall budget is driven by the goal of attaining the cumulative 2013 targeted savings goals and satisfying the TRC test. While measures and improvements installed through this program may vary, the following table outlines estimated participation for some of the most common anticipated measures.~~[Estimated participation levels are shown for general guidance only.](#)

**Table 66. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Windows	2	7	14	21	44
Controls	9	35	62	76	182
Lighting	9	35	62	76	182
Energy Analysis	14	55	97	124	290
Heat Recovery	1	7	7	14	29
Refrigeration	1	7	7	14	29
Data Center – Cooling	3	14	21	28	66
Data Center – Lighting	3	14	21	28	66
Data Center – Plug Load	3	14	21	28	66
Industrial Process – Other Electric	1	7	7	14	29
Custom Motors	1	7	7	14	29
Industrial Compressed Air	1	7	7	14	29
Agriculture (Dairy Farms)	1	3	7	7	18
Permanent Operational Changes (Cooling DX)	9	35	62	76	182
Permanent Operational Changes (Cooling Chillers)	9	35	62	76	182
Permanent Operational Changes (Heat Pump)	9	35	62	76	182
Permanent Operational Changes (Heating)	9	35	62	76	182
<b>Total</b>	<b>85</b>	<b>352</b>	<b>588</b>	<b>762</b>	<b>1787</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Estimated # of projects</u>	<u>1</u>	<u>24</u>	<u>50</u>	<u>25</u>	<u>100</u>

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 98,748 ~~12,160~~ MWh/hr and peak reductions of approximately 4,039 kW. The annual budget allocation, cumulative MWh/hr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential~~ small C&I customer sector are shown in ~~Table 67~~ Table 67. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 67. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	39	1,396	7,150	3,575	12,160
Capacity Savings (MW)	0.0	1.0	3.0	1.5	4.0
Total Resource Cost	\$116,756	\$460,415	\$1,178,891	\$599,673	\$2,355,735
Direct Participant Costs	\$15,913	\$322,085	\$185,917	\$92,959	\$616,875
Direct Utility Costs	\$100,843	\$138,330	\$992,973	\$506,714	\$1,738,861
Customer Incentives	\$1,805	\$103,155	\$700,000	\$350,000	\$1,154,960
EDC Labor	\$99,038	\$11,265	\$6,973	\$13,714	\$130,990
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$23,910	\$286,000	\$143,000	\$452,910
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$12,899,151				
NPV Costs	\$2,029,815				
Net Benefits (NPV)	\$10,869,336				
<b>Benefit-Cost Ratio</b>	<b>6.35</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	3,933	22,154	27,532	45,129	98,748
Capacity Savings (MW)	1	4	6	9	19
Total Resource Cost	\$1,606,165	\$6,904,081	\$10,178,424	\$14,601,764	\$33,290,433
Direct Participant Costs	\$794,859	\$3,905,965	\$5,800,155	\$8,403,360	\$18,904,338
Direct Utility Costs	\$811,306	\$2,998,116	\$4,378,268	\$6,198,404	\$14,386,095
Customer Incentives	\$564,906	\$2,746,916	\$4,122,168	\$5,937,504	\$13,371,495
EDC Labor	\$105,000	\$107,000	\$109,000	\$111,000	\$432,000
EDC Materials and Supplies	\$1,400	\$1,400	\$1,500	\$1,500	\$5,800
CSP Labor	\$70,000	\$71,400	\$72,800	\$74,200	\$288,400
CSP Materials and Supplies	\$70,000	\$71,400	\$72,800	\$74,200	\$288,400
<b>TRC Test</b>					
NPV Benefits	\$86,491,140				
NPV Costs	\$28,316,541				
Net Benefits (NPV)	\$58,174,598				
<b>Benefit-Cost Ratio</b>	<b>3.05</b>				

Note: Table 82 was updated to reflect the change in classification of common and direct costs.

## Other Information

PPL Electric's Plan would allow retroactive eligibility for customers who install or commit to install qualifying equipment under this program between July 1, 2009, and Commission approval of the Plan.

## HVAC Tune-up Program (Small Commercial and Industrial Sector)

2010-2013

### Objectives

The objectives of the Small Commercial HVAC Tune-up Program include:

- Optimize HVAC unit performance.
- Assist commercial customers in lowering their energy bills and operating costs.
- Obtain participation by ~~no less than~~ approximately 5,770 1,700 customers through 2013, with a total reduction of approximately 22,180 2,046 MWh/yr and ~~115~~ 531 M<sup>70</sup>W.

### Target Market

PPL Electric's HVAC Tune-up Program targets existing buildings with packaged commercial HVAC systems. The program will be available for both small commercial and government/non-profit sector customers. Tenants in rental properties may participate with approval from the property owner.

The Plan divides the program into small C&I and government/non-profit market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector.<sup>71</sup> However, PPL Electric ~~expects to use~~ a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across the C&I market sectors. Table 68 ~~Table 68~~ outlines eligibility targets for the small commercial and industrial sector.

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**Table 68. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
<b>Building Type</b>	Small commercial
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

The HVAC Tune-Up Program is designed to increase the operating performance of electric HVAC systems in commercial buildings. The program offers financial incentives to HVAC contractors to diagnose performance inefficiencies and make energy-saving retrofits. The efficiency opportunities can be broken into three main areas:

- Refrigeration components

<sup>70</sup> Combined total for all target customer segments.

<sup>71</sup> Eligible equipment measures are not applicable in the large commercial, residential, or low-income sectors.

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- Air distribution system
- Controls

### Implementation Strategy

~~PPL Electric will competitively select an~~The HVAC Tune-up CSP ~~to manage~~s and administers the program, including contractor recruitment, contractor training, providing ongoing contractor field support, marketing, processing applications and rebates, tracking program data, and reporting to PPL Electric. HVAC Contractors will provide technical assessments and install energy-efficiency improvements on customers' HVAC systems. PPL Electric ~~energy-efficiency~~ staff ~~will provide~~s overall strategic direction and program management for the program and, supported by other CSPs, marketing, rebates and trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Trained HVAC contractors ~~will use~~ diagnostic tools to assess HVAC unit performance, tune-up systems and install energy-efficiency equipment to improve performance.
- ~~Contractors will complete necessary program paperwork to apply for an incentive. The CSP will record all applications. The program will process and issue an incentive check to the contractor for qualifying applications.~~HVAC contractors provide completed job details to the HVAC Tune-up CSP.
- The HVAC Tune-up CSP uploads job details to PPL Electric's tracking system and to the Administrative CSP.
- The Administrative CSP processes the rebates.
- The HVAC Tune-up CSP ~~will provide~~s ~~monthly~~ reports to PPL Electric that outline program accomplishments, challenges, contractor and customer feedback, projected saving forecasts, and other program information. ~~The CSP will also document problems and urgent issues as they arise.~~

~~A quality assurance plan will be developed to ensure contractors are performing program services properly, and the program is realizing energy savings. No changes in the implementation strategy are expected in different program years.~~

### Risk and Risk Management Strategy

Table 69~~Table 69~~ presents key market risks to an effective Small Commercial HVAC Program, as well as the strategies the program will use to address each risk.

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**Table 69. Risks and Risk Management Strategies**

Market Risks	Management Strategies
HVAC contractors have limited time and/or resources to implement program components.	Provide financial incentives to contractors to compensate their time and encourage participation.
Limited number of qualified contractors.	Contractor marketing and training through Web seminars and outreach. Robust marketing plan encouraging contractor participation.

Market Risks	Management Strategies
Customer/contractor may have uncertainties regarding savings and payback.	Develop case studies that outline customer savings and other benefits. Specific marketing and information to customers to ensure awareness of PPL Electric incentives.
Customers think they receive the service as part of an existing maintenance agreement.	
Landlord and tenant issues.	
Economic environment may limit customers' ability to upgrade equipment and technology.	
Customer not aware of incentives to contractors.	

### Anticipated Costs to Participating Customers

In general, measure rebates are designed to cover approximately 25 to 50% of the customer incremental cost. ~~Estimated customer post-incentive costs by measure follow:~~

- ~~•Diagnostic testing: \$25~~
- ~~•Economizer testing: \$15~~
- ~~•Refrigerant cycle performance (single compressor): \$125~~
- ~~•Refrigerant cycle performance (multiple compressors): \$175~~
- ~~•Thermostat Modification without lockout: \$25; with lockout \$75~~
- ~~•Thermostat Replacement without lockout: \$100; with lockout \$150~~
- ~~•Economizer Adjustment: \$100~~
- ~~•Economizer Control Package: \$100~~

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### Ramp-up Strategy

~~PPL Electric will utilize an HVAC Tune-up CSP to deliver this program. The delivery process will require the CSP work with participating contractors to help them identify opportunities and sell program services to their existing maintenance and new customers. In its contractual agreements with the HVAC Tune-up CSP, PPL Electric expects to outline specific, aggressive, but achievable participation goals that ramp up by program year, with penalties for non-compliance. The HVAC Tune-up CSP will be expected to develop and execute a marketing and delivery plan that achieves the goals.~~

### Marketing Strategy

This program relies on customer marketing, CSP, and trade ally promotion. The ~~selected~~ HVAC Tune-up CSP ~~will work~~ with PPL Electric's Advertising CSP and its internal Marketing and Customer Strategy division to create a marketing strategy for this program, which may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).

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- Advertise using newspaper, radio, and other mass media.
- Present program information at seminars, conferences, and community events.
- Coordinate advertising opportunities with trade allies.
- Direct mail and other marketing targeting HVAC contractors.
- Cross-promotion from other PPL Electric programs.
- Outreach to facility managers and building or process engineers, building owners, and managers associations.
- Specific outreach to individual tenants as well as building owners and property managers in leased commercial buildings to encourage participation in the program.
- Targeted marketing to specific sectors identified as having a high level of unrealized energy-efficiency potential, such as office buildings and data centers.

#### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate for specific diagnostic tests and installation of qualifying equipment and technologies associated with commercial packaged HVAC systems. Rebates ~~will be~~are a fixed amount per measure, paid ~~by check~~ to HVAC contractors (or to customers who self-perform the services) who complete an application and submit documentation to PPL Electric's HVAC Tune-up CSP.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. Table 70 shows PPL Electric's proposed incentive levels.

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**Table 70. Eligible Equipment Measures**

Measure	Incentive
diagnostic testing	\$25
economizer testing	\$ 15
cycle performance (single compressor)	\$125
cycle performance (multiple compressors)	\$175
Thermostat <del>Modification w/o lockout</del> <u>adjustment</u>	\$25
Thermostat <del>Modification with</del> lockout	<del>\$75</del> <u>50</u>
Thermostat Replacement <del>w/o lockout</del>	\$100
<del>Thermostat Replacement with lockout</del>	<del>\$150</del>
Economizer Adjustment	\$ 100

<del>Economizer Control Package</del>	<del>\$100</del>
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~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.~~

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Small Commercial HVAC Tune-up Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 71. Program Schedule and Milestones**

Schedule	Milestones
08/15/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for program Conservation Service Provider(s).
09/15/2009	Issue RFP for program Conservation Service Provider
11/01/2009	Execute program implementation contract(s) with selected program Conservation Service Providers.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
01/01/2010	Provide outreach to trade allies and other interested stakeholders.
01/01/2010	Train internal staff and trade allies.
01/15/2010	Develop customer education materials.
01/15/2010	Develop program forms, tracking database, and incentive process.
02/01/2010	Develop tracking and allocation procedures.
02/01/2010	Establish communication and reporting schedule.
01/15/2010	Finalize marketing approach details.
02/01/2010	Determine data requirements for program evaluation.
<del>02/04/04-15/20</del> 10	Launch program. <sup>72</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~PPL Electric's Evaluation Plan describes the EM&V requirements for this program. The impact analysis will provide estimates of energy and peak demand savings attributable to the program. The analysis will begin with an initial review of program records on a random sample of participating buildings to verify accuracy and overall plausibility of contractor reported data. The review process will examine unit-specific data, such as~~

<sup>72</sup> Assumes Commission approval of Plan by 11/30/2009.



~~equipment capacity, airflow, temperature and pressure measurements, and other data contractors capture during each site visit.~~

~~A review of ex ante energy savings will be performed to understand the underlying assumptions for deemed values. If the CSP uses specialized software to derive the saving estimates, the review will also include a extensive analysis of the software's engineering algorithms. The as-found equipment parameters also will be used to try and recalculate saving values using the software or engineering algorithms.~~

~~A billing analysis will be conducted for participants and nonparticipants beginning 12 months after program inception (to ensure adequate baseline data are available). Information for the paired billing data groups (nonparticipants with similar seasonal energy consumption patterns as participants) will then be merged with data from local weather stations, then analyzed to determine energy savings attributable to the tune-up.~~

~~The evaluation will also measure actual tune-up parameters in the field to assess the reliability of contractor reported data. Site visits will be conducted to verify the tune-up by measuring refrigerant charge and airflow. Other site detail, including square footage, air conditioning size and model, and observed thermostat set points will be captured to help program managers gain insights into sizing and usage practices.~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow: [Summary of administrative requirements](#):~~

- ~~The Customer Programs Specialist~~[PPL Electric's staff](#) ~~will~~ oversees all program operations and program CSP, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- ~~Advertising CSP will provide external advertising, including television and print ads.~~
- ~~The~~ Administrative CSP and/or the HVAC Tune-up CSP ~~will~~ handle customer calls, [pay rebates](#), and direct customers to the program.
- The HVAC Tune-up CSP ~~will~~ administers the program, recruits [customers and HVAC contractors](#), ~~liaison with and~~ trains [HVAC](#) contractors [about program requirements](#), tracks project and customer data, reviews and ~~verify~~ [verifies](#) program applications, [calculates rebates and transmits them to the Administrative CSP, uploads program information to PPL Electric's tracking system, and provides](#) ~~and process rebates and~~ report to PPL Electric.
- Trade Allies (HVAC installers) perform tune-up work.
- [The Administrative CSP processes rebates.](#)
- ~~Quality Assurance CSP will oversee quality assurance.~~
- EM&V CSP ~~will~~ conducts [evaluation](#), measurement, and verification activities.

### Estimated Participation

Participation levels were estimated by examining the distribution of sales to commercial customers, trends in similar successful programs, and engineering estimates of measure penetration. Then, participation levels were developed that would contribute to overall portfolio savings goals. The resulting number of installations for each measure is shown below. Estimated participation levels are shown for general guidance only.

**Table 72. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Diagnostic testing	242	1,218	1,711	2,195	5,366
Cycle performance (Single Compressor)	56	298	418	539	1,311
Cycle performance (Multiple Compressors)	-	19	19	28	66
Thermostat Modification	130	670	930	1,200	2,930
Economizer Adjustment	46	214	298	391	949
Thermostat Replacement	65	344	484	623	1,516
Economizer Control Package	37	195	270	353	855
<b>Total</b>	<b>576</b>	<b>2,958</b>	<b>4,130</b>	<b>5,329</b>	<b>12,993</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Estimated # of jobs</u>	<u>1</u>	<u>686</u>	<u>18</u>	<u>20</u>	<u>725</u>

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 20,626 MWh/yr and peak load reductions of approximately 521 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential-small C&I customer sector are shown in Table 73. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 73. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	464	29	32	525
Capacity Savings (MW)	-	0.5	0.0	0.0	0.5
Total Resource Cost	\$37,325	\$112,090	\$5,535	\$6,203	\$161,154
Direct Participant Costs	\$0	\$1	\$0	\$0	\$1
Direct Utility Costs	\$37,325	\$112,090	\$5,535	\$6,203	\$161,153
Customer Incentives	\$0	\$30,050	\$1,872	\$2,080	\$34,002
EDC Labor	\$37,153	\$42,047	\$1,683	\$1,692	\$82,575
EDC Materials and Supplies	\$166	\$3,024	\$0	\$231	\$3,420
CSP Labor	\$7	\$21,608	\$1,980	\$2,200	\$25,795
Other (Marketing and Trade Ally)	\$0	\$15,360	\$0	\$0	\$15,360
<b>TRC Test</b>					
NPV Benefits	\$77,663				
NPV Costs	\$150,782				
Net Benefits (NPV)	-\$73,119				
<b>Benefit-Cost Ratio</b>	<b>0.52</b>				

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	914	4,689	6,563	8,460	20,626
Capacity Savings (MW)	0.5	2	3	4	11
Total Resource Cost	\$156,800	\$494,203	\$670,543	\$860,744	\$2,182,290
Direct Participant Costs	\$38,600	\$206,089	\$293,265	\$387,177	\$925,131
Direct Utility Costs	\$118,200	\$288,114	\$377,279	\$473,567	\$1,257,159
Customer Incentives	\$39,600	\$208,514	\$296,679	\$391,967	\$936,759
EDC Labor	\$42,000	\$43,000	\$44,000	\$45,000	\$174,000
EDC Materials and Supplies	\$600	\$600	\$600	\$600	\$2,400
CSP Labor	\$18,000	\$18,000	\$18,000	\$18,000	\$72,000
CSP Materials and Supplies	\$18,000	\$18,000	\$18,000	\$18,000	\$72,000
<b>TRC Test</b>					
NPV Benefits	\$10,382,269				
NPV Costs	\$1,872,565				
Net Benefits (NPV)	\$8,509,705				
<b>Benefit-Cost Ratio</b>	<b>5.54</b>				

**Note: Table 88 was updated to reflect the change in classification of common and direct costs.**

## Direct Load Control Program (Small Commercial and Industrial Sector)

2010-2013

### Objectives

Please see Section 3.2, under Direct Load Control Program.

### Target Market

~~Please see Section 3.2, under Direct Load Control Program. As discussed in Section 3.2, this program will be available to all customer sectors except the large commercial and industrial sector.<sup>73</sup> The program targets any customer with working central air conditioner or heat pump. Water heaters, window air conditioners, and pool pumps are under consideration. Customer equipment must be in good working order and compatible with the PPL Electric control technology.~~

~~The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across all market sectors. Customer eligibility parameters for the small commercial sector are outlined below.~~

**Table 74. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, TOU after 1/1/10
<b>Building Type</b>	Small commercial & industrial structures with appropriate control equipment
<b>Building Vintage</b>	Existing buildings, new construction
<b>Building ownership</b>	Owner or tenant with owner's approval

### Program Description

Please see Section 3.2, under Direct Load Control Program.

### Implementation Strategy

Please see Section 3.2, under Direct Load Control Program.

### Risk and Risk Management Strategy

Please see Section 3.2, under Direct Load Control Program.

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<sup>73</sup> The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector, but rather assumes that few large C&I facilities include eligible controllable equipment.

### Anticipated Costs to Participating Customers

Please see Section 3.2, under Direct Load Control Program.

### Ramp-up Strategy

Please see Section 3.2, under Direct Load Control Program.

### Marketing Strategy

~~Please see Section 3.2, under Direct Load Control Program. In addition to the marketing strategy and tactics discussed Section 3.2, under Direct Load Control Program, PPL Electric may use the following marketing strategies to promote this program to its small commercial and industrial customers.~~

- ~~• Targeted marketing to business trade associations, building owner/manager associations, economic development organizations, customer advocacy groups, and trade allies such as architects and engineers, real estate developers, energy services companies, HVAC companies, and other equipment dealers and installers.~~
- ~~• Specific outreach to reach individual tenants as well as building owners and property managers in leased commercial buildings to encourage participation in the program.~~
- ~~• Outreach and education to facility managers and engineers.~~

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### Eligible Measures and Incentive Strategy

Please see Section 3.2, under Direct Load Control Program.

### Implementation Schedule and Milestones

Please see Section 3.2, under Direct Load Control Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Direct Load Control Program.

### Administrative Requirements

Please see Section 3.2, under Direct Load Control Program.

### Estimated Participation

Estimated small commercial and industrial sector participation for this program is shown below for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.

**Table 75. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	—	3,020	3,030	6,040	12,090

	Year 1	Year 2	Year 3	Year 4	Total
Participants	0	0	5,027	5,027	10,054

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand savings of approximately 93.5 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential-small C&I~~ customer sector are shown in Table 76~~Table 76~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 76. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	3.5	3.5
Total Resource Cost	\$6,370	\$91,507	\$257,109	\$830,913	\$1,185,899
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$6,370	\$91,507	\$257,109	\$830,913	\$1,185,899
Customer Incentives	\$0	\$0	\$0	\$160,864	\$160,864
EDC Labor	\$5,499	\$8,185	\$6,930	\$6,930	\$27,545
EDC Materials and Supplies	\$0	\$130	\$198	\$198	\$526
CSP Labor	\$871	\$83,193	\$249,981	\$662,920	\$996,964
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$122,016				
NPV Costs	\$971,134				
Net Benefits (NPV)	-\$849,118				
<b>Benefit-Cost Ratio</b>	<b>0.13</b>				

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Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	-	4	9	9
Capacity Savings (kW)	-	-	4,352	8,705	13,057
Total Resource Cost	\$136,200	\$602,936	\$719,640	\$1,407,080	\$2,865,856
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$136,200	\$602,936	\$719,640	\$1,407,080	\$2,865,856
Customer Compensation	\$0	\$96,736	\$193,440	\$386,880	\$677,056
EDC Labor	\$16,000	\$17,000	\$17,000	\$17,000	\$67,000
EDC Materials and Supplies	\$200	\$200	\$200	\$200	\$800
CSP Labor	\$120,000	\$16,000	\$16,000	\$16,000	\$168,000
CSP Materials and Supplies	\$0	\$473,000	\$493,000	\$987,000	\$1,953,000
<b>TRC Test</b>					
NPV Benefits	\$488,413				
NPV Costs	\$2,428,435				
Net Benefits (NPV)	-\$1,940,021				
<b>Benefit-Cost Ratio</b>	<b>0.20</b>				

Note: ~~Table 91 was updated to reflect the change in classification of common and direct costs.~~ Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4- [\(summer 2012\)](#). ~~Load reductions will occur only in the Summer of 2012.~~

## ~~Time of Use Rates~~ ~~2010-2013~~ ~~(Small Commercial and Industrial Sector)~~

### ~~Objectives~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Target Market~~

~~Please see Section 3.2, under Time of Use Rates. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector<sup>74</sup>. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across all market sectors. Customer eligibility parameters for the small commercial sector are outlined below.~~

~~Table 78. Customer Eligibility Parameters~~

<del>Customers Type</del>	<del>Commercial and industrial, small</del>
<del>Rate Class</del>	<del>GS1, GS3</del>
<del>Building Type</del>	<del>Small commercial, small industrial</del>
<del>Building Vintage</del>	<del>All</del>
<del>Building ownership</del>	<del>Owner or individually metered tenant</del>

### ~~Program Description~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Implementation Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Risk and Risk Management Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Anticipated Costs to Participating Customers~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Ramp-up Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

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<sup>74</sup> The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector since most customers in this sector have more than 500 kW of demand. Large commercial and industrial customers, however, may participate.



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Small Commercial and Industrial Sector Programs

~~Marketing Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Eligible Measures and Incentive Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Implementation Schedule and Milestones~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Evaluation, Measurement, and Verification (EM&V)~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Administrative Requirements~~

~~Please see Section 3.2, under Time of Use Rates.~~

~~Estimated Participation~~

~~Estimated small commercial and industrial sector participation levels for this program is shown below.~~

~~Table 78. Projected Participation~~

	Year 1	Year 2	Year 3	Year 4	Total
Participants	—	4,070	4,070	8,140	16,280

~~Program Budget, Costs, and Cost-Effectiveness~~

~~Over the four-year planning horizon, the program is expected to achieve electricity demand savings of 7 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 80. Key assumptions used in calculating measure level savings are shown in Appendix E.~~

Section 3: Program Descriptions  
Small Commercial and Industrial Sector Programs

**Table 80. Summary of Projected Benefits, Costs, and Cost Effectiveness**

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Capacity Savings (MW)	-	-	4	9	9
Total Resource Cost	\$136,200	\$602,936	\$719,640	\$1,407,080	\$2,865,856
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$136,200	\$602,936	\$719,640	\$1,407,080	\$2,865,856
Customer Compensation	\$0	\$96,736	\$193,440	\$386,880	\$677,056
EDC Labor	\$16,000	\$17,000	\$17,000	\$17,000	\$67,000
<del>EDC Materials and Supplies</del>	<del>\$200</del>	<del>\$200</del>	<del>\$200</del>	<del>\$200</del>	<del>\$800</del>
CSP Labor	\$120,000	\$16,000	\$16,000	\$16,000	\$168,000
CSP Materials and Supplies	\$0	\$473,000	\$493,000	\$987,000	\$1,953,000
<b>TRC Test</b>					
NPV Benefits	\$488,413				
NPV Costs	\$2,428,435				
Net Benefits (NPV)	-\$1,940,021				
<b>Benefit-Cost Ratio</b>	<b>0.20</b>				

### 3.4. Large Commercial and Industrial Sector Programs

#### Efficient Equipment Incentive Program (Large Commercial and Industrial Sector)

2010-2013

##### Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Target Market

~~Please see Section 3.2, under Efficient Equipment Incentive Program. As discussed in Section 3.2, PPL Electric's Efficient Equipment Incentive Program will be available to all customer sectors. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector<sup>75</sup>. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across all market sectors.~~

~~For the large commercial and industrial sector, the program will be delivered to customers and landlords of customers in large commercial and industrial buildings, and may be used for both existing and new construction. Tenants in rental properties may participate with approval from the property owner. To be as cost effective as possible, the program will target customers seeking to replace older, inefficient equipment or building a new facility. The installed measure must save electricity delivered directly by PPL Electric. Table 77 outlines eligibility targets for the large commercial and industrial sector.~~

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**Table 77. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, large
<b>Rate Class</b>	LP4, LP5, LP6, ISP, IST, LPEP, ISA, PR1, PR2, TOU after 1/1/10
<b>Building Type</b>	Large commercial, large industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### Program Description

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Implementation Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program. This program is expected to be fully subscribed for the Large C&I customer sector in 2011 except for

<sup>75</sup> ~~The Plan does not attribute budget or energy savings for this program to the low-income sector, but rather assumes that low-income sector customers will take advantage of higher incentives available through the Low-income WRAP program. Low-income customers, however, may participate.~~

[institutional customers \(schools, non-profits, and government\) that are in large C&I rate classes\).](#) Please see PPL Electric's E-Power website for current status.

#### Risk and Risk Management Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Anticipated Costs to Participating Customers

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### ~~Ramp-up Strategy~~

~~Please see Section 3.2, under Efficient Equipment Incentive Program.~~

#### Marketing Strategy

Please see Sections ~~3.2 and~~ 3.3, under Efficient Equipment Incentive Program.

#### Eligible Measures and Incentive Strategy

Please see Section 3.3, under Efficient Equipment Incentive Program for PPL Electric's proposed list of eligible equipment, incentive levels and efficiency qualifications deemed appropriate for the commercial [and industrial](#) sector. Additional equipment measures included in the program may be found in Sections 3.2 and 3.5, under Efficient Equipment Incentive Program.

#### Implementation Schedule and Milestones

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.~~3~~<sup>2</sup>, under Efficient Equipment Incentive Program.

#### Administrative Requirements

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Estimated Participation

Estimated large commercial and industrial sector participation levels are shown below [for general guidance only.](#)

Section 3: Program Descriptions  
Large Commercial and Industrial Sector Programs

**Table 78. Projected Electric Measure Installations**

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower Two-Speed Fan Motor	-	4	4	4	3
Pipe Insulation	1	2	3	3	9
(DX) Packaged Air Conditioner System	2	42	46	21	51
Thermostat—Programmable	42	64	89	444	279
Heat Pump—Air Source	-	4	3	4	8
Meters	4	24	29	37	94
Anti-Sweat Heater Controls	2	40	44	48	44
Commercial Reach-In Refrigerator	4	3	3	4	14
Compressor VSD Retrofit	-	4	4	4	3
Display Cases	3	46	23	30	72
Floating Head Pressure Control	-	4	4	4	3
High-Efficiency Case Fans	30	149	209	268	656
High-Efficiency Compressor	30	149	209	268	656
High-Efficiency Evaporator Fans—Walk-in	30	149	209	268	656
Ice Maker	-	4	4	4	3
Faucet Aerators	73	366	513	659	1,611
CFL	205	1,026	1,437	1,848	4,516
CFL Pin-Base Fixtures	54	257	359	462	1,129
Daylighting Controls	3	44	48	24	59
LED Exit Lighting	26	434	483	237	577
Occupancy Sensors	3	44	48	24	59
Time Clocks and Timers	44	53	75	96	235
High-Pressure Sodium	-	4	4	2	4
Pulse-Start Metal Halide—Exterior	29	146	205	263	643
Energy Star Office Equipment	34	477	245	345	771
Delamping and Install Reflectors	4	3	5	6	15
Fluorescent High Bay Fixtures Package	96	479	674	862	2,108
T8 Lighting Package	11,825	59,123	82,772	106,424	260,144
ASDA/VSD	120	470	830	1,070	2,490
Ceiling Insulation	4	4	3	3	8
Wall Insulation	4	4	3	3	8
Case Fans with ECM Motors	20	99	439	479	437
<b>Total</b>	<b>12,744</b>	<b>63,593</b>	<b>89,200</b>	<b>114,685</b>	<b>280,222</b>

Section 3: Program Descriptions  
Large Commercial and Industrial Sector Programs

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>HVAC</u>	<u>-</u>	<u>26</u>	<u>-</u>	<u>-</u>	<u>26</u>
<u>Appliances</u>	<u>-</u>	<u>43</u>	<u>-</u>	<u>-</u>	<u>43</u>
<u>Lighting Projects</u>	<u>-</u>	<u>156</u>	<u>21</u>	<u>-</u>	<u>177</u>
<u>Motors</u>	<u>-</u>	<u>3</u>	<u>-</u>	<u>-</u>	<u>3</u>
<u>Energy Star Office Equipment</u>	<u>-</u>	<u>494</u>	<u>-</u>	<u>-</u>	<u>494</u>
<u>Commercial Reach-In Refrigerator</u>	<u>-</u>	<u>4</u>	<u>-</u>	<u>-</u>	<u>4</u>
<u>Total</u>	<u>-</u>	<u>726</u>	<u>21</u>	<u>-</u>	<u>747</u>

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 408,887,89.638 MWh/yr and peak load reductions of approximately 9.4 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential-large C&I customer sector are shown in Table 79. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 79. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	-	56,775	32,863	-	89,638
Capacity Savings (MW)	-	8.0	1.0	-	9.0
Total Resource Cost	\$0	\$6,982,184	\$1,403,372	\$0	\$8,385,556
Direct Participant Costs	\$0	\$3,311,255	\$166,945	\$0	\$3,478,201
Direct Utility Costs	\$0	\$3,670,929	\$1,236,427	\$0	\$4,907,355
Customer Incentives	\$0	\$3,619,646	\$753,013	\$0	\$4,372,659
EDC Labor	\$0	\$41,638	\$27,110	\$0	\$68,748
EDC Materials and Supplies	\$0	\$1,306	\$34,183	\$0	\$35,489
CSP Labor	\$0	\$0	\$365,147	\$0	\$365,147
Other (Marketing and Trade Ally)	\$0	\$8,339	\$56,972	\$0	\$65,311
<b>TRC Test</b>					
NPV Benefits	\$70,936,407				
NPV Costs	\$7,668,151				
Net Benefits (NPV)	\$63,268,257				
<b>Benefit-Cost Ratio</b>	<b>9.25</b>				

Section 3: Program Descriptions  
Large Commercial and Industrial Sector Programs

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	5,135	22,126	35,681	45,945	108,887
Capacity Savings (MW)	1	4	6	8	18
Total Resource Cost	\$1,513,053	\$6,530,804	\$10,618,292	\$13,968,375	\$32,630,525
Direct Participant Costs	\$823,965	\$3,697,806	\$5,931,072	\$7,806,900	\$18,259,743
Direct Utility Costs	\$689,088	\$2,832,998	\$4,687,221	\$6,161,475	\$14,370,782
Customer Incentives	\$647,488	\$2,791,398	\$4,644,621	\$6,118,875	\$14,202,382
EDC Labor	\$12,000	\$12,000	\$13,000	\$13,000	\$50,000
EDC Materials and Supplies	\$200	\$200	\$200	\$200	\$800
CSP Labor	\$14,700	\$14,700	\$14,700	\$14,700	\$58,800
CSP Materials and Supplies	\$14,700	\$14,700	\$14,700	\$14,700	\$58,800
<b>TRC Test</b>					
NPV Benefits	\$83,393,087				
NPV Costs	\$27,752,115				
Net Benefits (NPV)	\$55,640,972				
<b>Benefit-Cost Ratio</b>	<b>3.00</b>				

~~Note: Table 97 was updated to reflect the change in classification of common and direct costs.~~

### Other information

PPL Electric's Plan would allow retroactive eligibility for customers who install or commit to install qualifying equipment under this program between July 1, 2009, and Commission approval of the Plan.

## Commercial and Industrial Custom Incentive Program      2010-2013 (Large Commercial and Industrial Sector)

### Objectives

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Target Market

~~As discussed in Section 3.3, PPL Electric's C&I Custom Incentive Program targets all new and existing commercial and industrial facilities. The Plan divides the program into individual C&I and governmental/non-profit market sectors, with target customers, participation, budgets, savings and other details broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across the C&I market sectors. Table 84 outlines eligibility parameters for the large commercial and industrial sector. Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.~~

**Table 80. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial & industrial, large
<b>Rate Class</b>	LP4, LP5, LP6, LPEP, IST, ISP, ISA, PR1, PR2
<b>Building Type</b>	Large commercial, large industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.  
[This program is expected to be fully subscribed for the Large C&I customer sector in 2011 except for institutional customers \(schools, non-profits, and government\) that are in large C&I rate classes\). Please see PPL Electric's E-Power website for current status.](#)

### Risk and Risk Management Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Anticipated Costs to Participating Customers

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.



### Ramp-up Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Marketing Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Eligible Measures and Incentive Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Schedule and Milestones

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Administrative Requirements

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Estimated Participation

Estimated large commercial and industrial sector participation levels are shown below.

**Table 81. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Windows	0	4	3	4	8
Controls	2	7	12	15	36
Lighting	2	7	12	15	36
Energy Analysis	3	11	19	25	58
Heat Recovery	0	4	4	3	5
Data Center – Cooling	4	3	4	5	13
Data Center – Lighting	4	3	4	5	13
Data Center – Plug Load	4	3	4	5	13
Industrial Process – Other Electric	0	4	4	3	5
Custom Motors	0	4	4	3	5
Industrial Compressed Air	0	4	4	3	5
Agriculture (Dairy Farms)	0	4	4	4	3
Permanent Operational Changes (Cooling DX)	2	7	12	15	36

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Permanent Operational Changes (Cooling Chillers)	2	7	42	45	36
Permanent Operational Changes (Heat Pump)	2	7	42	45	36
Permanent Operational Changes (Heating)	2	7	42	45	36
<b>Total</b>	<b>18</b>	<b>69</b>	<b>112</b>	<b>150</b>	<b>349</b>

	<u>Year</u> <u>1</u>	<u>Year</u> <u>2</u>	<u>Year</u> <u>3</u>	<u>Year</u> <u>4</u>	<u>Total</u>
Estimated # of Projects	-	16	82	25	123

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 18,249 140,273 MWh/yr and peak load reductions of approximately 8.9 kW. The annual budget allocation, cumulative MWh and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential-large C&I customer sector are shown in Table 82~~Table 82~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 82. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	11,873	98,400	30,000	140,273
Capacity Savings (MW)	-	1.0	7.9	2.4	8.9
Total Resource Cost	\$0	\$5,347,221	\$27,053,498	\$8,333,844	\$40,734,563
Direct Participant Costs	\$0	\$4,047,179	\$17,527,532	\$5,343,760	\$26,918,471
Direct Utility Costs	\$0	\$1,300,042	\$9,525,967	\$2,990,084	\$13,816,093
Customer Incentives	\$0	\$1,020,827	\$8,446,000	\$2,575,000	\$12,041,827
EDC Labor	\$0	\$95,806	\$95,967	\$115,084	\$306,857
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$183,409	\$984,000	\$300,000	\$1,467,409
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$107,404,310				
NPV Costs	\$34,760,819				
Net Benefits (NPV)	\$72,643,491				
<b>Benefit-Cost Ratio</b>	<b>3.09</b>				

Section 3: Program Descriptions  
Large Commercial and Industrial Sector Programs

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	534	3,705	4,695	9,495	18,429
Capacity Savings (MW)	0.1	1	1	2	3
Total Resource Cost	\$372,311	\$1,331,173	\$1,913,178	\$3,044,239	\$6,660,900
Direct Participant Costs	\$189,307	\$752,277	\$1,086,453	\$1,756,451	\$3,784,488
Direct Utility Costs	\$183,004	\$578,896	\$826,724	\$1,287,788	\$2,876,412
Customer Incentives	\$133,704	\$529,596	\$776,424	\$1,237,488	\$2,677,212
EDC Labor	\$21,000	\$21,000	\$22,000	\$22,000	\$86,000
EDC Materials and Supplies	\$300	\$300	\$300	\$300	\$1,200
CSP Labor	\$14,000	\$14,000	\$14,000	\$14,000	\$56,000
CSP Materials and Supplies	\$14,000	\$14,000	\$14,000	\$14,000	\$56,000
<b>TRC Test</b>					
NPV Benefits	\$12,760,128				
NPV Costs	\$5,661,735				
Net Benefits (NPV)	\$7,098,394				
<b>Benefit-Cost Ratio</b>	<b>2.25</b>				

Note: Table 100 was updated to reflect the change in classification of common and direct costs.

## Load Curtailment Program (Large Commercial and Industrial Sector)

2010-2013

### Objectives

The objectives of the Load Curtailment Program include:

- Reduce peak demand by providing incentive for energy usage reduction during peak hours in summer period.
- Provide value to customers with energy management tools and cost savings.
- Obtain ~~participation by no less than 300 customers through 2013, with a peak load reduction total reduction of approximately 148-156 MW in the summer of 2012.~~<sup>76</sup>

### Target Market

PPL Electric's Load Curtailment Program targets Commercial and Industrial and governmental/non-profit customers ~~with monthly demand of at least 100 kW who are able to curtail at least 15% or 30 kW (whichever is greater) of average load during peak summer periods~~<sup>77</sup>. ~~Tenants in rental properties may participate with approval from the property owner.~~

The Plan divides the program into individual C&I and governmental/non-profit market sectors, with target customers, participation, budgets, savings and other details broken out for each sector. ~~However,~~ PPL Electric ~~expects to use~~ a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across the C&I market sectors. ~~Table 83~~ Table 83 outlines eligibility parameters for the large C&I sector.

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<sup>76</sup> Given the uncertainty associated with accurately predicting the top 100 peak load hours, PPL Electric anticipates that it will need approximately ~~480-300~~ MW of participants averaging 50 hours of interruption ~~each summer~~ to achieve the peak load reduction target. These MWs are at the retail meter level and will be grossed up to reflect transmission and distribution losses since compliance is determined at the system (generation) level.

<sup>77</sup> Due to the demand criteria, the Plan includes this program for only large commercial and industrial sector customers, however, any customer that meets the program eligibility requirements may participate and their cost will be accounted for in their applicable customer segment.

**Table 83. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, large
<b>Rate Class</b>	<u>GS3</u> , LP4, LP5, LP6, LPEP, IST, ISP, ISA, PR1, PR2
<b>Building Type</b>	Large commercial, large industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant <del>with owner approval</del>

### Program Description

The Load Curtailment Program operates during the peak summer season, from June 1 to September 30, generally during weekdays. The number of participants, the number of interruptible hours per participant, and the size of ~~the each~~ participant's load reduction will be managed by PPL Electric's ~~Demand-Response~~ Load Curtailment CSP. ~~On average, most participating customers are expected to curtail at least 300 kW.~~ Customers are notified of peak-hour events and are requested to decrease load during that period by shifting or eliminating load or using back-up or distributed generation that meets environmental regulations. Customers will be paid an incentive by the ~~Demand-Response~~ Load Curtailment CSP. Incentive levels will likely vary depending on the number of interruptions, the size of the load reductions, and other factors agreed upon between the customer and the ~~Demand-Response~~ Load Curtailment CSP. ~~The program will be designed to coordinate with PJM's demand response programs in order to ensure that there is no "double-counting" of reductions and to rely on PJM verification protocols to the extent practical.~~

### Implementation Strategy

~~A Demand-Response~~ The Load Curtailment CSP ~~specializing in load curtailment will provide~~ turnkey services to manage and administer the program and will deliver firm load reductions to PPL Electric. ~~The contract with the CSP will include incentives and/or penalties to provide reasonable assurance that the CSP will deliver firm load reductions. Such CSPs typically provide the following services:~~ The Load Curtailment CSP is responsible for services such as:

- ~~Conduct facility audits and develop customized curtailment plans with participants.~~ Markets the program, recruits participants, contracts with participants
- Customer intake and service
- Prepare and execute customer contracts.
- ~~Install~~ Implementing ~~Web-based metering~~ technologies to facilitate information exchange with PPL Electric and customer sites.
- ~~Help customers monitor and manage energy usage and control~~ Notify participants of load reduction events.
- Tracking program data and determining the peak load reductions for each participant and event
- Determining and paying incentives to participants
- Provide transactional information to PPL Electric

PPL Electric is responsible for services such as:

- Overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions.
- Responsible for load forecasting and determining when to initiate load curtailments (i.e. the 50 or more hours of highest demand). The Load Curtailment CSP can declare additional hours if desired.

~~PPL Electric plans to solicit bids from multiple demand response CSPs to provide blocks of firm curtailable load. PPL Electric plans to select the most cost-effective combination of these firm load reduction blocks and could award the Load Curtailment Program to one or more CSPs.~~

A customer can participate in PJM's demand response programs, PPL Electric's Act 129 demand response programs (Load Curtailment and Direct Load Control), or both. A customer's curtailment service provider for PJM's demand response programs can be the same or a different company than the customer's demand response CSP for PPL Electric's Act 129 demand response programs.

~~PPL Electric expects that its Act 129 demand response CSPs will bid peak load reductions from PPL Electric's Direct Load Control and Load Curtailment Programs into PJM's PRM auction (to the extent that these MWs were not previously committed from PJM's demand response programs) and share benefits with its customers.~~

PPL Electric's demand response programs must be coordinated with PJM's demand response programs and will not require customers to leave PJM's programs or their PJM curtailment service provider and use PPL Electric's ~~demand response CSP(s)~~ Load Curtailment CSP exclusively.

~~PPL Electric energy efficiency staff will provide overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions. PPL Electric may also be responsible for load forecasting and determining when to initiate load curtailments (i.e. the 100 or more hours of highest demand). Key steps in program participation include:~~

- ~~The Demand Response CSP markets the program, recruits participants and explains all program requirements and benefits to customers.~~
- ~~Customers sign a program contract, which describes their agreed to curtailment responsibilities.~~
- ~~The Demand Response CSP installs necessary hardware and software systems at the customer's site to transmit interval data.~~
- ~~The CSP provides notice of curtailment events to customers at least two hours (or the agreed upon time frame) in advance of events.~~
- ~~Curtailment events are initiated by PPL Electric and communicated to customers by the Demand Response CSP.~~
- ~~The CSP evaluates customer performance after the curtailment season and reports compliance and non-compliance to PPL Electric.~~
- ~~The CSP pays established incentives to the customer.~~
- ~~PPL Electric pays established compensation to the CSP based on verified firm interruptions.~~

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~~No changes in the implementation strategy are expected in different program years.~~

### Risk and Risk Management Strategy

~~Table 84~~ Table 84 presents key market risks to an effective Load Commercial and Industrial Curtailment program, as well as the strategies the program will use to address each risk.

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**Table 84. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Lack of program awareness among customers.	Robust marketing strategy.
Customer reluctance to change business practices or impact operations.	Provide adequate financial and non-financial benefits for participation (e.g., energy management support).
<del>AMI infrastructure compatibility.</del>	<del>Ensure CSP fully understands AMI system.</del>
Customers fail to interrupt in accordance with their commitments.	Ensure contract with CSP is for firm load reductions and includes adequate incentives and penalties.
Analytical and logistical challenges predicting the 100 hours of highest peak load each summer.	Develop robust load forecasting and analysis tools. <u>Test these tools in 2011.</u> Obtain <del>more than</del> double the target amount of firm interruptible load (MW) for 50 hours to <del>provide a reasonable cushion that the target is achieved (average over 100 hours).</del> <u>reduce load forecasting risk.</u>

### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

### ~~Ramp-up Strategy~~

~~PPL Electric will utilize a turnkey demand response CSP to deliver this program. The delivery process will require that the CSP work directly with customers to enroll them in this program and provide the tools and support required to help customers meet their curtailment commitments. PPL Electric expects to outline specific, aggressive but achievable participation goals that ramp up by program year, with penalties for non compliance. The CSP will be expected to develop and execute a marketing and delivery plan that achieves the goals.~~

### Marketing Strategy

~~Marketing for this program will be led by the selected Demand Response CSP, supported by PPL Electric's Advertising CSP and its internal Customer Strategy division. PPL Electric's marketing strategy~~The Load Curtailment CSP works with PPL Electric's staff to create a marketing strategy for this program that may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.

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- Communicate and provide access to program information on the Company Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Marketing collateral: bill inserts, brochures, Web page, etc.
- Promote program through contact with PPL Electric Key Account Managers.
- Cross-promote through other PPL Electric programs.

~~• Encouraging customers to participate in PJM demand response programs.~~

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### Eligible Measures and Incentive Strategy

Customers will receive an incentive for participating in the program. The incentive level will be determined by the CSP and could vary by customer, depending on several factors, such as the amount of kW reductions and the number of interruptible hours.

~~At this time, PPL Electric does not anticipate changes to its eligible measures or incentives during the Plan period. PPL Electric will perform periodic (at least annual) reviews of its programs and may adjust measures, rebate levels, performance criteria and/or eligibility ratings in the future as market conditions change.~~

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Load Curtailment Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 85. Program Schedule and Milestones**

Schedule	Milestones
<del>07/15/09</del> <u>Sept 2009</u>	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Demand Response CSP <del>(s)</del> <u>(load curtailment and direct load control)</u> .
<del>08/15/2009</del> <u>Nov 2009</u>	Issue RFP for Demand Response CSP(s).
<del>late 2010/early 2011</del> <u>May 2011</u>	Execute program implementation contract <del>(s)</del> with <del>selected program</del> <u>Load Curtailment</u> CSP. <u>Note: this was delayed pending finalization of demand response protocols (method to determine savings in PA)</u> .
<del>08/21/2009 – 10/09/2010</del>	<del>Secure Advertising, Quality Assurance, and EM&amp;V CSPs.</del>
<del>early 2011</del>	<del>Evaluate technology needs.</del>
<del>early 2011</del>	<del>Work with CSP to develop customer education and marketing materials.</del>
<del>mid 2011</del>	<del>Develop event management protocols and administrative needs.</del>
<del>ongoing</del>	<del>Work with CSP, other utilities, and PJM to identify conflicts and areas for coordination.</del>
<del>mid 2011</del>	<del>Develop participation forms and account management processes.</del>



mid 2011	Determine data requirements for program evaluation.
early/mid 2011 <u>Sept</u> <u>2011</u>	Launch program. <sup>78</sup>

### Evaluation, Measurement, and Verification (EM&V)

~~PPL Electric's Evaluation Plan describes the EM&V requirements for this program. As described in Section 1.6.3 of the Plan, ongoing monitoring of program activities through the planned Energy Efficiency Management Information System and impact evaluations will be the primary means of tracking and validating savings for all proposed programs in the Plan. Monitoring of program activities will allow PPL Electric to verify gross impacts of programs and to validate the program's a priori planning assumptions. Impact evaluations, on the other hand, will provide the basis for determining actual (ex post) savings and net programs impacts.~~

~~Actual impacts of the Load Curtailment Program will be verified using a statistical comparison of hourly load shapes of program participants between event and a reference (baseline) day. Designation of an appropriate baseline will be decided as part of the ME&V plan for this program and specified in the agreement with the CSP. Hourly interval meter readings will be the primary data used in this analysis.~~

### Administrative Requirements

~~A Customer Programs Specialist will oversee this program, supported by internal marketing and administrative staff. External staffing requirements will be a function of the selected CSPs' work scope, proposed program management structure and internal needs. Anticipated administrative requirements and participant roles for the program follow: Summary of administrative requirements:~~

- ~~The Customer Programs Specialist~~PPL Electric's staff will oversee all program operations and program the Load Curtailment CSPs, work with trade allies, other Pennsylvania utilities, PJM, and stakeholders, and provide annual reporting to Commission staff and the public.
- ~~PPL Electric's Key Account Managers will promote load curtailment options to commercial and industrial customers.~~
- ~~Demand Response~~The Load Curtailment CSP will manage and administer the program, including marketing, customer intake and service, customer contracts, processing applications and rebates, tracking program data, and reporting customer and transaction program information to PPL Electric.
- EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the statewide ~~EE&C Plan~~ evaluator.

### Estimated Participation

~~Participation levels were estimated by examining the distribution of sales, by peak demand requirements of commercial and industrial customers. Then participation levels~~

<sup>78</sup> Assumes Commission approval of Plan by 11/30/2009.

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~~were developed that would contribute to overall portfolio savings goals. The overall budget is driven by the goal of attaining the 2012 peak demand reduction goals and satisfying the TRC test. The resulting number of participants per year is shown below.~~ Estimated participation levels are shown for general guidance only. Since the measure life is one year, only the load curtailments in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, load curtailments in other years are zero.

**Table 86. Projected Participants**

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<b>Participants</b>	-	70	70	110	250

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<b>Participants</b>	1	1	0	180	182

**Program Budget, Costs, and Cost-Effectiveness**

Over the four-year planning horizon, the program is expected to achieve ~~electricity a peak load reduction demand savings of approximately 140-125~~ MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential-large C&I~~ customer sector are shown in ~~Table 87~~ Table 87. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 87. Summary of Projected Benefits, Costs, and Cost-effectiveness**

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	140.4	140.4
Total Resource Cost	\$74,574	\$61,028	\$4,151,810	\$5,401,498	\$9,688,910
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$74,574	\$61,028	\$4,151,810	\$5,401,498	\$9,688,910
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$61,755	\$59,930	\$62,879	\$62,879	\$247,443
EDC Materials and Supplies	\$4,920	\$1,099	\$1,797	\$1,797	\$9,612
CSP Labor	\$7,899	\$0	\$4,087,135	\$5,336,822	\$9,431,856
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$4,854,574				
NPV Costs	\$7,978,473				
Net Benefits (NPV)	-\$3,123,899				
<b>Benefit-Cost Ratio</b>	<b>0.61</b>				

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Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	12,495	12,495
Capacity Savings (MW)	-	-	-	125	125
Total Resource Cost	\$49,700	\$50,700	\$5,971,700	\$5,972,700	\$12,044,800
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$49,700	\$50,700	\$5,971,700	\$5,972,700	\$12,044,800
Customer Compensation	\$0	\$0	\$5,772,000	\$5,772,000	\$11,544,000
EDC Labor	\$49,000	\$50,000	\$51,000	\$52,000	\$202,000
EDC Materials and Supplies	\$700	\$700	\$700	\$700	\$2,800
CSP Labor	\$0	\$0	\$122,500	\$122,500	\$245,000
CSP Materials and Supplies	\$0	\$0	\$25,500	\$25,500	\$51,000
<b>TRC Test</b>					
NPV Benefits	\$5,267,915				
NPV Costs	\$9,957,737				
Net Benefits (NPV)	-\$4,689,821				
<b>Benefit-Cost Ratio</b>	<b>0.53</b>				

~~Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4. Load reductions will occur only in the Summer of 2012. Table 105 was updated to reflect the change in classification of common and direct costs.~~

### 3.5. Governmental, Schools, and Non-Profit Sector Programs ("Institutional" or "GNI")

#### Efficient Equipment Incentive Program (Government/Non-Profit Sector)

2010-2013

##### Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Target Market

~~Please see Section 3.2, under Efficient Equipment Incentive Program. As discussed in Section 3.2, PPL Electric's Efficient Equipment Incentive Program will be available to all customer sectors. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector<sup>79</sup>. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across all market sectors. Table 88~~ Table 88 outlines eligibility targets for the governmental/non-profit sector.

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**Table 88. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, <u>schools</u> , and non-profit
<b>Rate Class</b>	<u>Primarily GS1, GS3, SLAL, LP4, &amp; LP5 but could include other rate classes</u>
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### Program Description

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Implementation Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Risk and Risk Management Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

<sup>79</sup> The Plan does not attribute budget or energy savings for this program to the low-income sector, but rather assumes that low-income sector customers will take advantage of higher incentives available through the Low-income WRAP program. Low-income customers, however, may participate.

### Anticipated Costs to Participating Customers

Please see Section 3.2, under Efficient Equipment Incentive Program.

### Ramp-up Strategy

~~Please see Section 3.2, under Efficient Equipment Incentive Program.~~

### Marketing Strategy

Please see Section 3.3, under Efficient Equipment Incentive Program.

~~In addition to the marketing strategy and tactics discussed Sections 3.2 and 3.3, under Efficient Equipment Incentive Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.~~

~~9.Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county and state government buildings.~~

~~10.Targeted marketing and outreach to registered 501(c)3 organizations in PPL Electric's service territory.~~

~~11.Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~

~~12.Targeted outreach through key account managers to large institutional facilities and hospitals.~~

~~PPL Recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.~~

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### Eligible Measures and Incentive Strategy

Please see Section 3.3, under Efficient Equipment Incentive Program.

~~Section 3.3, under Efficient Equipment Incentive Program, includes a list of eligible equipment, incentive levels and efficiency qualifications appropriate for the commercial sector. Customers in the government/non-profit sector are most likely to install these measures, but may also receive rebates for residential measures listed in Section 3.2, under Efficient Equipment Incentive Program. The following measures include those that are most likely to be installed only by government non-profit sector customers.~~

### Table 89. Eligible Equipment Measures

In addition to the measures shown below, please see Section 3.3, under Efficient Equipment Incentive Program for PPL Electric's list of eligible equipment, incentive levels and efficiency qualifications deemed appropriate for the commercial and industrial sector.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility

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rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the Institutional sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

Measure	Incentive
LED Traffic Signals 8" Red <u>and Green</u>	<del>\$20</del> <u>25/unit</u>
LED Traffic Signals 12" Red <u>and Green</u>	<del>\$25</del> <u>30/unit</u>
<del>LED Traffic Signals 8" Green</del>	<del>\$35</del>
<del>LED Traffic Signals 12" Green</del>	<del>\$40</del>
<del>LED Traffic Signals 8" Yellow</del>	<del>\$40</del>
LED Traffic Signals Pedestrian 8 or 12"	<del>\$25</del> <u>30/unit</u>
<del>LED Traffic Signals Yellow Arrow</del>	<del>\$40</del>
LED Traffic Signals Green Arrow <u>8"</u>	<del>\$40</del> <u>25/unit</u>
<u>LED Traffic Signals Green Arrow 12"</u>	<u>\$30/unit</u>

#### Implementation Schedule and Milestones

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3. ~~3.2~~, under Efficient Equipment Incentive Program.

#### Administrative Requirements

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Estimated Participation

Estimated governmental/non-profit participation levels are shown below for general guidance only.

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**Table 90. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower Two-Speed Fan Motor	-	2	2	3	7
Pipe Insulation	2	5	7	8	22
(DX) Packaged Air Conditioner System	5	30	40	50	125
Thermostat - Programmable	30	155	216	278	679
Heat Pump - Air Source	-	3	7	10	20
Motors	10	50	70	90	220
Anti-Sweat Heater Controls	5	25	33	43	106
Commercial Reach-In Refrigerator	2	7	8	10	27
Compressor VSD Retrofit	-	2	3	3	8
Display Cases	8	40	57	73	178
Floating Head Pressure Control	-	2	3	3	8
High-Efficiency Case Fans	73	362	507	652	1,594
High-Efficiency Compressor	73	362	507	652	1,594
High-Efficiency Evaporator Fans - Walk-ins	73	362	507	652	1,594
Ice Maker	-	2	2	2	6
Faucet Aerators	178	889	1,245	1,601	3,913
CFL	499	2,493	3,491	4,488	10,971
CFL Pin-Base Fixtures	125	623	873	1,122	2,743
Daylighting Controls	7	33	45	58	143
LED Exit Lighting	63	319	445	575	1,402
Occupancy Sensors	7	33	45	58	143
Time Clocks and Timers	27	130	181	233	571
High-Pressure Sodium	-	3	3	5	11
Pulse Start Metal Halide - Exterior	71	356	499	640	1,566
Energy Star Office Equipment	83	429	595	765	1,872
Delamping and Install Reflectors	2	8	12	15	37
Fluorescent High-Bay Fixtures Lighting Pkg	233	1,164	1,629	2,094	5,120
T8 Lighting Package	28,723	143,615	201,061	258,507	631,906
Lighting Power Density Reduction	-	10	10	20	40

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	Year 1	Year 2	Year 3	Year 4	Total
Ceiling Insulation	2	3	7	8	20
Wall Insulation	2	3	7	8	20
Case Fans with ECM Motors	48	244	337	434	1,060
LED Traffic Signals 8" Red	-5	-8	40	20	43
LED Traffic Signals 12" Red	-5	-8	40	20	43
LED Traffic Signals 8" Green	-5	-8	40	20	43
LED Traffic Signals 12" Green	-5	-8	40	20	43
LED Traffic Signals 8" Yellow	-5	-8	40	20	43
LED Traffic Signals Pedestrian 8 or 12"	-5	-8	40	20	43
LED Traffic Signals Yellow Arrow	-5	-8	40	20	43
LED Traffic Signals Green Arrow	-5	-8	40	20	43
Total	-30,707	153,408	214,748	276,169	675,032

	Year 1	Year 2	Year 3	Year 4	Total
HVAC	11	469	189	189	858
Appliances	6	999	601	601	2,207
Lighting Projects	37	1,153	300	300	1,790
Motors	=	7	=8	8	23
Energy Star Office Equipment	=	6,513	6,554	=	13,067
Commercial Reach-In Refrigerator	=	123	200	200	523
Total	54	9,264	7,852	1,298	18,468

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 93,210 MWh/yr and a peak load reduction of approximately 18.9 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~residential~~ institutional customer sector are shown in Table 91~~Table 91~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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Governmental/Non-Profit Sector Programs

**Table 91. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	15	35,319	16,568	15,699	67,601
Capacity Savings (MW)	0.0	8.4	10.6	10.4	18.9
Total Resource Cost	\$12,133	\$36,027,078	\$14,630,204	\$14,380,323	\$65,049,737
Direct Participant Costs	\$9,655	\$31,988,104	\$12,128,931	\$12,005,587	\$56,132,276
Direct Utility Costs	\$2,478	\$4,038,974	\$2,501,273	\$2,374,736	\$8,917,461
Customer Incentives	\$2,397	\$4,007,072	\$1,694,774	\$1,592,752	\$7,296,993
EDC Labor	\$73	\$25,902	\$13,667	\$16,376	\$56,019
EDC Materials and Supplies	\$9	\$812	\$17,233	\$22,164	\$40,218
CSP Labor	\$0	\$0	\$746,878	\$706,504	\$1,453,382
Other (Marketing and Trade Ally)	\$0	\$5,188	\$28,722	\$36,940	\$70,849
<b>TRC Test</b>					
NPV Benefits	\$70,383,067				
NPV Costs	\$57,329,144				
Net Benefits (NPV)	\$13,053,923				
<b>Benefit-Cost Ratio</b>	<b>1.23</b>				

<i>Benefit/Cost Component</i>	Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	4,147	21,213	29,502	38,348	93,210
Capacity Savings (MW)	1	4	5	7	17
Capacity Savings (kW)	745	3,775	5,263	6,802	16,584
Total Resource Cost	\$1,436,772	\$7,195,748	\$10,174,838	\$13,540,082	\$32,347,439
Direct Participant Costs	\$866,615	\$4,523,710	\$6,421,778	\$8,523,864	\$20,335,967
Direct Utility Costs	\$570,157	\$2,672,038	\$3,753,060	\$5,016,218	\$12,011,472
Customer Incentives	\$490,057	\$2,590,538	\$3,669,160	\$4,930,918	\$11,680,672
EDC Labor	\$10,000	\$10,000	\$11,000	\$11,000	\$42,000
EDC Materials and Supplies	\$100	\$100	\$100	\$100	\$400
CSP Labor	\$35,000	\$35,700	\$36,400	\$37,100	\$144,200
CSP Materials and Supplies	\$35,000	\$35,700	\$36,400	\$37,100	\$144,200
<b>TRC Test</b>					
NPV Benefits	\$83,209,895				
NPV Costs	\$27,571,338				
Net Benefits (NPV)	\$55,638,558				
<b>Benefit-Cost Ratio</b>	<b>3.02</b>				

Note: Table 109 was updated to reflect the change in classification of common and direct costs

## Commercial and Industrial Custom Incentive Program 2010-2013 (Government/Schools/Non-Profit Sector)

### Objectives

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Target Market

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

~~As discussed in Section 3.3, PPL Electric's C&I Custom Incentive program targets all new and existing commercial and industrial facilities, as well as institutional and municipal buildings. The Plan divides the program into individual C&I and governmental/non-profit market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across the C&I market sectors. Table 92 outlines eligibility parameters for the large commercial and industrial sector.~~

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**Table 92. Customer Eligibility Parameters**

<b>Customers Type</b>	Government, <u>schools</u> , and non-profit
<b>Rate Class</b>	<u>Primarily GS1, GS3, SLAL, LP4, &amp; LP5 but could include other rate classes</u> <del>GS1, GS3, SLAL</del>
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Risk and Risk Management Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Anticipated Costs to Participating Customers

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### ~~Ramp-up Strategy~~

~~Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.~~

### Marketing Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

~~In addition to the marketing strategy and tactics discussed Sections 3.2 and 3.3, under C&I Custom Incentive Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.~~

- ~~• Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county, and state government buildings.~~
- ~~• Targeted marketing and outreach to registered 501(c)3 organizations in PPL Electric's service territory.~~
- ~~• Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~
- ~~• Targeted outreach through key account managers to large institutional facilities and hospitals.~~

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PPL recognizes the importance of targeted promotion of its programs to governmental school and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

### Eligible Measures and Incentive Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Schedule and Milestones

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Administrative Requirements

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Estimated Participation

Estimated governmental/non-profit sector participation levels are shown below.

**Table 93. Projected Electric Measure Installations**

	Year 1	Year 2	Year 3	Year 4	Total
Windows	4	2	3	5	14
Controls	2	9	16	19	46
Lighting	2	9	16	19	46
Energy Analysis	3	14	24	31	72
Heat Recovery	0	2	2	3	7
Refrigeration	0	2	2	3	7
Data Center – Cooling	4	3	5	7	19
Data Center – Lighting	4	3	5	7	19
Data Center – Plug Load	4	3	5	7	19
Industrial Process – Other Electric	0	2	2	3	7
Custom Motors	0	2	2	3	7
Industrial Compressed Air	0	2	2	3	7
Agriculture (Dairy Farms)	0	1	2	2	5
Permanent Operational Changes (Cooling DX)	2	9	16	19	46
Permanent Operational Changes (Cooling Chillers)	2	9	16	19	46
Permanent Operational Changes (Heat Pump)	2	9	16	19	46
Permanent Operational Changes (Heating)	2	9	16	19	46
<b>Total</b>	<b>19</b>	<b>90</b>	<b>150</b>	<b>188</b>	<b>447</b>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Estimated # of projects</u>	<u>1</u>	<u>13</u>	<u>10</u>	<u>10</u>	<u>33</u>

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 23,282 MWh/yr and peak load reductions of approximately 330 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional ~~residential~~ customer sector are shown in Table 94 ~~Table 94~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 94. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	3,336	38,000	2,920	44,256
Capacity Savings (MW)	-	0.2	0.1	0.1	0.3
Total Resource Cost	\$0	\$1,841,510	\$2,869,105	\$1,440,046	\$6,150,661
Direct Participant Costs	\$0	\$1,493,759	-\$37,955	\$1,082,045	\$2,537,848
Direct Utility Costs	\$0	\$347,751	\$2,907,060	\$358,002	\$3,612,813
Customer Incentives	\$0	\$211,899	\$1,350,000	\$230,000	\$1,791,899
EDC Labor	\$0	\$26,923	\$37,060	\$11,202	\$75,185
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$108,929	\$1,520,000	\$116,800	\$1,745,729
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$41,628,264				
NPV Costs	\$5,308,052				
Net Benefits (NPV)	\$36,320,212				
<b>Benefit-Cost Ratio</b>	<b>7.84</b>				

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	534	5,797	7,104	9,846	23,282
Capacity Savings (MW)	0.1	1	1	2	5
Total Resource Cost	\$382,311	\$1,633,146	\$2,452,647	\$3,217,646	\$7,685,749
Direct Participant Costs	\$189,010	\$921,747	\$1,397,163	\$1,842,148	\$4,350,068
Direct Utility Costs	\$193,301	\$711,399	\$1,055,484	\$1,375,498	\$3,335,681
Customer Incentives	\$134,001	\$649,699	\$992,384	\$1,309,998	\$3,086,081
EDC Labor	\$24,000	\$25,000	\$25,000	\$26,000	\$100,000
EDC Materials and Supplies	\$300	\$300	\$300	\$300	\$1,200
CSP Labor	\$17,500	\$18,200	\$18,900	\$19,600	\$74,200
CSP Materials and Supplies	\$17,500	\$18,200	\$18,900	\$19,600	\$74,200
<b>TRC Test</b>					
NPV Benefits	\$20,495,052				
NPV Costs	\$6,551,503				
Net Benefits (NPV)	\$13,943,549				
<b>Benefit-Cost Ratio</b>	<b>3.13</b>				

Note: Table 112 was updated to reflect the change in classification of common and direct costs

## HVAC Tune-Up Program (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

Please see Section 3.3, under HVAC Tune-Up Program.

### Target Market

~~Please see Section 3.3, under HVAC Tune-Up Program. PPL Electric's HVAC Tune-up program targets existing buildings with commercial packaged HVAC systems. The program will be available for both small commercial and government/non-profit sector customers and will use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across both sectors.~~

The Plan divides the program into small C&I and government/non-profit market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector.<sup>80</sup> ~~Table 95~~ Table 95 outlines eligibility targets for the government/non-profit sector.

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**Table 95. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, <u>schools</u> and non-profit
<b>Rate Class</b>	<u>Primarily</u> GS1, GS3 <u>but could include other rate classes</u>
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

Please see Section 3.3, under HVAC Tune-Up Program.

### Implementation Strategy

Please see Section 3.3, under HVAC Tune-Up Program.

### Risk and Risk Management Strategy

Please see Section 3.3, under HVAC Tune-Up Program.

### Anticipated Costs to Participating Customers

Please see Section 3.3, under HVAC Tune-Up Program.

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<sup>80</sup> Large commercial customers typically do not use rooftop HVAC systems for building conditioning.

**Ramp-up Strategy**

Please see Section 3.3, under HVAC Tune-Up Program.

**Marketing Strategy**

Please see Section 3.3, under HVAC Tune-Up Program. In addition to the marketing strategy and tactics discussed Section 3.3, under HVAC Tune-Up Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.

- Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county and state government buildings.
- Targeted marketing and outreach to registered 501(c)3 organizations in PPL Electric's service territory.
- Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).

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PPL Recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

**Eligible Measures and Incentive Strategy**

Please see Section 3.3, under HVAC Tune-Up Program.

**Implementation Schedule and Milestones**

Please see Section 3.3, under HVAC Tune-Up Program.

**Evaluation, Measurement, and Verification (EM&V)**

Please see Section 3.3, under HVAC Tune-Up Program.

**Administrative Requirements**

Please see Section 3.3, under HVAC Tune-Up Program.

**Estimated Participation**

Estimated governmental/non-profit sector participation is shown below.

**Table 96. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Diagnostic testing	18	92	129	165	404
Cycle performance (Single Compressor)	4	22	32	41	99

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

	Year 1	Year 2	Year 3	Year 4	Total
Cycle performance (Multiple Compressors)	-	4	4	2	4
Thermostat Modification	10	50	70	90	220
Economizer Adjustment	4	46	22	29	71
Thermostat Replacement	5	26	36	47	114
Economizer Control Package	3	45	20	27	65
<b>Total</b>	<b>44</b>	<b>222</b>	<b>310</b>	<b>401</b>	<b>977</b>

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of jobs	1	1	10	20	32

### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 4,554 48 MWh/yr and peak load reductions of approximately 2 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional residential customer sector are shown in Table 97 ~~Table 97~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 97. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	16	32	48
Capacity Savings (MW)	-	-	0.0002	0.0004	0.0002
Total Resource Cost	\$4	\$12,005	\$3,075	\$6,203	\$21,286
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$4	\$12,005	\$3,075	\$6,203	\$21,286
Customer Incentives	\$0	\$0	\$1,040	\$2,080	\$3,120
EDC Labor	\$0	\$0	\$935	\$1,692	\$2,627
EDC Materials and Supplies	\$0	\$0	\$0	\$231	\$231
CSP Labor	\$4	\$12,005	\$1,100	\$2,200	\$15,309
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$10,633				
NPV Costs	\$18,680				
Net Benefits (NPV)	-\$8,046				
<b>Benefit-Cost Ratio</b>	<b>0.57</b>				



Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	70	353	491	637	1,551
Capacity Savings (MW)	0.04	0.2	0.3	0.3	1
Capacity Savings (kW)	36	183	255	330	804
Total Resource Cost	\$11,000	\$36,064	\$49,121	\$63,751	\$159,936
Direct Participant Costs	\$2,950	\$15,468	\$21,943	\$29,243	\$69,604
Direct Utility Costs	\$8,050	\$20,596	\$27,178	\$34,509	\$90,332
Customer Incentives	\$3,050	\$15,596	\$22,178	\$29,509	\$70,332
EDC Labor	\$3,000	\$3,000	\$3,000	\$3,000	\$12,000
CSP Labor	\$1,000	\$1,000	\$1,000	\$1,000	\$4,000
CSP Materials and Supplies	\$1,000	\$1,000	\$1,000	\$1,000	\$4,000
<b>TRC Test</b>					
NPV Benefits	\$780,660				
NPV Costs	\$137,114				
Net Benefits (NPV)	\$643,546				
<b>Benefit-Cost Ratio</b>	<b>5.69</b>				

Note: Table 115 was updated to reflect the change in classification of common and direct costs

**Renewable Energy Program**  
**(Government/Schools/Non-Profit Sector)**

2010-2013

**Objectives**

Please see Section 3.2, under Renewable Energy Program.

**Target Market**

Please see Section 3.2, under Renewable Energy Program.

~~PPL Electric's Renewable Energy program will be available to residential and government/non-profit sector customers with on-site resources to supply renewable energy systems. For each of these customers segments, the program will use a consistent delivery and administrative strategy, but budgets, savings, and impacts will tracked and reported separately.~~ Table 98 ~~Table 98~~ outlines eligibility targets for the governmental/non-profit sector.

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**Table 98. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, <u>schools</u> , and non-profit
<b>Rate Class</b>	<u>Primarily</u> GS1, GS3, & SLAL, <u>LP4, and LP5</u> <u>but could include other rate classes</u>
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner

**Program Description**

Please see Section 3.2, under Renewable Energy Program.

**Implementation Strategy**

Please see Section 3.2, under Renewable Energy Program.

**Risk and Risk Management Strategy**

Please see Section 3.2, under Renewable Energy Program.

**Anticipated Costs to Participating Customers**

Please see Section 3.2, under Renewable Energy Program.

~~**Ramp-up Strategy**~~

~~Please see Section 3.2, under Renewable Energy Program.~~

### Marketing Strategy

~~Please see Section 3.2, under Renewable Energy Program. In addition to the marketing strategy and tactics discussed Section 3.2, under Renewable Energy Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.~~

- ~~• Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county and state government buildings.~~
- ~~• Targeted marketing and outreach to registered 501(c) 3 organizations in PPL Electric's service territory.~~
- ~~• Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~
- ~~• Targeted outreach through key account managers to large institutional facilities and hospitals.~~

PPL ~~Electric recognizes~~**Recognizes** the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

### Eligible Measures and Incentive Strategy

Please see Section 3.2, under Renewable Energy Program.

### Implementation Schedule and Milestones

Please see Section 3.2, under Renewable Energy Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Renewable Energy Program.

### Administrative Requirements

Please see Section 3.2, under Renewable Energy Program.

### Estimated Participation

Estimated governmental/non-profit sector participation is shown below for general guidance only.

**Table 99. Projected Participation**

<del>Year<sup>27</sup></del>	<del>Year 1</del>	<del>Year 2</del>	<del>Year 3</del>	<del>Year 4</del>	<del>Total</del>
<del>Photovoltaic systems</del>	<del>1</del>	<del>4</del>	<del>5</del>	<del>5</del>	<del>15</del>

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Governmental/Non-Profit Sector Programs

<del>Ground Source Heat Pumps</del>	<del>25</del>	<del>75</del>	<del>100</del>	<del>100</del>	<del>300</del>
<del>Total</del>	<del>26</del>	<del>79</del>	<del>105</del>	<del>105</del>	<del>315</del>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Photovoltaic systems</u>	<u>=</u>	<u>6</u>	<u>2</u>	<u>=</u>	<u>8</u>
<u>Ground Source Heat Pumps (projects)</u>	<u>=</u>	<u>24</u>	<u>13</u>	<u>=</u>	<u>37</u>
<u>Total</u>	<u>=</u>	<u>30</u>	<u>15</u>	<u>=</u>	<u>45</u>

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 14,812,872 MWh/yr and peak load reductions of approximately 3,778 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional~~residential~~ customer sector are shown in Table 100~~Table 100~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 100. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	-	5,670	4,202	-	9,872
Capacity Savings (MW)	-	1.4	2.4	-	3.8
Total Resource Cost	\$0	\$16,391,345	\$7,023,179	\$0	\$23,414,524
Direct Participant Costs	\$0	\$14,335,110	\$5,424,179	\$0	\$19,759,289
Direct Utility Costs	\$0	\$2,056,236	\$1,599,000	\$0	\$3,655,236
Customer Incentives	\$0	\$2,007,929	\$1,499,000	\$0	\$3,506,929
EDC Labor	\$0	\$48,102	\$100,000	\$0	\$148,102
EDC Materials and Supplies	\$0	\$204	\$0	\$0	\$204
CSP Labor	\$0	\$0	\$0	\$0	\$0
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$10,728,857				
NPV Costs	\$21,198,416				
Net Benefits (NPV)	-\$10,469,558				
<b>Benefit-Cost Ratio</b>	<b>0.51</b>				

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	1,232	3,706	4,937	4,937	14,812
Capacity Savings (MW)	0.1	0.4	1	1	2
Total Resource Cost	\$1,321,075	\$3,878,996	\$5,234,327	\$5,344,540	\$15,778,938
Direct Participant Costs	\$901,706	\$2,772,494	\$3,770,692	\$3,849,876	\$11,294,767
Direct Utility Costs	\$419,369	\$1,106,503	\$1,463,635	\$1,494,664	\$4,484,171
Customer Incentives	\$320,069	\$1,003,803	\$1,358,535	\$1,387,064	\$4,069,471
EDC Labor	\$60,000	\$62,000	\$63,000	\$64,000	\$249,000
EDC Materials and Supplies	\$800	\$800	\$800	\$900	\$3,300
CSP Labor	\$21,800	\$22,500	\$23,200	\$23,900	\$91,400
CSP Materials and Supplies	\$16,700	\$17,400	\$18,100	\$18,800	\$71,000
<b>TRC Test</b>					
NPV Benefits	\$14,842,209				
NPV Costs	\$13,642,998				
Net Benefits (NPV)	\$1,199,211				
<b>Benefit-Cost Ratio</b>	<b>1.09</b>				

Note: Table 117 was updated to reflect the change in classification of common and direct costs.

## Direct Load Control Program (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

Please see Section 3.2, under Direct Load Control Program.

### Target Market

~~Please see Section 3.2, under Direct Load Control Program. As discussed in Section 3.2, this program will be available to all customer sectors except the large commercial and industrial sector,<sup>81</sup> using a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across all market sectors. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector.~~

~~The program targets any customer with working central air conditioner or heat pump. Water heaters, window air conditioners, and pool pumps are under consideration. Customer equipment must be in good working order and compatible with the PPL Electric control technology.~~ Customer eligibility parameters for the governmental/non-profit sector are outlined below.

**Table 101. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, <u>schools</u> , and non-profit
<b>Rate Class</b>	<u>Primarily</u> GS1, GS3, & SLAL <u>but could include other rate classes</u>
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	Existing buildings, new construction
<b>Building ownership</b>	Owner or tenant with owner's approval

### Program Description

Please see Section 3.2, under Direct Load Control Program.

### Implementation Strategy

Please see Section 3.2, under Direct Load Control Program.

### Risk and Risk Management Strategy

Please see Section 3.2, under Direct Load Control Program.

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<sup>81</sup> The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector, but rather assumes that few large C&I facilities include eligible controllable equipment.

### Anticipated Costs to Participating Customers

Please see Section 3.2, under Direct Load Control Program.

### Ramp-up Strategy

~~Please see Section 3.2, under Direct Load Control Program.~~

### Marketing Strategy

~~Please see Section 3.2, under Direct Load Control Program. In addition to the marketing strategy and tactics discussed in Sections 3.2 and 3.3, under Direct Load Control Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.~~

- ~~• Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county and state government buildings.~~
- ~~• Targeted marketing and outreach to registered 501(c) 3 organizations in PPL Electric's service territory.~~
- ~~• Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~

PPL ~~Recognizes~~ Electric recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

### Eligible Measures and Incentive Strategy

Please see Section 3.2, under Direct Load Control Program.

### Implementation Schedule and Milestones

Please see Section 3.2, under Direct Load Control Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Direct Load Control Program.

### Administrative Requirements

Please see Section 3.2, under Direct Load Control Program.

### Estimated Participation

Estimated governmental/non-profit sector participation is shown below for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.

**Table 102. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	—	230	230	450	—910

	Year 1	Year 2	Year 3	Year 4	Total
Participants	0	0	50	50	100

#### Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve ~~electricity demand savings~~ peak load reductions of approximately 40+ MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~institutional~~ residential customer sector are shown in Table 103 ~~Table 103~~. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 103. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	0.0	0.0
Total Resource Cost	\$72	\$1,031	\$2,896	\$9,148	\$13,146
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$72	\$1,031	\$2,896	\$9,148	\$13,146
Customer Incentives	\$0	\$0	\$0	\$1,600	\$1,600
EDC Labor	\$62	\$92	\$78	\$78	\$310
EDC Materials and Supplies	\$0	\$1	\$2	\$2	\$6
CSP Labor	\$10	\$937	\$2,816	\$7,467	\$11,230
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$1,374				
NPV Costs	\$10,771				
Net Benefits (NPV)	-\$9,396				
<b>Benefit-Cost Ratio</b>	<b>0.13</b>				



Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	-	0.3	1	1
Total Resource Cost	\$10,000	\$49,296	\$53,560	\$105,120	\$217,976
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$10,000	\$49,296	\$53,560	\$105,120	\$217,976
Customer Compensation	\$0	\$7,296	\$14,560	\$29,120	\$50,976
EDC Labor	\$1,000	\$1,000	\$1,000	\$1,000	\$4,000
CSP Labor	\$9,000	\$1,000	\$1,000	\$1,000	\$12,000
CSP Materials and Supplies	\$0	\$40,000	\$37,000	\$74,000	\$151,000
<b>TRC Test</b>					
NPV Benefits	\$36,762				
NPV Costs	\$185,011				
Net Benefits (NPV)	-\$148,249				
<b>Benefit-Cost Ratio</b>	<b>0.20</b>				

~~Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4. Load reductions will occur only in the Summer of 2012. Table 121 was updated to reflect the change in classification of common and direct costs.~~

## ~~Time of Use Rates~~ ~~2010-2013~~ ~~(Government/Non-Profit Sector)~~

### ~~Objectives~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Target Market~~

~~Please see Section 3.2, under Time of Use Rates. The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector<sup>#2</sup>. Customer eligibility parameters for the governmental/non-profit sector are outlined below.~~

~~Table 106. Customer Eligibility Parameters~~

<del>Customers Type</del>	<del>Governmental and non-profit</del>
<del>Rate Class</del>	<del>GS1, GS3, SLAL</del>
<del>Building Type</del>	<del>Commercial, institutional, municipal</del>
<del>Building Vintage</del>	<del>All</del>
<del>Building ownership</del>	<del>Owner or individually metered tenant</del>

### ~~Program Description~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Implementation Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Risk and Risk Management Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Anticipated Costs to Participating Customers~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Ramp-up Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

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<sup>#2</sup> ~~The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector since most customers in this sector have more than 500 kW of demand. Large commercial and industrial customers, however, may participate.~~

### ~~Marketing Strategy~~

~~In addition to the marketing strategy and tactics discussed in Section 3.2, under Time of Use Rates, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers:~~

- ~~• Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county, and state government buildings.~~
- ~~• Targeted marketing and outreach to registered 501(c)3 organizations in PPL Electric's service territory.~~
- ~~• Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~
- ~~• Targeted outreach through key account managers to large institutional facilities and hospitals.~~

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~~PPL Recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.~~

### ~~Eligible Measures and Incentive Strategy~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Implementation Schedule and Milestones~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Evaluation, Measurement, and Verification (EM&V)~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Administrative Requirements~~

~~Please see Section 3.2, under Time of Use Rates.~~

### ~~Estimated Participation~~

~~Estimated governmental/non-profit sector participation is shown below.~~

**Table 107. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	—	340	300	620	1,230

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

~~Program Budget, Costs, and Cost Effectiveness~~

~~Over the four-year planning horizon, the program is expected to achieve electricity demand reduction of 1 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost effectiveness for the residential customer sector are shown in Table 108. Key assumptions used in calculating measure-level savings are shown in Appendix E.~~

~~Table 108. Summary of Projected Benefits, Costs, and Cost Effectiveness~~

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Capacity Savings (MW)	-	0.1	0.3	1	1
Total Resource Cost	\$18,000	\$15,000	\$15,000	\$8,000	\$56,000
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$18,000	\$15,000	\$15,000	\$8,000	\$56,000
CSP Labor	\$7,000	\$2,000	\$2,000	\$2,000	\$13,000
<del>CSP Materials and Supplies</del>	<del>\$0</del>	<del>\$2,000</del>	<del>\$2,000</del>	<del>\$3,000</del>	<del>\$7,000</del>
Other (Marketing and Trade Ally)	\$11,000	\$11,000	\$11,000	\$3,000	\$36,000
<b>TRC Test</b>					
NPV Benefits	\$165,444				
NPV Costs	\$51,100				
Net Benefits (NPV)	\$114,344				
<b>Benefit-Cost Ratio</b>	<b>3.24</b>				

## Load Curtailment

2010-2013

### (Government/Schools/Non-Profit Sector)

#### Objectives

Please see Section 3.4, under Load Curtailment Program.

#### Target Market

~~Please see Section 3.4, under Load Curtailment Program. PPL Electric's Load Curtailment Program targets Commercial and Industrial and governmental/non-profit customers with monthly demand of at least 100 kW who are able to curtail at least 15% or 30 kW (whichever is greater) of average load during peak summer periods<sup>83</sup>. Tenants in rental properties may participate with approval from the property owner.~~

~~The Plan divides the program into individual C&I and governmental/non-profit market sectors, with target customers, participation, budgets, savings, and other details broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across the C&I market sectors. Table 104 outlines eligibility parameters for the governmental/non-profit sector.~~

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Table 104. Customer Eligibility Parameters

<b>Customers Type</b>	Governmental, <u>schools</u> , and non-profit
<b>Rate Class</b>	<u>Primarily</u> GS1, GS3, SLAL, <u>LP4, and LP5</u> but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, <u>residential</u>
<b>Building Vintage</b>	All
<b>Building ownership</b>	Owner or individually metered tenant

#### Program Description

Please see Section 3.4, under Load Curtailment Program.

#### Implementation Strategy

Please see Section 3.4, under Load Curtailment Program.

#### Risk and Risk Management Strategy

Please see Section 3.4, under Load Curtailment Program.

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<sup>83</sup> Due to the demand criteria, the Plan includes this program for only large C&I and governmental/non-profit sector customers, however, any customer that meets the program eligibility requirements may participate and their cost will be accounted for in their applicable customer segment.

### Anticipated Costs to Participating Customers

Please see Section 3.4, under Load Curtailment Program.

### Ramp-up Strategy

Please see Section 3.4, under Load Curtailment Program.

### Marketing Strategy

Please see Section 3.4, under Load Curtailment Program.

~~In addition to the marketing strategy and tactics discussed in Section 3.2, under Load Curtailment Program, PPL Electric may use the following marketing strategies to promote this program to its governmental/non-profit customers.~~

- ~~• Targeted marketing and outreach to facilities managers at schools, hospitals, colleges and universities, municipal, county, and state government buildings.~~
- ~~• Targeted marketing and outreach to registered 501(c)3 organizations in PPL Electric's service territory.~~
- ~~• Presentations and other direct outreach at governmental and non-profit association meetings and conferences (e.g. Hospital and Healthsystem Association of Pennsylvania, Pennsylvania School Boards Association, PA League of Cities and Municipalities, etc.).~~
- ~~• Targeted outreach through key account managers to large institutional facilities and hospitals.~~

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PPL Recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

### Eligible Measures and Incentive Strategy

Please see Section 3.4, under Load Curtailment Program.

### Implementation Schedule and Milestones

Please see Section 3.4, under Load Curtailment Program.

### Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.4, under Load Curtailment Program.

### Administrative Requirements

Please see Section 3.4, under Load Curtailment Program.

### Estimated Participation

Estimated governmental/non-profit sector participation is shown below [for general guidance only.](#)

**Table 105. Projected Participation**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Total</b>
<b>Participants</b>	<u>      </u>	<u>  40  </u>	<u>  40  </u>	<u>  30  </u>	<u>  50  </u>

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Total</u>
<u>Participants</u>	<u>      1      </u>	<u>      1      </u>	<u>      0      </u>	<u>     20     </u>	<u>     22     </u>

**Program Budget, Costs, and Cost-Effectiveness**

Over the four-year planning horizon, the program is expected to achieve ~~electricity demand reduction~~ a peak load reduction of ~~approximately 23~~ 15.9 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the ~~institutional~~ residential customer sector are shown in the table below. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 106. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<b>Benefit/Cost Component</b>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	15.9	15.9
Total Resource Cost	\$8,445	\$6,911	\$470,184	\$611,708	\$1,097,248
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$8,445	\$6,911	\$470,184	\$611,708	\$1,097,248
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$6,994	\$6,787	\$7,121	\$7,121	\$28,022
EDC Materials and Supplies	\$557	\$124	\$203	\$203	\$1,089
CSP Labor	\$895	\$0	\$462,859	\$604,384	\$1,068,138
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$549,770				
NPV Costs	\$903,545				
Net Benefits (NPV)	-\$353,775				
<b>Benefit-Cost Ratio</b>	<b>0.61</b>				

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	2,255	2,255
Capacity Savings (MW)	-	-	-	23	23
Total Resource Cost	\$11,100	\$11,100	\$1,297,100	\$1,297,100	\$2,616,400
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$11,100	\$11,100	\$1,297,100	\$1,297,100	\$2,616,400
Customer Compensation	\$0	\$0	\$1,248,000	\$1,248,000	\$2,496,000
EDC Labor	\$11,000	\$11,000	\$11,000	\$11,000	\$44,000
EDC Materials and Supplies	\$100	\$100	\$100	\$100	\$400
CSP Labor	\$0	\$0	\$32,500	\$32,500	\$65,000
CSP Materials and Supplies	\$0	\$0	\$5,500	\$5,500	\$11,000
<b>TRC Test</b>					
NPV Benefits	\$1,011,880				
NPV Costs	\$2,163,112				
Net Benefits (NPV)	-\$1,151,232				
<b>Benefit-Cost Ratio</b>	<b>0.47</b>				

Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4. Load reductions will occur only in the Summer of 2012. Table 127 was updated to reflect the change in classification of common and direct costs.



## 4. Program Management and Implementation Strategies

### 4.1. Overview of EDC Management and Implementation Strategies:

- 4.1.1. Describe the types of services to be provided by EDC as well as consultants, trade allies and CSPs. Indicate which organizations will provide which services and the basis for such allocation. Reference reporting and EM&V information from Sections 5 and 6 below.**

PPL Electric's implementation strategy ~~will rely~~relies on a broad range of Conservation Service Providers (CSPs), partners, trade allies, community-based organizations, and other entities engaged in energy-efficiency to promote, deliver, and support the effective deployment of programs. PPL Electric expects to utilize approximately 10 to 12 CSPs to deliver services in support of its EE&C programs, with some CSPs operating as turnkey program delivery contractors, and others providing specific functions across multiple programs.

In addition, many of PPL Electric's programs ~~will~~ depend on trade allies and other market partners to engage customers, promote programs, evaluate projects, furnish and install energy-efficient equipment and provide energy-efficiency services. The Company's objective is to find a reasonable balance of cost, ratepayer value (portfolio benefit-to-cost ratio), customer choice, quality service, accountability for results, and energy and ~~capacity~~peak load reductions~~savings~~. In addition, recognizing the expertise available through existing local labor and resources, as well as the importance of stimulating the local economy and providing choices to customers, PPL Electric's Plan seeks to utilize free market contractors and trade allies where appropriate.

In accordance with Act 129 requirements, PPL Electric issued a Request for Proposals (RFP) for CSPs to support one of its programs – the Appliance Recycling Program – on April 1, 2009 before submitting its initial EE&C Plan on July 1, 2009. Following a proposal review process, PPL Electric selected and executed a contract with a program CSP, effective June 30, 2009 (see Section 4.3 for a more detailed discussion). ~~PPL Electric has also begun competitive bidding processes for additional CSPs to support its Compact Fluorescent Lighting Campaign program as well as its Energy Efficiency Management Information System.~~

PPL Electric ~~has had~~has an aggressive schedule (see Section 4.1.5) for issuing RFPs and awarding almost all of its CSP contracts by November 2009 to ensure programs are ready to launch in late 2009 and early 2010, upon Commission approval of PPL Electric's EE&C Plan. ~~For most RFPs, the program objectives, reduction targets, schedule, and scopes of work will be based on the information contained herein. If the Plan changes during the Commission approval process, PPL Electric will rebalance its portfolio and modify CSP contracts accordingly.~~

Figure 4 ~~Figure 4~~ provides a graphic representation of CSP functions and roles related to each of PPL Electric's proposed programs.

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**Figure 4. Program Implementation Strategy and Delivery Roles**

Program Function	PPL Programs													
	Efficient Equipment Incentive - Nonresidential	Efficient Equipment Incentive - Residential	Energy Assessment & Weatherization	Renewable Energy	Custom Incentives	HVAC Tune-Up	Residential Lighting	Appliance Recycling	Direct Load Control	Curtailment	Low Income WRAP	Low Income E- Power Wise	Energy Efficiency Behavior & Education	
Portfolio Planning/Program Design	PPL													
Research & Development	PPL													
Manufacturer Management	N/A	N/A					CSP-7	N/A						
Retailer Management	CSP-7													
Marketing & Advertising	PPL/CSP-2						N/A	CSP-8	CSP-9	CSP-13	CBO	CSP-10/ CBO	PPL/CSP-2 CSP-15	
Customer Intake and Routing	CSP-1				PPL/CSP-1	CSP-6								
Technical Assessment	TA-1	TA-1	CSP-3/ TA-2	TA-3	TA-5	TA-1								
Project Development														
Implementation/Installation														
Application Review and Approval	CSP-14	CSP-1			CSP-14 CSP-1	CSP-6								
Payment Processing	CSP-1													
Participant Relations Management	PPL/CSP-14	PPL/CSP-1						PPL/CSP8	PPL/CSP-9		PPL/CBO			
QA	PPL/QA-5													
Measurement & Verification	PPL/CSP-11													
PPL Program Tracking	CSP-12													
CSP Management and Coordination	PPL													
Internal PPL Coordination	PPL													
Legal and Regulatory Affairs														
Customer Service														
Corporate Communications														
Rates														
Finance														
Purchasing														
Meter Operations														
IT														
Reporting and Analysis	PPL													
Internal	PPL/CSPs (all)													
External														

## Section 4: Program Management and Implementation Strategies

Program Function	PPL PROGRAMS																				
	Efficient Equipment Incentive	Energy Assessment & Weatherization	Renewable Energy	New Construction	Custom Incentives	HVAC Tune-Up	Time of Use Rates	CFL Lighting Campaign	Appliance Recycling	Direct Load Control	Curtailment	Low Income WRAP	Low Income E-Power Wise	Energy Efficiency Behavior & Education							
Portfolio Planning/Program Design	PPL/Consultant																				
Research & Development																					
Manufacturer management	NA	NA						CSP-7	NA												
Retailer management	CSP-7																				
Marketing & advertising	PPL/CSP-2																				
Customer Intake and Routing	CSP - 1				PPL/CSP-1	CSP-6	PPL	NA	CSP - 8	CSP-9	CSP-9	CBO	CSP-10/ CBO	PPL/CSP-2 other CSPs TBD							
Technical Assessment	TA-1	CSP-3/ TA-2	TA-3	CSP-4	TA-5	TA-1															
Project Development				TA-4																	
Implementation/Installation																					
Application Review and Approval	CSP-1			CSP-4	CSP-5	CSP-6															
Payment Processing				CSP-1	CSP-1	CSP-6															
Participant Relations Management	PPL/CSP-1								PPL/CSP-8	PPL/CSP-9		PPL/CBO									
QA	PPL/CSP-5																				
Measurement & Verification	PPL/CSP-11																				
Program Tracking	CSP-12																				
CSP Management and Coordination	PPL																				
Internal PPL Coordination	PPL																				
Legal and Regulatory Affairs																					
Customer Service																					
Corporate Communications																					
Rates																					
Finance																					
Purchasing																					
Meter Operations																					
IT																					
Reporting and analysis																					
Internal	PPL																				
External	PPL/CSPs (all)																				

The CSPs, trade allies, and market partners in the figure above are defined below.

### Conservation Service Providers

CSPs are defined as individuals or firms under contract to PPL Electric to provide consultation, design, administration, management and/or implementation services related to the delivery of its EE&C programs. PPL Electric anticipates that CSPs will have a major role in delivering its programs.

As described above and indicated in ~~Figure 4~~ **Figure 4**, CSP roles may involve delivery of turnkey program services or functions within or across programs. All CSPs will be trained on PPL Electric's reporting requirements, use of the Company's data management and tracking system (described in Section 5), customer service requirements, quality assurance and control standards and protocols for addressing quality issues, should they arise (described in Section 6). All CSPs will be required to submit monthly or quarterly reports to PPL Electric that include customer data and detailed information on installed measures and incentive transactions to support EM&V, tracking against the Plan's budgets and goals, and reporting to the Commission (see Section 5).

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**Table 107. Potential Conservation Service Provider Program Delivery Roles**

CSP #	CSP Role
1	<b>Administrative CSP:</b> <del>will provide</del> <u>s</u> a call center with staff knowledgeable about PPL Electric's programs, <del>Provides</del> <u>s</u> customer enrollment, <del>and routing to appropriate program contacts or actions,</del> <u>s</u> <del>customer and measure</del> <u>s</u> eligibility verification, application and rebate processing, and customer care.
2	<b>Advertising CSP:</b> is a third-party advertising and public relations firm, working in collaboration with PPL Electric's internal marketing and corporate communications departments. Their work <del>would include</del> <u>s</u> the creative function, production, and media buys for television, radio, print, outdoor, and Internet. They <del>would also</del> <u>s</u> consult with program CSPs and provide support for the development of brochures, bill inserts, and other promotional materials.
3	<b>Residential Energy Survey CSP:</b> <del>will provide</del> <u>s</u> walk-through energy surveys for customers participating in the walk-through survey component of PPL Electric's Residential Energy Assessment & Weatherization Program.
4	<b>New Construction CSP:</b> <del>will provide builder/contractor training and certification, and independent assessment and confirmation of HERS ratings to verify compliance with the ENERGY STAR® New Homes Program.</del> Deleted
5	<b>Quality Assurance/Technical Review CSP:</b> <del>is a technical services and quality assurance contractor that will review technical customer applications and conduct engineering and economic analysis for the Custom Incentives program, and will develop program level quality assurance manuals and oversee quality assurance for all programs. This will likely be</del> Deleted. <u>s</u> Some functions merged into the scope of the EM&V CSP 11. <u>s</u> Some functions merged into the scope of the C&I CSP 14.
6	<b>HVAC Tune-up CSP:</b> is a dedicated HVAC Tune-up Program CSP that <del>will administer</del> <u>s</u> and implements <u>s</u> the HVAC Tune-up Program and trains <u>s</u> , supports <u>s</u> and interfaces <u>s</u> with HVAC contractors.

7	<del>Compact Fluorescent Lighting</del> <u>Residential Lighting/CFL</u> CSP: <del>will develop</del> <u>s</u> and/or use <u>s</u> existing relationships with manufacturers and retailers to develop, market and deliver <u>s</u> <del>PPL Electric's the CFL Residential Lighting Program</del> <u>retail-based upstream incentive and give-away programs. This CSP could potentially be responsible for both programs, or there may be two CSPs that manage the programs individually.</u>
8	<b>Appliance Recycling CSP:</b> <del>will provide</del> <u>s</u> a turn key refrigerator, freezer and room air conditioning recycling program.
9	<del>Demand Response</del> <u>Direct Load Control</u> CSP: <del>may be one or two dedicated</del> <u>turnkey</u> demand response contractor(s) <del>that may administer and implement one or both of PPL Electric's Demand Response Programs: to deliver firm load reductions for the</del> Direct Load Control <u>Program and Load Curtailment on a turnkey basis and will be contracted to deliver firm load reductions to PPL Electric.</u>
10	<b>E-Power Wise CSP:</b> <del>will be</del> responsible for providing energy-efficiency kits to Community Based Organizations (CBOs), training CBO personnel or, in instances where CBO staff or other trainers are not available or interested, delivering workshops, distributing and analyzing feedback forms, and reporting on results.
11	<b>EM&amp;V CSP:</b> <del>will provide</del> <u>s</u> <u>independent</u> evaluation, <del>monitoring</del> <u>measurement</u> , and verification.
12	<b>Tracking CSP:</b> <del>will develop</del> , provide (or host) a program activity tracking, management, analysis, and reporting system.
<u>13</u>	<u>Load Curtailment CSP: turnkey demand response contractor to deliver firm load reductions for the Load Curtailment Program.</u>
<u>14</u>	<u>C&amp;I CSP: responsible to for recruiting and supporting C&amp;I and GNI customers and trade allies, primarily in the Efficient Equipment Program and the Custom Program. Helps customers and trade allies to complete applications and determine incentives.</u>
<u>15</u>	<u>Behavior &amp; Education CSP: turnkey contractor responsible to deliver Behavior &amp; Education Program.</u>

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#### Trade Allies (TA)

Trade allies provide products and services to customers in support of PPL Electric's programs, but are not under contract to PPL Electric. Trade allies typically provide products and services under contract to and directly for customers.

Table 108. Potential Trade Ally Program Delivery Roles

TA #	TA Roles
1	<del>HVAC, and Appliance, Lighting and other</del> <u>Dealers and Installers:</u> provide sales, equipment diagnostics, maintenance, and installation services for energy efficient equipment, such as HVAC systems, <u>lighting</u> , and appliances. These trade allies will inform customers about PPL Electric's Efficient Equipment Incentive Program and other applicable programs, provide essential information for customers to understand costs and benefits of equipment or services, and encourage customers to take advantage of PPL Electric's programs. <u>Some trade allies will also participate in the Direct Discount delivery mechanism.</u>
2	<b>Comprehensive Audit Contractors:</b> a network of BPI-trained contractors in PPL Electric's service territory will support delivery of the comprehensive audit component of the Residential Energy Assessment & Weatherization Program.

3	<b>Renewable Energy System Installers:</b> provide technical site assessment and installation services for customers interested in installing solar photovoltaic or geothermal systems under the Renewable Energy Program. These trade allies will inform customers about PPL Electric's program as well as other financial incentives available through the state of Pennsylvania and Federal Tax credits.
4	<b>Residential and Commercial Builders:</b> are builders, developers, remodelers, contractors, architects, engineers or other market participants that design, develop and build residential and commercial buildings.
5	<b>Technical engineering and energy services firms:</b> provide technical studies and/or installation of energy-efficiency projects for commercial and industrial sector customers.

#### Market Partners

Market Partners are independent market participants that may provide conservation products and services to PPL Electric customers and may be supported by funding from the Company, but are not under contract to PPL Electric. PPL Electric's low-income programs will be supported by several market partners, collectively termed community based organizations (CBOs), which provide energy-efficiency services directly to income-qualified customers. PPL Electric will leverage its existing relationship with CBOs to expand and enhance its low-income programs.

In addition, PPL Electric has established less formal relationships with non-profit and community outreach organizations that provide complementary programs to customers in PPL Electric's service territory, including the Pennsylvania Housing Finance Authority (PHFA), which delivers a multifamily efficient equipment loan program directed primarily to low-income customers, and Keystone HELP, which offers Home Performance with ENERGY STAR® residential audits, incentives on some energy efficient technologies, and financing for energy-efficiency products and services. ~~PPL Electric and these organizations have agreed to engage in an active co-marketing effort to help direct customers to appropriate energy-efficiency programs and incentives, regardless of which company or organization receives the benefits.~~

Additional market partners may include organizations, such as environmental advocacy groups whose missions are compatible with PPL Electric's EE&C programs, who will promote the Company's programs as part of their broader efforts to encourage the adoption of energy-efficiency, conservation and renewable energy technologies.

#### 4.1.2. Describe how the risk categories of performance, technology, market, and evaluation can affect the programs and any risk management strategies that will be employed to mitigate those risks.

See Section 1.2.1.4 Considering the Role of Uncertainty. ~~In preparing its plan, PPL Electric has carefully considered the role of uncertainty and the risk factors that could affect the performance and outcomes of the proposed portfolio. These risks fall in three general categories: technical, financial and market.~~

~~Technical risks are associated with the performance of measures and effectiveness of the energy efficient practices proposed in the Plan. Technical risks may arise from material defects, poor installation and premature measure failure. As described in Section 6, the Company expects that its proposed quality assurance measures, such as~~

~~post installation inspections, will help identify risks related to measure quality, installation and operation. Measure failure or removal and its effect on persistence of savings will be identified and addressed as part of the EM&V process.~~

~~Financial risks are uncertainties associated with the Plan's costs and may stem from uncertainties or unforeseen changes in measure installation costs or administrative costs. The Company believes that it can effectively manage these costs through careful and ongoing monitoring of program activities and expenditures and making the necessary adjustments as warranted by the data. The manner in which such risks are mitigated will vary depending on the nature of the problem. Mitigation actions could range from minor adjustments to elimination of measures or additions/deletions of an entire program. All of these changes will be submitted to the Commission for review. Please refer to Section 1.2.1.4 for a more detailed discussion of this issue.~~

~~Market risks are those affecting the success of a program reaching its intended target market(s), the program's inability to achieve the projected market penetration, or behavioral risks such as free-ridership. Uncertainties regarding consumers' willingness to participate in PPL Electric's programs will have implications for the success of the entire Plan. Therefore, the Company plans to monitor market acceptance to detect and identify any barriers impeding participation in its programs and to take appropriate remedial action. Such actions may include adjustments to outreach and program marketing strategy, adjusting incentive levels, changing the mix of measures or, as last resort, canceling or replacing the program.~~

~~The proposed Energy Efficiency Management Information System, quality assurance measures, process evaluations, and measurement and verification activities are all part of the Company's approach to risk management (see Sections 5 and 6). Together, they allow early detection of problems so as to devise timely solutions. About 6% of the total cost for each program is dedicated to quality assurance and EM&V. The Company expects that quality assurance and EM&V resources will be allocated to areas where uncertainties are greatest. For example, if market penetration was uncertain, then a focus on non-participants research would be appropriate. Likewise, if technology performance was found to be an issue, more resources would be channeled to engineering analysis and technical performance measurement and verification.~~

**4.1.3. Describe how EDC plans to address human resource and contractor resource constraints to ensure that adequate personnel and contractors are available to implement the EE&C Plan successfully.**

As discussed above, PPL Electric expects to use internal staff, CSPs, trade allies and other market partners to promote and deliver programs. PPL Electric's service territory is home to a robust contractor, equipment installer and service contractor base, which is expected to be further supported and stimulated through the influx of ARRA funds directed to 'green job development' in the state. To further support this contractor and trade ally base, PPL Electric has included provisions and funding in its Plan for contractor recruitment, outreach and training. PPL Electric will solicit customer and contractor feedback and conduct market research as part of its process evaluation to determine where gaps in contractor resources may exist and will develop a plan around training and recruitment targeted to these specific areas as needed.

In addition to these external workforce development activities, PPL Electric ~~anticipates hiring~~hired approximately 20 new internal staff to support delivery of the EE&C

programs. The Company ~~has developed~~implemented a staffing plan that ~~outlines~~includes internal staffing resources needed during ~~the current program planning and development stage and during the implementation~~and maintenance phases. PPL Electric examined the staffing and project delivery structures used by other utilities with active energy-efficiency programs and reviewed its own program development plans and expected program delivery needs to create a staffing plan to support its program planning and implementation needs during the Plan period. The Company ~~anticipates that it has a~~ Customer Programs Specialist ~~will to~~will oversee each of its programs and will be supported by additional administrative and marketing staff. Individual Customer Programs Specialists may not be dedicated to a single program, however, particularly where turnkey CSPs will be utilized. PPL Electric ~~frequently will~~frequently evaluates work loads and staffing needs as its programs ~~become operational~~progress. In all cases, one individual will be the lead for each program and will be directly accountable for program results.

PPL Electric uses competitive hiring procedures to identify qualified individuals with the appropriate skill sets to fill all of its staffing requirements. As explained, the Company plans to hire most of its new staff before November 2009 to ensure it is prepared to launch and implement most programs within a few months after Commission approval of the EE&C Plan. If, following program implementation, it is found that additional or fewer staff is needed to support program delivery, PPL will make the necessary adjustments. A description of PPL Electric's EE&C Plan management structure and an organizational chart are provided in Section 4.2.1, below.

**4.1.4. Describe "Early Warning Systems" that will be utilized to indicate progress toward the goals and whether they are likely to be met. Describe EDC's approach and process for shifting goals and funds, as needed, between programs and adding new measures/programs.**

Ongoing monitoring of program activity, enabled by the ~~planned~~management oversight, and the independent EM&V evaluator, ~~will~~will be provide the means for detecting early indications that programs are not meeting their performance targets. Customer participation ~~will be~~is a primary indicator of a program's progress toward its targets. This information, coupled with feedback from CSPs and the results of process evaluations and/or customer surveys ~~will be~~are analyzed to determine the underlying reasons for a program's under performance. Such reasons may include program features such as marketing and outreach, incentive amounts, the general economy, customers' budgets and financial viability, or the program delivery method or the mix of measures. After the root causes have been identified, PPL Electric ~~will take~~takes appropriate action to correct the problem. Depending on the nature of the problem and its cause(s), solutions could include minor adjustments of certain program features and procedures, eliminating or adding measures, or eliminating or adding programs. All of these changes will be submitted to the Commission for review.

**4.1.5. Provide Implementation Schedules with Milestones.**

The following implementation schedule identifies major tasks and milestones associated with delivery of specific programs and procurement of functional CSPs, including expected dates for accomplishing each element.



**Figure 5. Implementation Schedule and Milestones**

Program Milestones	Work scope, Standards & Final Processes	RFP Issued	CSP Under Contract*	Final marketing & educational & program applications	Trade Ally Outreach	Program Training	Ready to launch**	Final EM&V methodology & procedures	EM&V	Program End
Efficient Equipment Incentive Program	Functional CSPs SEE BELOW			2/1/2010	12/31/09-ongoing	12/31/09-3/1/10	3/1/2010	3/1/2010	Ongoing	5/31/2013
Residential Audit & Weatherization	7/14/2009	7/28/2009	9/22/2009	2/1/2010	12/31/09-ongoing	12/31/09-3/1/10	3/1/2010	3/1/2010		
CFL Campaign	6/1/2009	6/5/2009	8/30/2009	12/1/2009	8/30/09-ongoing	NA	1/1/2010	1/1/2010		
Appliance Recycling Program	4/1/2009	4/20/2009	6/30/2009	11/1/2009	NA	10/1/09 - 12/1/09	12/1/2009	12/1/2009		
ENERGY STAR® New Homes	12/1/2009	1/1/2010	2/1/2010	6/1/2010	3/1/10-ongoing	3/1/10-6/1/2010	6/1/2010	6/1/2010		
Renewable Energy	Functional CSPs SEE BELOW			To Be Determined1/1/10						
Direct Load Control	7/15/2009	8/15/2009	11/2010	on going after 12/2010	ongoing	NA	late 2010/ early 2011	Tbdearly 2011		
Time of Use Rates	NA	NA	NA	11/1/2009***	NA	NA	1/1/2010***	1/1/2010		
Consumer Energy Use Behavior & Education	TO BE DETERMINED3/2010 CSP Contract			3/1/2010	ongoing	ongoing	4/1/2010	4/1/2010		
Low-Income WRAP	NA	NA	NA	NA	NA	NA	11/1/2009	11/1/2009		
E-Power Wise	7/6/2009	7/17/2009	9/15/2009	11/1/2009	10/15/09-ongoing	11/1/09-ongoing	1/15/2010	2/1/2010		
C&I Custom Incentive Program	NA	NA	NA	3/1/2010	3/1/10-ongoing	3/1/10-4/1/10	4/1/2010	4/1/2010		
HVAC Tune-Up Program	8/15/2009	9/15/2009	12/1/2009	1/15/2010	1/1/2010	1/1/2010	2/1/2010	2/1/2010		
Load Curtailment	7/15/2009	8/15/2009	late 2010/ early 2011	ongoing after 1/2011	ongoing	NA	mid 2011	tbd		
Functional CSP Milestones:										
Advertising CSP	6/15/2009	6/26/2009	8/21/2009							
Administrative CSP	7/14/2009	7/28/2009	9/22/2009							
QA/QC CSP	8/1/2009	8/14/2009	10/9/2009							
EM&V CSP	6/22/2009	7/7/2009	9/1/2009							
Program Tracking System	6/15/2009	6/30/2009	8/25/2009							
C&I CSP										
Reporting Milestones										
Quarterly reporting**	10/15/2009	1/15/2009	4/15/2009	7/15/2009						

# Section 4: Program Management and Implementation Strategies

Annual Reporting	7/15/ <del>2010</del> <a href="#">(prelim)</a>	<del>7/15/2011</del> <a href="#">11/15</a> <a href="#">(final)</a>	<del>7/15/2012</del>	<del>7/15/2013</del>						
Review and adjust programs	Ongoing									
<del>1- limited notice to proceed subject to PUC approval of contract and EE&amp;C Plan</del>										
<del>2- Assumes PUC approval of EE&amp;C Plan by Nov. 1, 2009</del>										
<del>3- Upon PUC approval of TOU Tariff Filing</del>										

## 4.2. Executive Management Structure

### 4.2.1. Describe EDC structure for addressing portfolio strategy, planning, review of program metrics, internal and external communications, budgeting and financial management, program implementation, procurement, program tracking and reporting, and Quality Assurance/Quality Control (QA/QC). Include EDC organization chart for management team responsible for implementing EE&C plan.

PPL Electric's Director of Energy-efficiency and Conservation Programs is responsible to manage the development and implementation of the Plan, including ~~working with the Company's consultant to develop~~ ing a portfolio strategy; planning and designing programs; ~~analyze, measure, tracking and analyzing performance; EM&V; and reporting~~ cost-effectiveness, savings and demand reduction impacts; ~~lead~~ internal and external communications; marketing; working with stakeholders; managing CSP procurement; and budgeting and financial management. The Company will use a combination of its existing staff and ~~will hire~~ new employees to design, implement, and manage programs; oversee program CSPs; and support functional requirements of program delivery, such as marketing and advertising, customer education, program and portfolio evaluation, measurement, verification, tracking, and reporting.

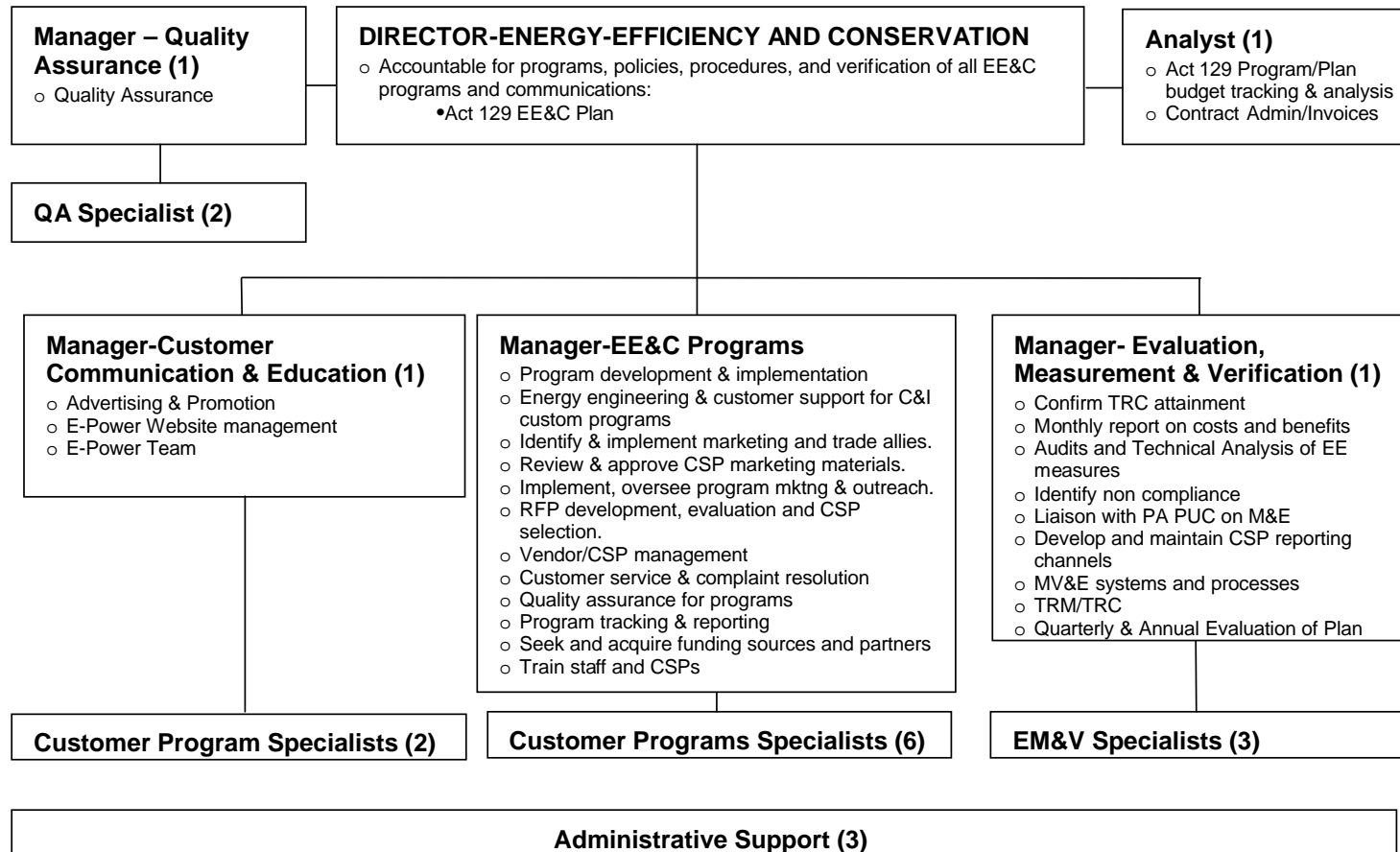
A Manager of EE&C Programs ~~will be~~ is responsible to manage and oversee a staff of Customer Program Specialists that will have day-to-day responsibility to implement and deliver programs and track results.

The Company also ~~expects to hire additional~~ utilizes existing and new Key Account Managers to ~~expand its~~ support and help promote programs in the large commercial and industrial customer segment and among its larger governmental and non-profit sector customers. In addition, PPL Electric ~~will hire~~ uses specialists in advertising; evaluation, measurement and verification; quality assurance and quality control; and data tracking systems to oversee these cross-program functional requirements, manage associated CSPs and provide ongoing support to Customer Program Specialists and the Manager of EE&C Programs. Additional staff also ~~may be hired to support~~ s low-income programs.

Figure 6 ~~Figure 6~~, below ~~describes~~ summarizes PPL Electric's ~~anticipated~~ EE&C management structure and staffing requirements. Staffing levels may change to match on-going workload.

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**Figure 6. EE&C Organization and High Level Responsibilities**



Note: The numbers in parentheses indicate the approximate quantity of new positions dedicated to Act 129 EE&C Plan.

**4.2.2. Describe approach to overseeing the performance of sub-contractors and implementers of programs and how they can be managed to achieve results, within budget, and ensure customer satisfaction.**

PPL Electric recognizes that its EE&C Plan depends not only on well-designed programs and well-qualified CSPs but also on a commitment to ongoing monitoring and improvement of energy-efficiency programs after they are launched. As part of that commitment, PPL Electric has ~~developed~~ implemented a plan to oversee its CSPs to ensure that they meet the requirements of their contracts and to monitor and modify, as needed, marketing and delivery procedures to meet defined savings targets and optimize customer satisfaction. PPL Electric's oversight plan includes the following elements:

- **Dedicated PPL Electric management staff assigned to each program.** PPL Electric ~~'s will assign internal~~ staff ~~to oversee~~ s each of the programs offered through the EE&C Plan. Program staff ~~will be~~ are responsible for overall program management, including the performance of relevant program CSP(s). PPL Electric staff ~~will measure~~ s progress of goals and compliance with milestones and performance standards for each program.
- ~~**Quality assurance/quality control CSP.** PPL Electric will hire a QA/QC CSP with expertise in energy-efficiency program management, monitoring and verification, and reporting. The CSP will assist PPL Electric staff in reviewing program and CSP performance and will provide PPL Electric with design options for modifying program delivery mechanisms, including CSP processes if needed.~~
- **EM&V CSP.** PPL Electric ~~'s intends to hire an~~ EM&V CSP ~~to provide~~ s independent evaluations of program impacts and additional evaluation services as needed. This CSP ~~will conduct~~ s process evaluations of programs to identify gaps between program design and operations and ~~will coordinate~~ s the Company's EM&V activities with the statewide EE&C Plan evaluator. Process evaluations consider all aspects of a program's design intent and ~~will allow~~ the EM&V CSP to evaluate implementation performance against this standard.
- **Monitor and measure program performance.** PPL Electric has ~~established~~ annual savings goals needed to meet Act 129 targets as well as performance criteria such as customer satisfaction and program participation. CSPs are required to measure the performance of their programs, compare performance to PPL Electric targets, and submit the results in monthly variance reports to PPL Electric. This near real-time reporting ~~will allow~~ s PPL Electric and its CSPs to identify deviations from expected results and to address the deviations.

**4.2.3. Describe basis for administrative budget.**

"Administrative costs" ~~for the proposed Plan constitute~~ are approximately ~~25~~ 45% of the total Plan budget.<sup>84</sup> ~~This is not directly which is~~ comparable to industry experience in other states and between EDCs in Pennsylvania because the definitions of

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<sup>84</sup> This increased compared to the original EE&C Plan because of the reclassification of many costs from "incentives" to "CSP Costs" (material and labor), such as all goods and services provided at no cost to low-income customers.

"administrative cost" and "incentives" are not consistent. PPL Electric has defined "administrative costs" as all utility costs to develop, implement, and manage the Plan except payments to customers/trade allies (rebates & incentives). ~~These Administrative costs consist of all PPL Electric labor and materials (approximately 5%), CSP labor and material (approximately 9%), marketing and trade ally expenses (approximately 5%), and QA/QC and EM&V (approximately 6%), tracking systems, legal, and the statewide evaluator.<sup>85</sup> Costs in each category were developed based on the Company's best estimate and information available on energy-efficiency programs being offered by investor-owned utilities in other jurisdictions. Some types of costs have been reclassified from "incentives" to "administrative" since the original EE&C Plan and that is the primary reason for the increased percentage of administrative costs. In particular, the cost of goods and services provided to low-income customers at no cost was reclassified from "incentives" to "administrative".~~

#### 4.3. ~~Potential~~ Conservation Service Providers (CSPs):

##### 4.3.1. List any selected CSPs, describe their qualifications and basis for selection (include contracts in Appendix C).

~~See Section 4.1.1. In compliance with Act 129, PPL Electric has awarded one CSP contract as of the date of this submission. This contract is for turnkey services to develop, market, and deliver the Appliance Recycling Program described in Section 3.2. The selection process followed PPL Electric's Act 129 Procedure 100, "Awarding Contracts to CSPs" dated March 2, 2009 PPL Electric submitted the contract and the RFP process to the Commission for review and approval at Docket No. M-2008-2069887. The Commission approved the contract in a Secretarial letter dated April 17, 2009 and approved the RFP process in a Secretarial letter dated April 1, 2009.~~

~~PPL Electric issued an RFP on April 1, 2009, soliciting proposals from qualified firms to deliver a turnkey Appliance Recycling Program that will meet the goals set out in the Plan. The RFP was sent to five firms and two firms responded. The winning firm was selected following a rigorous and standardized review process based on evaluation criteria specified in Procedure 100. Proposals were scored and strengths and weaknesses noted by a six-member review team. PPL Electric then conducted interviews with respondents which were asked about their operations and pricing flexibility. Interviews also allowed the review team to evaluate the proposers' understanding of the RFP and the specific market characteristics (customer behaviors, demographics, geography, appliance saturation, likelihood to achieve energy consumption and peak load reduction targets for this program, etc.) for appliance recycling in PPL Electric's service territory. The successful bidder was selected because their proposal scored the highest in accordance with PPL Electric's procedure for evaluating and awarding CSP contracts. The contract, including the scope of work, and the bid evaluation were submitted to the Commission under separate cover for approval. The contract (with pricing information redacted) is included in Appendix C.~~

##### 4.3.2. ~~Describe the work and measures being performed by CSPs.~~

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<sup>85</sup> ~~Administrative costs in the Plan do not include~~ PPL Electric's share of the Commission's statewide EE&C Plan evaluation contractor. Those costs, as well as EM&V costs for net-to-gross analysis, are ~~outside of~~ not subject to the Act129 cost cap.

The Appliance Recycling Program CSP is contracted to develop, market and deliver turnkey services that will result in achieving the savings and demand reduction goals expected from the program, within the program budget. This includes scheduling and performing refrigerator, freezer and room air conditioner pick-ups; working with PPL Electric to pick up and process room air conditioners at community events; transporting appliances to a recycling facility; dismantling appliances; recycling all possible materials; and properly disposing of any unusable materials following appropriate state and federal materials handling regulations; verifying customer and appliance eligibility; processing rebate payments; tracking all program activities; and reporting results to PPL Electric.

#### 4.3.3. Describe any pending RFPs to be issued for additional CSPs.

The following table summarizes the procurement schedule for potential Conservation Service Providers.

**Table 114. Procurement Schedule for Potential CSPs**

CSP number ***	CSP Role	RFP date	Status (as of June 15, 2009)
1	Administrative (intake, routing, rebate processing, etc.)	7/28/2009	RFP in development
2	Advertising and public relations	6/26/2009	RFP in development
3	Walk through energy surveys	7/28/2009	RFP in development
4	New Homes Program training and application review	1/1/2010	RFP in development
5	Quality assurance & technical review of custom projects	8/14/2009	RFP in development
6	HVAC Tune-Up Program	9/15/2009	RFP in development
7	Compact Fluorescent Lighting Campaign—turnkey CSP**	6/5/2009	Responses pending
8	Appliance Recycling Program—turnkey CSP	4/20/2009	Letter of intent. CSP to be under contract upon Commission approval
9	Demand Response—turnkey CSP*	8/15/2009	RFP in development
10	E-Power-Wise Program	7/17/2009	RFP in development
11	EM&V CSP	7/7/2009	RFP in development
12	Program Tracking System	6/30/2009	RFP in development

\* May be one or two CSPs delivering Direct Load Control Program, Curtailment Program, or both.

\*\* May be separate CSPs for the CFL upstream incentive and give away components.

\*\*\*CSP number corresponds with those indicated in Figure 4 and described in Table 112

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## 5. Reporting and Tracking Systems

### 5.1. Reporting:

#### 5.1.1. List reports that would be provided to the Commission, the schedule for their delivery, and the intended contents.

PPL Electric ~~expects to provide~~provides quarterly, annual, ~~and savings reconciliation and ad hoc~~ reports to the Commission and the Statewide Evaluator.

Quarterly Reports will be filed with the Commission on the 15<sup>th</sup> of January, April, July (~~annual report~~), and October of each Plan year. These reports will contain basic program data on participants, measures and the Company's budget expenditures and progress on savings and peak demand reduction goals as measured against the Plan.

Consistent with the Commission's directives, annual~~Annual~~ reports will be filed by July 15 (~~preliminary annual report that includes reported gross savings~~) and November 15 (~~final annual report that includes verified gross savings, net savings, and cost-effectiveness results~~) for each planning year, ~~following the close of each planning year.~~

Annual reports will be a full reporting of PPL Electric's progress toward Plan goals and all program activity, including number of participants, measure installations, expenditures, estimated electricity savings based on the TRM and PPL Electric's analysis, and peak load impacts, on a program by program basis in the tabular and graphic formats specified by the Commission.

~~Savings reconciliation reports will be filed by March 1 following the close of each program year (e.g. 3/1/2011, 3/1/2012, 3/1/2013, and 3/1/2014). Savings reconciliation reports will describe evaluation progress and results, including a description of evaluation objectives, methods and findings, and will reconcile savings estimates provided in PPL Electric's annual reports with the measured savings determined through the Company's EM&V analysis. Savings reconciliation reports may also contain any recommendations for program revisions resulting from evaluation activities and PPL Electric's plans to address recommendations.~~

The company also may submit ~~periodic memorandums~~ad hoc reports responding to requests from the Statewide Evaluator or Commission, or to explain ~~detailing any type of~~ unusual conditions or events that may lead to major program changes, cancellation, or replacement.

The format and content of all reports will comply with PPL Electric's internal requirements and those established by the Commission and the ~~statewide EE&C Plan evaluation contractor~~Statewide Evaluator.

#### 5.1.2. Describe data that would be available (including format and time frame of availability) for Commission review and audit.

~~The Company expects that its~~PPL Electric's Energy Efficiency Management Information System (described in Section 5.2) ~~will have~~has up to date information ~~and shall be that is~~ available for audit, inspection and review by the Commission and Statewide Evaluator in near real time. The mechanism for accessing this data is described in Section 5.2.3. PPL Electric intends to incorporate standardized queries and reports in the tracking system, which will generate user-friendly graphs, charts and status reports in electronic format.



## 5.2. Project Management Tracking Systems:

~~The Company intends to deploy an integrated data management and tracking system, known as the Energy Efficiency Management Information System. This system will provide PPL Electric the capability to record activities and transactions related to the implementation of the plan, monitor activities as they occur, analyze performance, monitor savings and expenditures and report the results. This system will also be designed to provide the necessary information for audit by the statewide EE&C Plan evaluation contractor.~~

### 5.2.1. Provide brief overview of the data tracking system for managing and reporting measure, project, program and portfolio activities, status and performance as well as EDC and CSP performance and expenditures.

~~PPL Electric's Energy Efficiency Management Information System, MicroStrategies (business intelligence software used primarily for reporting), and internal accounting system provide the capability to record activities and transactions related to the implementation of the plan, analyze performance, monitor savings and expenditures, and report the results. These systems also provide the necessary information for audit by the statewide EE&C Plan evaluation contractor. PPL Electric is currently developing a complete set of specifications for its tracking system and expects to solicit proposals from qualified vendors to develop and/or deploy a commercially available system once the features and capabilities of the system are fully specified. A summary of features and capabilities that the Company will require of the tracking system is provided in Section 5.2.2 below.~~

### 5.2.2. Describe the software format, data exchange format, and database structure you will use for tracking participant and savings data. Provide examples of data fields captured.

~~Based on preliminary research on current EE&C activity tracking and reporting systems and practices of other utilities in the United States, PPL Electric's tracking systems anticipate that its system will be~~are ~~based on a commercially available database platform such as SQL with sufficient system integration capabilities to link to the Company's existing information systems.~~ — The systems may include the following features and capabilities.

#### Database Structure

- Allows for multiple levels of data resolution (e.g., measure, project, premise, site customer, sector, program type, CSP, etc.).
- Allows users to easily navigate through layers of data (e.g., measures, project, program, etc.).
- Provides a database for storing electronic documents related to program participants and other functions.
- Provides a straightforward interface for adding programs and program components.

#### System Access

- Allows varying levels of security-controlled access by PPL Electric staff, program CSPs, system administrators, Commission personnel, the statewide evaluation contractor, and others as required.
- Accessible through the Internet or direct links, as appropriate, and will be traceable, i.e. maintaining a log of users' access.
- Access controlled via security rights assigned to each user or groups of users.
- Allows for appropriate security (releases, encryption, etc.) on customer data.

#### Integration Capabilities

- Links to PPL Electric's customer information system so PPL Electric's customer service staff knows which customers participate in programs.
- ~~Integrates with equipment databases from ARI, GAMA, other manufacturer databases and systems used by CSP's to track their own activities.~~
- ~~Accepts data uploads in various formats (i.e., SAP, Excel, Access, SQL, etc.).~~ Allows data extracts to be exported to external parties such as the EM&V CSP and the Statewide Evaluator.

#### Enrollment Functionality

- Allows CSPs to file program applications via a secure web link or via the administrative CSP's system.
- Provides data entry screens customized for each program and program component.
- ~~Allows electronic signatures to expedite application processes and reduce paper use.~~
- Calculates reported gross savings ~~and/or impacts from core data such as equipment size and efficiency.~~

#### Data Quality Control

- Makes intelligent use of drop-down lists and menus and keyboard shortcuts.
- Allows data parameters (e.g., maximum/minimum) to be set for each data element to avoid erroneous entries.
- Checks for and alerts users to possible duplicate data entry before posting data.
- Provides adequate audit trail for all corrected data entry errors, deletions, etc.
- Able to track key transaction stages for program participants (application processing) and stages in workflow for CSP's and PPL Electric (project tracking).

#### Reporting

- Able to generate pre-defined standard reports tailored for day-to-day management of the portfolio, internal and external reporting.

#### **5.2.3. Describe access and mechanism for access for Commission and statewide EE&C Plan Evaluator.**

As described in Section 5, PPL Electric's Energy Efficiency Management Information System will allow for secure access through the Internet, ~~or~~ direct links, or data extracts. The database will contain information on PPL Electric's customers and other CSP or utility data that may be considered confidential or proprietary. Therefore, PPL Electric will provide database access to entities other than the Commission and the statewide EE&C Plan Evaluator only upon execution of an appropriate non-disclosure agreement.

## 6. Quality Assurance and Evaluation, Measurement and Verification

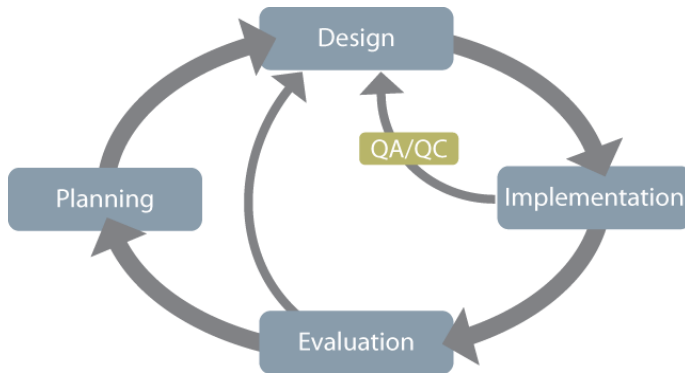
### 6.1. Quality Assurance/Quality Control:

#### 6.1.1. Describe overall approach to quality assurance and quality control.

A continuous improvement process (CIP) is the basic framework for PPL Electric's management of its EE&C portfolio. The basic principle in CIP, illustrated in [Figure 7](#), is the establishment of effective quality assurance (QA) and evaluation, measurement and verification (EM&V) procedures to track program activities, monitor performance and progress toward targets, and take corrective measures when warranted. The CIP will consist of three essential elements: 1) activity tracking, 2) quality control, and 3) process and impact evaluations. Each of these activities is discussed below.

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**Figure 7. PPL Electric's Continuous Improvement Process**



Quality assurance ~~will be~~ is integral to the design and delivery of all programs in PPL Electric's EE&C Plan. Quality control measures ~~will be~~ are employed at various stages of program design and implementation to ensure ~~the highest~~ high industry standards of operational efficiency, effectiveness and customer satisfaction. These measures ~~will~~ include, but not necessarily be limited to the following:

- Ongoing tracking of program activities and costs through the ~~Energy-efficiency Management Information System~~ systems described above.
- Applying rigorous screening and qualifying protocols in engaging CSPs and field staff who interact directly with customers.
- Conducting follow-up calls to participants to ensure their satisfaction with the rendered services; and to help them in their decision to adopt energy-efficiency and conservation measures.
- Conducting post-installation inspections of an appropriately-sized random sample of all participants to verify installation of measures and ensure proper installation.

**6.1.2. Describe procedures for measure and project installation verification, quality assurance and control, and savings documentation.**

PPL Electric's Energy Efficiency Activity Tracking System ~~will be used to~~ documents and tracks all program and portfolio activity and calculates results ~~(reported gross savings)~~. The tracking system ~~will be~~ designed with input interfaces customized to individual programs and coordinated with EM&V personnel and the ~~statewide EE&C Plan evaluator~~ Statewide Evaluator to ensure that appropriate data are collected to feed into the evaluation process. ~~Specific procedures and responsibilities for documenting program activity will be developed for each program as part of the implementation planning process.~~ Program CSPs ~~will be~~ are trained in the use of the tracking system and are expected to document every customer interaction, project and measure installation, complaints and remediation, project delivery timelines, and other metrics. In cases where turnkey CSPs deliver all aspects of a program, the CSPs will be expected to track all activity via secure Internet access or upload. PPL Electric's Administrative CSP ~~will and C&I CSP~~ document measure installation, instances of customer complaints and remediation activities and other information associated with projects where rebate processing provides the primary means of tracking program activity.

The Evaluation Plan for each program contains additional information about EM&V.

**6.1.3. Describe process for collecting and addressing participating customer, contractor and trade ally feedback (e.g., suggestions and complaints).**

PPL Electric in conjunction with the ~~QA/QC~~ EM&V CSP ~~will has develop a~~ implemented an Evaluation Plan ~~standard QA/QC manual customized~~ for each program. PPL Electric conducts on-going customer satisfaction surveys. The EM&V CSP conducts customer and trade ally surveys as part of the impact evaluation and process evaluation. ~~The manual will cover details of program processes, including specific customer and contractor feedback mechanisms for each program, PPL Electric and CSP roles and responsibilities, reporting requirements, and correction protocols for deficient performance. Key elements in the QA/QC manual may include:~~

- ~~• Roles and responsibilities of PPL Electric staff and CSPs.~~
- ~~• Communication and training plan to ensure all parties understand and agree to the Quality Control Plan.~~
- ~~• Procedures, tasks, and process for QA/QC evaluation and remediation.~~
- ~~• SAS 70 Requirements.~~
- ~~• Sarbanes-Oxley (SOX) and specific requirements.~~
- ~~• Reporting requirements.~~
- ~~• Sign-off document that identifies QA/QC tasks with review and approval responsibilities for each task.~~
- ~~• Checklist and definitions.~~

~~PPL Electric will work with the technical CSP to manage the QA/QC function across all programs. PPL Electric expects this CSP to work closely with PPL Electric's selected~~

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~~EM&V CSP and program CSPs to maintain the continuous improvement process. The PPL Electric's QA/QC responsibilities may include:~~

- ~~•The QA CSP selects and assigns qualified professionals to perform the quality control project tasks.~~
- ~~•Program CSPs assign qualified specialists to oversee all elements of the work and carry out a consistent, deliberate quality control process.~~
- ~~•All personnel involved in performing any work associated with the EE&C Plan have a clear understanding of the scope and intent of the overall project design, the importance of meeting Plan goals and intermediate milestones within the required schedule, and environmental, budgetary and customer satisfaction concerns to ensure that all work products meet or exceed PPL Electric's standards and expectations.~~
- ~~•Consistently high levels of customer satisfaction.~~
- ~~•Proper, correct, and timely completion of reports, invoices, and customer complaint resolution.~~
- ~~•Adherence to legal, regulatory, and PPL Electric policy and procedural requirements.~~

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~~Process Characteristic:~~

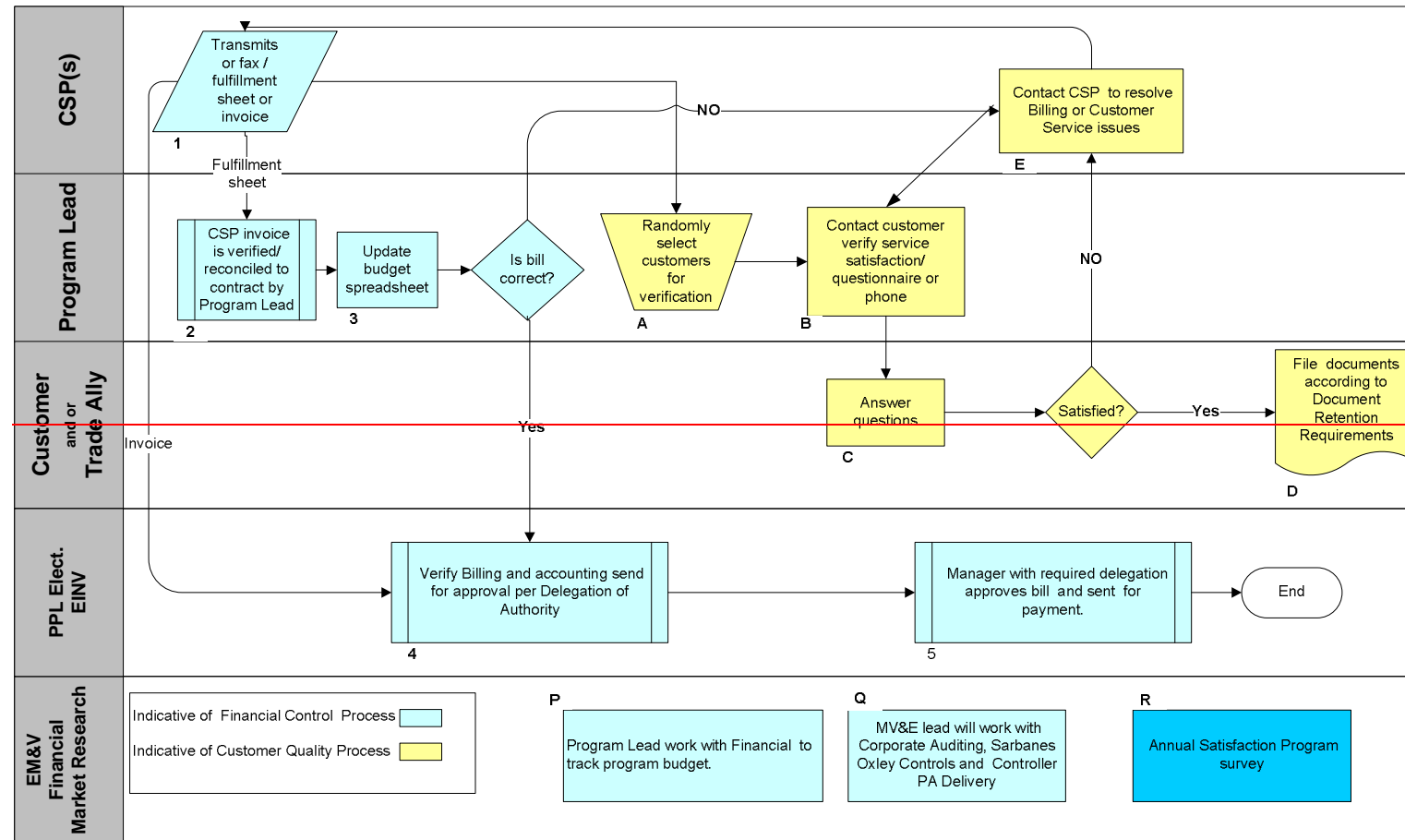
~~The PPL Electric QA/QC process will strive to:~~

- ~~•Prevent errors from being introduced at any point during the process.~~
- ~~•Detect and correct errors as early as possible.~~
- ~~•Eliminate the causes of errors as well as the errors themselves.~~
- ~~•Establish a correction plan based on lessons learned at any point in the process.~~

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~~Figure 8, on the following page provides a graphical depiction of PPL Electric's quality control procedures, roles and responsibilities.~~

**Figure 8. PPL Electric Program Lead Quality Control Process**



## 6.2. Describe any planned market and process evaluations and how results will be used to improve programs.

Baseline studies and market potential studies are the responsibility of the Commission and Statewide Evaluator. PPL Electric's EM&V CSP conducts process evaluations. ~~Market and~~ The process evaluations are principal components of PPL Electric's continuous improvement process. The main objective in process ~~and market~~ evaluations is to monitor progress of individual programs and to provide timely feedback to program administrators. These evaluations ~~will~~ also provide the necessary context for interpreting impact evaluation results. For each program in the Plan, the process evaluation will focus on improving program, operation, and delivery efficiency.

A primary objective in process evaluation ~~will be~~ to assess what program processes work and which ones do not, and how the process or activity may be improved. Process evaluations ~~will~~ begin with a logic model for each program, which describes the program's theory in terms of its goals, processes, outcomes, and a set of key indicators and metrics to assess the program's performance relative to its goals. The process evaluation ~~will~~ also involve an "evaluability" assessment, i.e. a review of data collection and tracking procedures to determine whether data necessary for verification of the program's impacts are collected on time, in sufficient quantity, and in proper format. ~~Process evaluations will begin in early phases of program implementation so as to provide timely feedback to program managers.~~

~~Market~~ Results of the process and impact evaluations ~~will focus on~~ also help to assess assessing the effectiveness of programs in terms of market reach, measures adoption, and customer satisfaction. ~~Market~~ These evaluations ~~will help to identify explore~~ opportunities to improve market reach and identify barriers that may impede program participation and adoption of efficiency measures. ~~Market evaluations will also include a free-rider and participant spillover component and for non-participants, a measure adoption (non-participant spillover) module.~~

Reviews of program documentation, interviews with internal program staff, CSPs and key market actors, and surveys of participants and non-participants will be the main sources of data for the process ~~and market~~ evaluations. Key market actors will vary from program to program and may include various trade allies such as equipment vendors, contractors, distributors, and retailers.

Surveys of program participants and a comparable sample of non-participants will also be administered. Survey samples will be designed to meet a 90/10 criteria for statistical confidence and precision. For each program, samples may be stratified by customer sector, market segment, geography, and energy usage depending on the program's target market. It is anticipated that process surveys will be implemented in periodic "waves" to ensure timely feedback to program planners and CSPs.

## 6.3. Describe strategy for coordinating with the statewide EE&C Plan Evaluator ~~(nature and type of data will be provided in a separate Commission Order).~~

~~The Commission Staff has issued a request for proposals (RFP) to select a statewide EE&C Plan evaluator.~~ The Statewide Evaluator ~~evaluator will~~ develop measurement and verification protocols and an Audit Plan, describing the metrics and data formats EDCs must use and provide to the contractor(s). PPL Electric and its EM&V CSP will



follow those requirements or request approval for exceptions. ~~Since EDC Plans are being filed before the statewide measurement and verification protocols are developed, PPL Electric proposes to defer preparation of program-specific EM&V plans until after the statewide protocols are developed and approved by the Commission. PPL Electric plans to issue an RFP to engage one or more CSPs that specialize in impact evaluations of energy efficiency and demand response programs. The first task for these CSPs will be to prepare detailed EM&V plans consistent with the guidelines to be published by the statewide evaluator. For each of the proposed programs, the evaluation will include plans for both a process analysis and an impact assessment.~~

Impact evaluations ~~will~~ serve as the principal means of verifying the installation of EE&C measures and quantifying the resulting energy and demand impacts. Methods for measurement and verification of savings will vary by program and sector and ~~may~~ include statistical pre/post comparison of energy consumption, engineering calculations, energy simulation, and metering. The impact evaluation methods for each program will be based on guidelines provided in the measurement and verification protocols to be established by the statewide evaluator. However, PPL Electric expects that those protocols will largely adhere to a commonly accepted set of practices documented in sources such as the International Performance Measurement and Verification Protocol<sup>86</sup>; the Model Energy Efficiency Program Impact Evaluation Guide, 2007,<sup>87</sup> and the California Energy Efficiency Evaluation Protocols,<sup>88</sup> a product of the National Action Plan for Energy Efficiency. PPL Electric intends to develop and implement detailed evaluation work plans through an independent, third-party EM&V CSP are described in each program's Evaluation Plan.

PPL Electric's Energy Efficiency Management Information System, described in Section 5.2, will track all of the data necessary to audit and verify all program activities and outcomes. For each program in the Plan, this data will include, but not be limited to the following:

- ~~Participant information: account number, rate class, Act 129 customer segment, and contact information.~~
- ~~Project information: Site (facility) location, project specifications, total project cost, project application date, project approval date, project completion date.~~
- ~~Program information: Program code, program type (prescriptive rebate, custom, point of sale, etc.), CSP code, incentive type and amount(s).~~
- ~~Measure information: Type and quantity of measures installed, efficiency rating, services rendered.~~
- ~~Expenditures, savings and peak load impacts.~~

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<sup>86</sup> Efficiency Valuation Organization. IPMVP Public Library of Documents. <http://www.evo-world.org/>

<sup>87</sup> National Action Plan for Energy Efficiency (2007) Model Energy Efficiency Program Impact Evaluation Guide. [http://www.epa.gov/cleanenergy/documents/evaluation\\_guide.pdf](http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf).

<sup>88</sup> State of California, Public Utilities Commission. California Evaluation Framework (June 2004). [http://ftp.cpuc.ca.gov/Egy\\_Efficiency/CaliforniaEvaluationFrameworkSept2004.doc](http://ftp.cpuc.ca.gov/Egy_Efficiency/CaliforniaEvaluationFrameworkSept2004.doc)

~~•Trade ally information: Contact information, dates of program involvement, installation standards used.~~

~~•Retailer information: Retailer location, contact information, type and quantity of product(s) sold.~~

~~Note that certain data will not be relevant to all programs. For example, project information is not applicable to the CFL Campaign. The Evaluator will be provided with access to the system and will be able to extract data in formats compatible with commercially available software, including SAS, Microsoft Excel and Microsoft Access.~~

## 7. Cost-Recovery Mechanism

### 7.1. Provide the amount of total annual revenues as of December 31, 2006, and provide a calculation of the total allowable EE&C costs based on 2% of that annual revenue amount.

Section 2806.1(g) of Act 129 requires that the total cost of any EE&C Plan cannot exceed 2% of the EDC's total annual revenues as of December 31, 2006. PPL Electric's total annual revenues for calendar year 2006 were approximately \$3 billion (\$3,075,068,824). Accordingly, the 2% cost cap established by Act 129 is approximately \$61.5 million (\$61,501,376). In the Implementation Order entered on January 16, 2009, at Docket No. M-2008-2069887, the Commission concluded that this limitation on the "total cost of any plan" should be interpreted as an annual amount, rather than an amount for the full term of the Plan. In addition, the Commission has determined that certain implementation costs recoverable under Act 129 not subject to the 2% cost cap. Those costs include PPL Electric's share of the Statewide Evaluator and net-to-gross evaluations.

### 7.2. Description of plan in accordance with 66 Pa. C.S. §§ 1307 and 2806.1 to fund the energy-efficiency and conservation measures, to include administrative costs.

PPL Electric will spend most of the \$246 million<sup>89</sup> to implement its EE&C Plan, including administrative costs. ~~However, this~~ This total cost also ~~will include~~ includes the costs that PPL Electric ~~incurred-incurs~~ incurs to develop and modify its EE&C Plan. In the Implementation Order, the Commission found that EDCs should be permitted to recover the incremental cost incurred to design, create, and obtain Commission approval of a plan. In addition, in an order entered on May 28, 2009 at Docket No. P-2009-2091818, the Commission granted PPL Electric's request to defer such plan development costs on its balance sheet as a regulatory asset. Accordingly, the Company proposes to amortize and recover those deferred costs ratably over the 41-month life of its initial EE&C Plan (i.e., January 1, 2010 through May 31, 2013). The amortization of those costs ~~will be~~ is included within the \$246 million spending cap.

### 7.3. Provide data tables (see Tables 6A, 6B, and 6C).

The tables ~~provided~~ on the following pages provide ~~a program-by-program calculation of savings and costs for each program year, broken out for each program. In compliance with the Commission template, PPL Electric has included budget tables with~~ cost data for each program/sector broken out by direct program costs, administrative costs, and total costs (per PUC tables 6A, 6B, and 6C).

Cost effectiveness calculations by program ~~and by program year follow~~ are in Section 8.

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<sup>89</sup> \$246 million is PPL Electric's Act 129 cost cap. In addition, PPL Electric expects to incur approximately \$5 million for activities that the Commission determined are not subject to the cost cap. These activities include PPL Electric's share of the Statewide Evaluator's costs and PPL Electric's cost to conduct a net-to-gross evaluations each year.



**Table 109. Portfolio-Specific Assignment of EE&C Costs<sup>90</sup>**

<u>Residential Portfolio (excluding Low-Income)</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (includes Participant costs)</u>	<u>Totals - Utility Costs (excludes Participant costs)</u>
	<u>EDC Labor*</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Costs*</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives / Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>Appliance Recycling</u>	<u>\$120,217</u>	<u>\$60,422</u>	<u>\$4,760,992</u>	<u>\$416,574</u>	<u>\$1,911,680</u>	<u>\$0</u>	<u>\$7,269,884</u>	<u>\$7,269,884</u>
<u>Residential Lighting Program</u>	<u>\$413,610</u>	<u>\$79,414</u>	<u>\$3,576,156</u>	<u>\$145,960</u>	<u>\$10,991,838</u>	<u>\$20,355,583</u>	<u>\$35,562,561</u>	<u>\$15,206,979</u>
<u>Custom Incentive</u>	<u>\$147</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,763</u>	<u>\$7,603</u>	<u>\$9,513</u>	<u>\$1,910</u>
<u>Energy Efficiency Behavior &amp; Education</u>	<u>\$188,276</u>	<u>\$125,955</u>	<u>\$2,515,169</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$2,829,400</u>	<u>\$2,829,400</u>
<u>Direct Load Control</u>	<u>\$250,369</u>	<u>\$4,780</u>	<u>\$9,061,923</u>	<u>\$0</u>	<u>\$1,462,176</u>	<u>\$0</u>	<u>\$10,779,248</u>	<u>\$10,779,248</u>
<u>Efficient Equipment Incentive</u>	<u>\$86,762</u>	<u>\$34,197</u>	<u>\$0</u>	<u>\$50,992</u>	<u>\$14,259,545</u>	<u>\$29,304,632</u>	<u>\$43,736,128</u>	<u>\$14,431,496</u>
<u>Renewable Energy</u>	<u>\$114,628</u>	<u>\$1,019</u>	<u>\$989</u>	<u>\$0</u>	<u>\$1,795,236</u>	<u>\$20,412,749</u>	<u>\$22,324,620</u>	<u>\$1,911,871</u>
<u>Energy Assessment &amp; Weatherization</u>	<u>\$137,378</u>	<u>\$999</u>	<u>\$1,923,400</u>	<u>\$62,000</u>	<u>\$242,700</u>	<u>\$447,119</u>	<u>\$2,813,597</u>	<u>\$2,366,478</u>
<u>Totals</u>	<u>\$1,311,387</u>	<u>\$306,786</u>	<u>\$21,838,629</u>	<u>\$675,526</u>	<u>\$30,664,939</u>	<u>\$70,527,686</u>	<u>\$125,324,952</u>	<u>\$54,797,267</u>

<sup>90</sup> This is Table 6A in the Commission Template.\* These are components of "Administrative Costs"

## Section 7: Cost Recovery Mechanism

EE&C Program	Residential Portfolio (excluding Low-Income)							Totals (including Participant Costs)	Totals (excluding Participant Cost
	EDC Labor*	EDC Materials and Supplies*	CSP Labor*	CSP Materials and Supplies*	Other Marketing and Trade Allies*	Utility Incentives/ Customer Compensation	Participant Costs		
Appliance Recycling Program	\$433,000	\$5,800	\$3,120,000	\$3,120,000	\$0	\$2,403,375	\$0	\$9,082,175	\$9,082,175
Energy Efficiency Behavior & Education	\$248,000	\$3,300	\$1,280,500	\$1,280,500	\$0	\$0	\$0	\$2,830,300	\$2,830,300
Residential Energy Assessment and Weatherization Program	\$124,000	\$1,600	\$144,200	\$144,200	\$0	\$2,243,818	\$1,950,367	\$4,617,185	\$2,657,818
Direct Load Control Program	\$147,000	\$2,000	\$359,000	\$4,279,000	\$0	\$1,492,736	\$0	\$6,279,736	\$6,279,736
Efficient Equipment Incentive Program	\$26,000	\$400	\$85,400	\$85,400	\$0	\$7,283,610	\$6,885,205	\$14,366,015	\$7,480,810
Compact Fluorescent Lighting Campaign	\$619,000	\$8,300	\$1,128,000	\$1,128,000	\$0	\$14,828,646	\$14,828,646	\$32,540,592	\$17,711,946
ENERGY STAR New Homes	\$62,000	\$800	\$76,600	\$76,400	\$0	\$2,515,114	\$2,515,114	\$5,246,028	\$2,730,914
Time of Use Rates	\$89,000	\$1,200	\$162,000	\$553,000	\$3,323,000	\$0	\$0	\$4,128,200	\$4,128,200
Renewable Energy Program	\$61,000	\$800	\$33,600	\$33,600	\$0	\$968,098	\$2,362,015	\$3,459,113	\$1,097,098
Totals	\$1,809,000	\$24,200	\$6,398,300	\$10,709,100	\$3,323,000	\$31,735,398	\$28,550,347	\$82,549,345	\$53,998,998
Common Costs*								\$8,698,400	\$8,698,400
Total								\$91,247,745	\$62,697,398

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\* These are components of "Administrative Cost".

~~Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.~~

Section 7: Cost Recovery Mechanism

<u>Residential Low-Income Portfolio</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (includes Participant costs)</u>	<u>Totals - Utility Costs (excludes Participant costs)</u>
	<u>EDC Labor *</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Costs*</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives / Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>E-Power Wise</u>	<u>\$126,460</u>	<u>\$5,154</u>	<u>\$486,010</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$617,624</u>	<u>\$617,624</u>
<u>Low Income WRAP</u>	<u>\$2,564,554</u>	<u>\$94,424</u>	<u>\$14,592,248</u>	<u>\$40,000</u>	<u>\$11,381,481</u>	<u>\$0</u>	<u>\$28,672,707</u>	<u>\$28,672,707</u>
<u>Totals</u>	<u>\$2,691,014</u>	<u>\$99,578</u>	<u>\$15,078,258</u>	<u>\$40,000</u>	<u>\$11,381,481</u>	<u>\$0</u>	<u>\$29,290,332</u>	<u>\$29,290,332</u>

<b>Residential Low-Income Portfolio</b>									
<b>EE&amp;C Program</b>	<b>Cost Elements (\$), excludes Common Costs</b>							<b>Totals (including Participant Costs)</b>	<b>Totals (excluding Participant Costs)</b>
	<b>EDC Labor*</b>	<b>EDC Materials and Supplies*</b>	<b>CSP Labor*</b>	<b>CSP Materials and Supplies*</b>	<b>Other Marketing and Trade Ally*</b>	<b>Utility Incentives / Customer Compensation</b>	<b>Participant Costs</b>		
<i>E-Power Wise</i>	<i>\$186,000</i>	<i>\$2,400</i>	<i>\$80,000</i>	<i>\$80,000</i>	<i>\$0</i>	<i>\$332,142</i>	<i>\$0</i>	<i>\$680,542</i>	<i>\$680,542</i>
<i>Direct Load Control Program</i>	<i>\$29,000</i>	<i>\$400</i>	<i>\$72,000</i>	<i>\$857,000</i>	<i>\$0</i>	<i>\$299,264</i>	<i>\$0</i>	<i>\$1,257,664</i>	<i>\$1,257,664</i>
<i>Time-of-Use Rates</i>	<i>\$17,000</i>	<i>\$400</i>	<i>\$33,000</i>	<i>\$112,000</i>	<i>\$668,000</i>	<i>\$0</i>	<i>\$0</i>	<i>\$830,400</i>	<i>\$830,400</i>
<i>Low-Income WRAP</i>	<i>\$0</i>	<i>\$0</i>	<i>\$332,000</i>	<i>\$332,000</i>	<i>\$0</i>	<i>\$27,993,367</i>	<i>\$0</i>	<i>\$28,657,367</i>	<i>\$28,657,367</i>



## Section 7: Cost Recovery Mechanism

<b>Totals</b>	<b>\$232,000</b>	<b>\$3,200</b>	<b>\$547,000</b>	<b>\$1,381,000</b>	<b>\$668,000</b>	<b>\$28,624,772</b>	<b>\$0</b>	<b>\$31,425,972</b>	<b>\$31,425,972</b>
<b>Common Costs*</b>								<b>\$5,062,400</b>	<b>\$5,062,400</b>
<b>Total</b>								<b>\$36,488,372</b>	<b>\$36,488,372</b>

Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.

<u>Commercial/Industrial Small Portfolio</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (includes Participant costs)</u>	<u>Totals - Utility Costs (excludes Participant costs)</u>
	<u>EDC Labor *</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Costs*</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives / Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>Appliance Recycling</u>	<u>\$1,064</u>	<u>\$1,082</u>	<u>\$2,400</u>	<u>\$8,061</u>	<u>\$16,640</u>	<u>\$0</u>	<u>\$29,247</u>	<u>\$29,247</u>
<u>Custom Incentive</u>	<u>\$130,990</u>	<u>\$0</u>	<u>\$452,910</u>	<u>\$0</u>	<u>\$1,154,960</u>	<u>\$616,875</u>	<u>\$2,355,735</u>	<u>\$1,738,861</u>
<u>Direct Load Control</u>	<u>\$27,545</u>	<u>\$526</u>	<u>\$996,964</u>	<u>\$0</u>	<u>\$160,864</u>	<u>\$0</u>	<u>\$1,185,899</u>	<u>\$1,185,899</u>
<u>Efficient Equipment Incentive</u>	<u>\$283,984</u>	<u>\$292,438</u>	<u>\$5,743,410</u>	<u>\$496,538</u>	<u>\$61,282,069</u>	<u>\$65,425,975</u>	<u>\$133,524,412</u>	<u>\$68,098,438</u>
<u>HVAC Tune-up</u>	<u>\$82,575</u>	<u>\$3,420</u>	<u>\$25,795</u>	<u>\$15,360</u>	<u>\$34,002</u>	<u>\$1</u>	<u>\$161,154</u>	<u>\$161,153</u>
<u>Renewable Energy</u>	<u>\$4,126</u>	<u>\$50</u>	<u>\$61</u>	<u>\$0</u>	<u>\$10,317</u>	<u>\$922,014</u>	<u>\$936,569</u>	<u>\$14,554</u>
<u>Totals</u>	<u>\$530,284</u>	<u>\$297,516</u>	<u>\$7,221,541</u>	<u>\$519,959</u>	<u>\$62,658,852</u>	<u>\$66,964,864</u>	<u>\$138,193,016</u>	<u>\$71,228,152</u>

\* These are components of "Administrative Costs"

Section 7: Cost Recovery Mechanism

Commercial/Industrial-Small Portfolio									
EE&C Program	Cost Elements (\$), excludes Common Costs							Totals	Totals
	EDC Labor*	EDC Materials and Supplies*	CSP Labor*	CSP Materials and Supplies*	Other Marketing and Trade Ally*	Utility Incentives / Customer Compensation	Participant Costs	(including Participant Costs)	(excluding Participant Costs)
Commercial and Industrial-Custom Incentive Program	\$432,000	\$5,800	\$288,400	\$288,400	\$0	\$13,371,495	\$18,904,338	\$33,290,433	\$14,386,095
Direct Load Control Program	\$67,000	\$800	\$168,000	\$1,953,000	\$0	\$677,056	\$0	\$2,865,856	\$2,865,856
Efficient Equipment Incentive Program	\$191,000	\$2,500	\$665,000	\$665,000	\$0	\$53,547,265	\$94,671,437	\$149,742,202	\$55,070,765
Small Commercial HVAC Tune-up Program	\$174,000	\$2,400	\$72,000	\$72,000	\$0	\$936,759	\$925,131	\$2,182,290	\$1,257,159
Time-of Use Rates	\$46,000	\$400	\$182,000	\$81,000	\$487,000	\$0	\$0	\$766,400	\$766,400
<b>Totals</b>	\$880,000	\$11,900	\$1,375,400	\$3,059,400	\$487,000	\$68,532,576	\$114,500,906	\$188,847,182	\$74,346,276
Common-Costs*								\$11,976,100	\$11,976,100
<b>Total</b>								<b>\$200,823,282</b>	<b>\$86,322,376</b>

Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.

<u>Commercial/Industrial Large Portfolio</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (includes Participant costs)</u>	<u>Totals - Utility Costs (excludes Participant costs)</u>
	<u>EDC Labor *</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Costs*</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives/ Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>Appliance Recycling</u>	<u>\$34</u>	<u>\$54</u>	<u>\$0</u>	<u>\$319</u>	<u>\$575</u>	<u>\$0</u>	<u>\$982</u>	<u>\$982</u>
<u>Custom Incentive</u>	<u>\$306,857</u>	<u>\$0</u>	<u>\$1,467,409</u>	<u>\$0</u>	<u>\$12,041,827</u>	<u>\$26,918,471</u>	<u>\$40,734,563</u>	<u>\$13,816,093</u>
<u>Efficient Equipment Incentive</u>	<u>\$68,748</u>	<u>\$35,489</u>	<u>\$365,147</u>	<u>\$65,311</u>	<u>\$4,372,659</u>	<u>\$3,478,201</u>	<u>\$8,385,556</u>	<u>\$4,907,355</u>
<u>HVAC Tune-up</u>	<u>\$81,659</u>	<u>\$5,565</u>	<u>\$619,091</u>	<u>\$128</u>	<u>\$95,938</u>	<u>\$0</u>	<u>\$802,381</u>	<u>\$802,381</u>
<u>Load Curtailment</u>	<u>\$247,443</u>	<u>\$9,612</u>	<u>\$9,431,856</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$9,688,910</u>	<u>\$9,688,910</u>
<u>Totals</u>	<u>\$704,740</u>	<u>\$50,720</u>	<u>\$11,883,503</u>	<u>\$65,758</u>	<u>\$16,510,999</u>	<u>\$30,396,671</u>	<u>\$59,612,393</u>	<u>\$29,215,722</u>

\* These are components of "Administrative Costs"

<u>Commercial/Industrial Large Portfolio</u>									
<u>EE&amp;C Program</u>	<u>Cost Elements (\$), excludes Common Costs</u>							<u>Totals (including Participant Costs)</u>	<u>Totals (excluding Participant Costs)</u>
	<u>EDC Labor*</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Labor*</u>	<u>CSP Materials and Supplies*</u>	<u>Other Marketing and Trade Ally*</u>	<u>Utility Incentives/ Customer Compensation</u>	<u>Participant Costs</u>		

Section 7: Cost Recovery Mechanism

<i>Curtailment Program</i>	\$202,000	\$2,800	\$245,000	\$51,000	\$0	\$11,544,000	\$0	\$12,044,800	\$12,044,800
<i>Commercial and Industrial Custom Incentive Program</i>	\$86,000	\$1,200	\$56,000	\$56,000	\$0	\$2,677,212	\$3,784,488	\$6,660,900	\$2,876,412
<i>Efficient Equipment Incentive Program</i>	\$50,000	\$800	\$58,800	\$58,800	\$0	\$14,202,382	\$18,259,743	\$32,630,525	\$14,370,782
<b>Totals</b>	\$338,000	\$4,800	\$359,800	\$165,800	\$0	\$28,423,594	\$22,044,231	\$51,336,225	\$29,291,994
<b>Common Costs<sup>2</sup></b>								\$4,718,300	\$4,718,300
<b>Total</b>								<b>\$56,054,525</b>	<b>\$34,010,294</b>

Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.

<u>Governmental/Schools/Non-Profit Portfolio</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (includes Participant costs)</u>	<u>Totals - Utility Costs (excludes Participant costs)</u>
	<u>EDC Labor*</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Costs*</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives/ Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>Appliance Recycling</u>	\$2	\$4	\$0	\$21	\$35	\$0	\$62	\$62
<u>Custom Incentive</u>	\$75,185	\$0	\$1,745,729	\$0	\$1,791,899	\$2,537,848	\$6,150,661	\$3,612,813
<u>Direct Load Control</u>	\$310	\$6	\$11,230	\$0	\$1,600	\$0	\$13,146	\$13,146
<u>Efficient Equipment Incentive</u>	\$56,019	\$40,218	\$1,453,382	\$70,849	\$7,296,993	\$56,132,276	\$65,049,737	\$8,917,461
<u>HVAC Tune-up</u>	\$2,627	\$231	\$15,309	\$0	\$3,120	\$0	\$21,286	\$21,286
<u>Load Curtailment</u>	\$28,022	\$1,089	\$1,068,138	\$0	\$0	\$0	\$1,097,248	\$1,097,248
<u>Renewable Energy</u>	\$148,102	\$204	\$0	\$0	\$3,506,929	\$19,759,289	\$23,414,524	\$3,655,236
<u>Totals</u>	\$310,268	\$41,751	\$4,293,787	\$70,870	\$12,600,577	\$78,429,413	\$95,746,665	\$17,317,252

\* These are components of "Administrative Costs"

<b>Government/Non-Profit Portfolio</b>			
<b>EE&amp;C Program</b>	<b>Cost Elements (\$), excludes Common Costs</b>	<b>Totals</b>	<b>Totals</b>

## Section 7: Cost Recovery Mechanism

	<i>EDG Labor*</i>	<i>EDG Materials and Supplies*</i>	<i>CSP Labor*</i>	<i>CSP Materials and Supplies*</i>	<i>Other Marketing and Trade Ally*</i>	<i>Utility Incentives/ Customer Compensation</i>	<i>Participant Costs</i>	<i>(incl Participant Costs)</i>	<i>(excl Participant Costs)</i>
<i>Commercial and Industrial Custom Incentive Program</i>	\$100,000	\$1,200	\$74,200	\$74,200	\$0	\$3,086,084	\$4,350,068	\$7,685,740	\$3,335,684
<i>Direct Load Control Program</i>	\$4,000	\$0	\$12,000	\$151,000	\$0	\$50,976	\$0	\$217,976	\$217,976
<i>Efficient Equipment Incentive Program</i>	\$42,000	\$400	\$144,200	\$144,200	\$0	\$11,680,672	\$20,335,967	\$32,347,439	\$12,011,472
<i>HVAC Tune-Up Program</i>	\$12,000	\$0	\$4,000	\$4,000	\$0	\$70,332	\$69,604	\$159,936	\$90,332
<i>Time of Use Rates</i>	\$0	\$0	\$13,000	\$7,000	\$36,000	\$0	\$0	\$56,000	\$56,000
<i>Renewable Energy Program</i>	\$249,000	\$3,300	\$91,400	\$71,000	\$0	\$4,069,474	\$11,294,767	\$15,778,938	\$4,484,174
<i>Curtailment Program</i>	\$44,000	\$400	\$65,000	\$11,000	\$0	\$2,496,000	\$0	\$2,616,400	\$2,616,400
<b>Totals</b>	\$451,000	\$5,300	\$403,800	\$462,400	\$36,000	\$21,453,533	\$36,050,406	\$58,862,438	\$22,812,033
<i>Common Costs*</i>								\$3,674,500	\$3,674,500
<b>Total</b>								<b>\$62,536,938</b>	<b>\$26,486,533</b>

Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.

Section 7: Cost Recovery Mechanism

<u>Total Portfolio Costs</u>								
<u>EE&amp;C Program</u>	<u>Estimated Cost Elements (\$), excludes Common Costs</u>						<u>Totals (incl Participant Costs)</u>	<u>Totals - Utility Costs (excl Participant Costs)</u>
	<u>EDC Labor*</u>	<u>EDC Materials and Supplies*</u>	<u>CSP Cost*s</u>	<u>Direct Marketing (CSP)*</u>	<u>Utility Incentives / Customer Compensation</u>	<u>Participant Costs (After Incentives)</u>		
<u>Total Direct Costs</u>	<u>\$5,547,693</u>	<u>\$796,351</u>	<u>\$60,315,719</u>	<u>\$1,372,114</u>	<u>\$133,816,848</u>	<u>\$246,318,634</u>	<u>\$448,167,359</u>	<u>\$201,848,725</u>
<u>Common Costs</u>							<u>\$43,151,275</u>	<u>\$43,151,275</u>
<u>Total</u>							<u>\$491,318,634</u>	<u>\$245,000,000</u>

\* These are components of “Administrative Costs”

<del>Total- All Customer Sectors</del>									
<del>TOTAL-ALL SECTORS</del>	<del>Cost Elements (\$), excludes Common Costs</del>							<del>Totals (incl Participant Gests)</del>	<del>Totals (excl Participant Gests)</del>
	<del>EDC Labor*</del>	<del>EDC Materials and Supplies*</del>	<del>CSP Labor*</del>	<del>CSP Materials and Supplies*</del>	<del>Other Marketing and Trade Ally*</del>	<del>Utility Incentives/ Customer Compensation</del>	<del>Participant Costs</del>		
<del>Total</del>	<del>\$3,710,000</del>	<del>\$49,400</del>	<del>\$9,054,300</del>	<del>\$15,777,700</del>	<del>\$4,514,000</del>	<del>\$178,769,873</del>	<del>\$201,145,891</del>	<del>\$413,021,163</del>	<del>\$211,875,273</del>
<del>Common Costs*</del>								<del>\$34,129,700</del>	<del>\$34,129,700</del>
<del>Total</del>								<del>\$447,150,863</del>	<del>\$246,004,973</del>

~~\* These are components of “Administrative Cost”~~

**Table 110. Allocation of Common Costs to Applicable Customer Sector<sup>91</sup>**

<u>Common Cost Element</u>	<u>Total Cost (\$)</u>	<u>Basis for Cost Allocation</u>	<u>Class Cost Allocation (\$)</u>				
			<u>Residential (Excluding Low- Income)</u>	<u>Residential Low-Income</u>	<u>Commercial/ Industrial -- Small</u>	<u>Commercial/ Industrial -- Large</u>	<u>Governmental/ Non-profit</u>
<u>Plan Development</u>	<u>\$3,300,304</u>	<u>Proportional to direct costs for the sector</u>	<u>\$895,952</u>	<u>\$478,908</u>	<u>\$1,164,611</u>	<u>\$477,689</u>	<u>\$283,144</u>
<u>EM&amp;V</u>	<u>\$14,534,854</u>	<u>Proportional to direct costs for the sector</u>	<u>\$3,945,861</u>	<u>\$2,109,159</u>	<u>\$5,129,059</u>	<u>\$2,103,784</u>	<u>\$1,246,991</u>
<u>Advertising and Marketing<sup>92</sup></u>	<u>\$9,877,630</u>	<u>Proportional to direct costs for the sector</u>	<u>\$2,681,537</u>	<u>\$1,433,347</u>	<u>\$3,485,619</u>	<u>\$1,429,694</u>	<u>\$847,433</u>
<u>General Admin</u>	<u>\$3,501,377</u>	<u>Proportional to direct costs for the sector</u>	<u>\$950,539</u>	<u>\$508,086</u>	<u>\$1,235,566</u>	<u>\$506,792</u>	<u>\$300,394</u>
<u>EEMIS</u>	<u>\$6,020,189</u>	<u>Proportional to direct costs for the sector</u>	<u>\$1,634,336</u>	<u>\$873,591</u>	<u>\$2,124,404</u>	<u>\$871,366</u>	<u>\$516,492</u>
<u>Plan Management</u>	<u>\$2,199,576</u>	<u>Proportional to direct costs for the sector</u>	<u>\$597,132</u>	<u>\$319,181</u>	<u>\$776,186</u>	<u>\$318,368</u>	<u>\$188,709</u>
<u>Major Accounts</u>	<u>\$3,717,345</u>	<u>Proportional to direct costs for the sector</u>	<u>\$1,009,170</u>	<u>\$539,425</u>	<u>\$1,311,777</u>	<u>\$538,051</u>	<u>\$318,922</u>
<u>Totals</u>	<u>\$43,151,275</u>		<u>\$11,714,527</u>	<u>\$6,261,697</u>	<u>\$15,227,222</u>	<u>\$6,245,744</u>	<u>\$3,702,085</u>

<sup>91</sup> This is Table 6B in the Commission Template.<sup>92</sup> Advertising and marketing by program CSPs are included as direct program costs (Direct Marketing).



## Section 7: Cost Recovery Mechanism

Common Cost Element	Total Cost (\$)	Basis for Cost Allocation	Class Cost Allocation (\$)				
			Residential (Excluding Low-Income)	Residential Low-Income	Commercial & Industrial—Small	Commercial & Industrial—Large	Governmental & Non-profit
EDC Labor	\$8,675,000	Proportional to direct costs for the sector	\$2,210,900	\$1,286,800	\$3,044,000	\$1,199,300	\$934,000
EDC Materials and Supplies	\$116,600	Proportional to direct costs for the sector	\$29,700	\$17,300	\$40,900	\$16,100	\$12,600
CSP Labor	\$1,449,000	Proportional to direct costs for the sector	\$369,300	\$214,900	\$508,500	\$200,300	\$156,000
Other (Marketing and Trade Ally)	\$8,799,100	Proportional to direct costs for the sector	\$2,242,600	\$1,305,100	\$3,087,700	\$1,216,400	\$947,300
Other Outside Services (Quality Assurance and EM&V)	\$15,090,000	Proportional to direct costs for the sector	\$3,845,900	\$2,238,300	\$5,295,000	\$2,086,200	\$1,624,600
<b>Totals</b>	<b>\$34,129,700</b>		<b>\$8,698,400</b>	<b>\$5,062,400</b>	<b>\$11,976,100</b>	<b>\$4,718,300</b>	<b>\$3,674,500</b>

Table was updated to reflect the change in classification of common and direct costs.

**Table 111. Summary of Estimated Portfolio EE&C Costs<sup>93</sup>**

<b>Portfolio</b>	<b>Total Sector Direct Program Cost (excluding Participant Costs)</b>	<b>Total Common Costs</b>	<b>Total of All Costs</b>	<b>Total Participant Costs</b>	<b>Total of All Costs</b>
Residential (Excluding Low-Income)	<u>\$54,797,267</u>	<u>\$11,714,527</u>	<u>\$66,511,794</u>	<u>\$70,527,686</u>	<u>\$137,039,479</u>
Residential Low-Income	<u>\$29,290,332</u>	<u>\$6,261,697</u>	<u>\$35,552,029</u>	<u>\$0</u>	<u>\$35,552,029</u>
Commercial/Industrial -- Small	<u>\$71,228,152</u>	<u>\$15,227,222</u>	<u>\$86,455,374</u>	<u>\$66,964,864</u>	<u>\$153,420,238</u>
Commercial/Industrial -- Large	<u>\$29,215,722</u>	<u>\$6,245,744</u>	<u>\$35,461,466</u>	<u>\$30,396,671</u>	<u>\$65,858,137</u>
Governmental/Non-profit	<u>\$17,317,252</u>	<u>\$3,702,085</u>	<u>\$21,019,337</u>	<u>\$78,429,413</u>	<u>\$99,448,750</u>
<b>Totals</b>	<u>\$201,848,725</u>	<u>\$43,151,275</u>	<u>\$245,000,000</u>	<u>\$246,318,634</u>	<u>\$491,318,634</u>

Note: total costs in Total Resource Cost Test (cost-effectiveness) are net present values and include utility and participant costs.

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<sup>93</sup> This is Table 6C in the Commission Template.

Portfolio	Total Sector Portfolio-specific Cost  (excluding Participant Costs)	Total Common Costs	Total EDC Cost	Total Participant Costs*	Total of All Costs (Participant & EDC)*
Residential (Excluding Low- Income)	\$53,998,998	\$8,698,400	\$62,697,398	\$28,550,347	\$91,247,745
Residential Low-Income	\$31,425,972	\$5,062,400	\$36,488,372	\$0	\$36,488,372
Commercial/Industrial-- Small	\$74,346,276	\$11,976,100	\$86,322,376	\$114,500,906	\$200,823,282
Commercial/Industrial-- Large	\$29,291,994	\$4,718,300	\$34,010,294	\$22,044,231	\$56,054,525
Governmental/Non-profit	\$22,812,033	\$3,674,500	\$26,486,533	\$36,050,406	\$62,536,938
<b>Totals</b>	<b>\$211,875,273</b>	<b>\$34,129,700</b>	<b>\$246,004,973</b>	<b>\$201,145,890</b>	<b>\$447,150,863</b>

Table was updated to reflect the change in allocation of all CFLs. All customer sectors are eligible to purchase discounted CFLs but all CFLs will be allocated to the residential sector. Table was updated to reflect the change in classification of common and direct costs.

**7.4. Provide and describe tariffs and a Section 1307 cost recovery mechanism. Provide all calculations and supporting cost documentation.**

Section 2806.1(k)(1) of Act 129 authorizes EDCs to recover the costs of their EE&C Plan through a reconcilable adjustment clause under Section 1307 of the Public Utility Code. The Commission reiterated this requirement in its January 16, 2009 Implementation Order.<sup>94</sup> In its EE&C Plan filing, PPL Electric has included pro forma tariff pages to implement such a cost recovery mechanism. The Implementation Order also directs that such cost recovery mechanisms must be non-bypassable, and not affect the EDC's price-to-compare, if the EE&C Plan benefits both shopping and non-shopping customers.<sup>95</sup> Because all of the programs included in PPL Electric's proposed EE&C Plan will benefit both shopping and non-shopping customers, the Company has designed its cost recovery mechanism to be non-bypassable. For residential customers, the cost recovery mechanism will be applied as a levelized cents per kWh component included in the distribution charge. For small C&I customers, the cost recovery mechanism will be applied as a levelized cents per kWh charge that will be a separate line item on the customer's bill. For large C&I customers, the cost recovery mechanism will be applied as a dollars per kW charge, as a separate line item on the customer's bill, where the demand (kW) is the customer's PJM Interconnection, LLC Peak Load Contribution (PLC) which may change yearly.

The Company proposes to calculate separately the applicable EE&C costs for each of the three major customer classes on its system, i.e., (1) residential, (2) small commercial and industrial, and (3) large commercial and industrial. These costs will vary in each program year of the EE&C Plan. In some program years, they may be greater than the annual 2% cost cap; in other program years, they may be less than the cap. However, over the four program years, the total costs of the EE&C Plan for all customer classes will not exceed \$246 million.

Although costs will vary year-to-year, PPL Electric proposes to recover those costs on a levelized basis. Annual budget amounts for each customer class will be developed on a levelized basis for the four years of the Company's proposed EE&C Plan. On a total system basis, that levelization will equate to an EE&C Plan budget in program year one of approximately \$30 million and EE&C Plan budgets in program years two through four of approximately \$72 million per year. These budget amounts will be adjusted to include the annual costs that PPL Electric will incur to pay for the statewide Act 129 evaluator. Section 2806.1(h) of Act 129 provides that the Commission can recover such program implementation costs from EDCs, and logically it follows that EDCs can recover those costs from customers. However, the costs for the statewide Act 129 evaluator are not included under the Company's 2% cost cap. In establishing that cost cap, Section 2806.1(g) specifically characterizes the cap as a limitation on the "total costs of any plan required under this section." Because the costs of the statewide Act 129 evaluator are not the costs of PPL Electric's EE&C Plan, they are not subject to the limitation set forth in Section 2806.1(g).

The adjusted budget amounts will be included each year in the Company's cost recovery mechanism. These amounts will be recovered from customers in the residential and

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<sup>94</sup> Implementation Order, at page 38

<sup>95</sup> Ibid, p. 38

small commercial and industrial classes on a levelized cents per kWh basis. They will be recovered from customers in the large commercial and industrial class on a dollar per kW basis where the kW demand is the customer's PJM Peak Load Contribution (PLC) which may change yearly.

For each customer class, PPL Electric proposes to separately reconcile the revenues collected under the cost recovery mechanism with the adjusted budget amounts for that year. This reconciliation, which will be performed on an annual basis, primarily will reflect variations in actual sales from forecasted sales. The Company does not propose to reconcile the revenues collected under the cost recovery mechanism to its actual spending levels in each year. As discussed above, those spending levels can vary from year-to-year.

In addition to the annual reconciliation, PPL Electric proposes to make "mid-course" corrections in the cost recovery mechanism to reflect major changes to any of its EE&C programs. Any mid-course corrections will be reviewed with stakeholders and submitted to the Commission for approval. Finally, at the end of the four-year EE&C Plan, the Company will reconcile total revenue collected to its total budget for the four-year EE&C Plan. Of course, the annual reconciliation, any "mid-course" corrections and the end of Plan reconciliation all will be subject to Commission review and approval before PPL Electric actually adjusts customers' rates.

PPL Electric will not collect or pay interest on under- or over-collections of Act 129 costs.

Finally, PPL Electric is not proposing an expiration date for the cost recovery mechanism. The mechanism will be needed to refund any over collection or recover any under collection existing at the end of the four-year EE&C Plan and for the purpose of any ongoing program cost recovery. The cost recovery will not exceed the mandated 2% cost cap.

Appendix F includes PPL Electric's Supplement No. 76 to Tariff-Electric Pa. PUC No. 201 at Docket No. P-2009-2093216, filed on November 19, 2009. These tariffs have been modified to reflect Act 129 Cost Recovery Rider.

**7.5. Describe how the cost recovery mechanism will ensure that measures approved are financed by the same customer class that will receive the direct energy and conservation benefits.**

Section 2806.1(a)(11) of Act 129 requires that EE&C measures must be paid for by the same customer class that receives the energy and conservation benefits of those measures. Accordingly, in its January 16, 2009 Implementation Order, the Commission directed EDCs to first assign the costs relating to each measure to those classes that will receive the benefits.<sup>96</sup> PPL Electric will follow this direct assignment approach wherever possible. However, some costs will relate to EE&C measures that are applicable to more than one customer class or that provide system-wide benefits. The Commission directed EDCs to allocate those costs, and general administrative costs, using reasonable and generally acceptable cost of service principles as are commonly utilized in base rate proceedings.<sup>97</sup> Consistent with this provision of the Implementation Order, PPL Electric

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<sup>96</sup> Ibid, p. 36

<sup>97</sup> Ibid, p. 37

proposes to allocate such costs using an allocation factor equal to the percentage of the EE&C costs directly assigned to each customer class to the total of EE&C costs directly assigned to all customer classes.

## 8. Cost-effectiveness

### 8.1. Explain and demonstrate how the proposed plan will be cost effective as defined by the Total Resource Cost Test (TRC) specified by the Commission.

Cost-effectiveness of the proposed portfolio is shown in Table 114. This table is an estimate based on planning assumptions in this EE&C Plan. The Company will complete a cost-effectiveness evaluation using actual results as part of its yearly impact evaluation. ~~was demonstrated in data presented in Section 1.2.1.3.~~ For each program in the Plan, cost-effectiveness was determined for each measure in the portfolio in accordance with the procedures for the modified California test<sup>98</sup> described in the Commission's Secretarial Letter concerning the implementation of Energy-efficiency and Conservation Program (Docket No. M-2008-2069887). Assessment of cost-effectiveness for the Plan began with a valuation of each conservation measure's net "total resource" benefits, as measured by the electric avoided costs and the measure's total incremental installed costs. A measure (or program) was deemed cost-effective if its net "total resource" benefits were positive, i.e.:

$$\frac{\text{Total Resource Benefits}}{\text{Total Resource Costs}} \geq 1$$

where,

$$\text{Total Resource Benefits} = \text{NPV} \left( \sum_{\text{year}=1}^{\text{measure life}} \left( \sum_i^{\text{i}=8760} (\text{impact}_i \times \text{avoided cost}_i) \right) \right)$$

and,

$$\text{Total Resource Cost} = \text{NPV} (\text{Incremental Measure Costs} + \text{Utility Costs}).$$

### Calculation of Avoided Costs of Supplying Electricity

In this Plan, avoided cost of electricity for the 15-year planning horizon was calculated based on the final TRC (Docket No. M-2009-2108601, Order entered June 23, 2009). For June 1, 2009 through May 31, 2014, on-peak and off-peak wholesale electric generation prices were obtained from the New York Mercantile Exchange (NYMEX), then distributed to an hourly shape using a 50% split between on-peak and off-peak hours. Missing NYMEX monthly values in 2014 were estimated by adjusting 2014 off-peak prices by the ratio of 2013 on-peak to off-peak prices. For June 1, 2014 through May 31, 2019, prices were calculated using NYMEX gas prices. Generation prices after this period were calculated using the EIA's AEO low-price case. Generation costs were further adjusted for avoided transmission and distribution prices estimated by customer class<sup>99</sup>. Avoided transmission prices were based on retail transmission rates and include PJM ancillary charges. Similarly, distribution costs were based on expected retail rates. Transmission, distribution, and ancillary prices were escalated after 2010 using the U. S.

<sup>98</sup> See *California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects*, California Energy Commission, October 2001.

<sup>99</sup> Customer classes are defined as residential, small commercial and industrial, and large commercial and industrial.

Bureau of Labor and Statistics (BLS) industry index for Electric Power Generation. Capacity costs were estimated using PJM base residual auction results through 2012. After 2012 and through 2019, prices were escalated using the BLS industry index for Electric Power Generation. Avoided costs by sector are summarized in [Table 1](#)~~Table 4~~.

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## Program Benefit Components

As described above, benefits used in the TRC test calculation include the full value of time and seasonally differentiated generation, transmission and distribution, and capacity costs. Benefits also take into account avoided line losses<sup>100</sup>. For each energy-efficiency measure included in a program, hourly (8,760) system-avoided costs were adjusted by the hourly load shape of the end use affected by the measure to capture the full value of time and seasonally-differentiated impacts of the measure. Benefits also include avoided operating and maintenance costs directly related to the efficient measure.<sup>101</sup> Non-energy benefits such as water savings were not factored into the calculation because these benefits are typically difficult to quantify and too small to alter the outcomes of the analyses.

In accordance with the TRC and Commission Orders, there are no net-to-gross adjustments, ~~except as stated in the TRM~~. Net-to-gross estimates will be included in final annual evaluation ~~efforts~~reports.

## Program Cost Components

The cost component of the TRC analysis ~~considered~~includes incremental measure costs and direct utility costs. Incremental measure costs are the incremental expenses associated with installation of energy-efficiency measures (adjusted for tax credits and funding sources outside of Act 129 in accordance with the Secretarial Letter) compared to the “baseline” measure, and ongoing operation and maintenance costs, where applicable. The incremental cost includes any portion incurred by the utility or by the participant. Utility costs include, but are not limited to, any customer payments and the expenses associated with program development, marketing, delivery, operation, legal, management, tracking systems, and ~~evaluation, monitoring and verification (EM&V).~~ Generally, incentives are a portion of the incremental cost and are not included directly in the TRC analysis<sup>102</sup>. TRC costs also include increased operating and maintenance costs directly related to the efficient measure. ~~and fall into the following six categories:~~

### ~~EDC Labor~~

- ~~Costs to administer energy-efficiency programs include (but are not limited to) PPL Electric’s fully-loaded incremental personnel costs.~~

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<sup>100</sup> Line losses are not included in the reported and verified energy reductions used for compliance purposes. Line losses are included only for energy reductions in the TRC. Line losses are included in the TRC and for reported and verified peak load reductions as explained earlier.

<sup>101</sup> These are difficult to obtain, quantify, and verify. Therefore, these have been omitted for most measures, thereby understating program benefits.

<sup>102</sup> There are some programs where payments to customers are treated as a program cost, such as load curtailment.



### ~~EDC Materials and Supplies~~

- ~~These costs include (but are not limited to): overhead expenses (e.g., office space, supplies, computer and communication equipment, certain staff training, certain industry-related sponsorships, and memberships), and system costs (e.g., tracking system).~~

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### ~~Customer Incentives and Services~~

- ~~Cost of residential energy assessment surveys and technical studies.~~
- ~~Rebates or other incentives paid to customers (by PPL Electric or by CSPs) for implementing measures. PPL Electric will track a customer's non-Act 129 incentives (ARRA, Act 1, etc.) so they can be reflected as lower participant costs in the TRC's cost-benefit analysis.~~
- ~~Incentives paid to customers to compensate them for curtailing load or for direct load control<sup>103</sup>.~~
- ~~Direct program costs associated with customer products and services (e.g., CFLs, direct installation measures, Home Energy efficiency Kits, appliance recycling, etc.)~~

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### ~~CSP Labor, CSP Materials and Supplies~~

- ~~Costs associated with performing program implementation tasks, including (but not limited to): lead intake, customer service, application processing, rebate application problem resolution, equipment installation inspections, rebate processing, and individual program reporting.~~

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### ~~Other outside services (Quality Assurance, EM&V, consultants, and other contractors)~~

- ~~Activities associated with the determination and evaluation of current and potential energy efficiency programs. These activities include (but are not limited to): benefit-cost ratio analysis, program logic models, cost per kWh analysis, efficiency product saturation analysis, customer research, and all other analyses that are necessary for program evaluation. In addition, any activities that pertain to regulatory compliance or reporting conducted by energy efficiency group personnel or CSPs would fall under this category. Expenses associated with evaluation include all internal and external costs (e.g., consultant contracts).~~
- ~~Activities associated with market research outside of evaluation, measurement, and verification. These activities and their associated expenses include: potential studies, customer surveys, and research into saturation and network and customer characteristics.~~
- ~~Regulatory, legal, technical, and other consultants and contractors.~~

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<sup>103</sup> PPL will pay the Demand Response CSP for firm load reductions and will not be aware of the percentage of these costs that are passed through to customers as incentives. Therefore, for the purposes of its budget, all costs associated with firm load reductions are categorized as customer incentives.

### *Marketing and Trade Ally*

- ~~Promotion of energy efficiency programs includes, but is not limited to production of energy efficiency program literature, advertising, promotion, displays, events, promotional items, bill inserts, internal and external communications. Advertising encompasses all forms of media such as direct mail, print, radio and Internet.~~
- ~~PPL Electric's costs associated with training and education of the trade ally community, including training associated with the delivery and promotion of its programs, best practices training and marketing programs to trade allies. Trade Allies include, but are not limited to HVAC contractors, weatherization contractors, equipment and product dealers and installers and C&I auditors. Trade Allies may also include community groups and trade associations. This also includes vendor recruitment, training and coordination costs (e.g., quality installation training).~~

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#### **8.2. ~~Provide~~ TRC data tables**

As previously mentioned, cost-effectiveness of the proposed portfolio is shown in Table 114. This table is an estimate based on planning assumptions in this EE&C Plan. The Company will complete a cost-effectiveness evaluation using actual results as part of its yearly impact evaluation.



Section 8: Cost Effectiveness

Residential	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	8.77	2010	\$790	\$790	\$755	\$6,417	\$13		\$370	\$372	185	1,465	8,940	71,373
		2011	\$1,856	\$1,856	\$3,519	\$19,102	\$431		\$1,547	\$1,541	6,586	45,863	24,315	193,006
		2012	\$2,312	\$2,312	\$5,710	\$15,187	\$379		\$2,675	\$2,657	2,654	21,228	20,293	160,693
		2013	\$2,312	\$2,312	\$8,269	\$14,788	\$526		\$3,886	\$3,857	2,654	21,228	20,293	160,693
		Total	\$7,270	\$7,270	\$18,253	\$55,493	\$1,348		\$8,478	\$8,427	12,078	89,785	73,842	585,765
Compact Fluorescent Lighting Campaign	6.87	2010	\$5,549	\$2,078	\$5,420	\$33,416	\$250		\$2,838	\$2,331	3,636	21,816	61,839	371,031
		2011	\$12,499	\$4,598	\$20,300	\$80,565	\$779		\$10,718	\$8,804	8,608	51,649	145,999	875,997
		2012	\$8,911	\$4,417	\$31,193	\$52,609	\$749		\$16,714	\$13,729	6,410	38,460	94,234	565,406
		2013	\$8,603	\$4,114	\$42,586	\$50,572	\$1,087		\$22,784	\$18,715	6,296	37,779	90,065	540,390
		Total	\$35,563	\$15,207	\$99,499	\$217,162	\$2,865		\$53,054	\$43,580	24,951	149,704	392,137	2,352,824
Custom Incentive	2.55	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$10	\$2	\$2	\$22	\$0		\$1	\$1	2	27	18	272
		2012	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		2013	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		Total	\$10	\$2	\$6	\$22	\$0		\$3	\$3	2	27	18	272
Energy Efficiency Behavior & Education	2.24	2010	\$142	\$142	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$815	\$815	\$1,225	\$1,135	\$0		\$610	\$615	-	0	13,207	13,207
		2012	\$936	\$936	\$2,554	\$2,190	\$217		\$1,164	\$1,173	5,397	5,397	23,504	23,504
		2013	\$936	\$936	\$2,699	\$2,142	\$235		\$1,227	\$1,236	5,397	5,397	23,504	23,504
		Total	\$2,829	\$2,829	\$6,478	\$5,466	\$452		\$3,002	\$3,024	5,397	5,397	23,504	23,504
Direct Load Control	0.13	2010	\$58	\$58	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$832	\$832	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$2,337	\$2,337	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$7,553	\$7,553	\$1,397	\$1,109	\$1,397		\$0	\$0	32,075	32,075	0	0
		Total	\$10,779	\$10,779	\$1,397	\$1,109	\$1,397		\$0	\$0	32,075	32,075	0	0
Efficient Equipment Incentive	1.75	2010	\$5,276	\$2,156	\$851	\$10,801	\$76		\$351	\$424	1,105	14,072	9,175	121,648
		2011	\$23,864	\$8,820	\$3,791	\$31,652	\$340		\$1,589	\$1,863	4,234	52,439	27,919	360,411
		2012	\$8,041	\$2,203	\$5,396	\$16,718	\$274		\$2,341	\$2,781	1,479	18,646	14,534	199,557
		2013	\$6,556	\$1,253	\$6,715	\$10,044	\$355		\$2,901	\$3,460	1,326	16,835	9,220	120,377
		Total	\$43,736	\$14,431	\$16,753	\$69,215	\$1,044		\$7,182	\$8,527	8,143	101,991	60,848	801,993
Renewable Energy	0.53	2010	\$4,313	\$351	\$245	\$3,531	\$9		\$102	\$134	128	1,917	2,770	41,554
		2011	\$18,011	\$1,561	\$872	\$7,685	\$56		\$355	\$461	753	11,298	6,037	90,556
		2012	\$0	\$0	\$903	\$0	\$35		\$378	\$490	-	0	0	0
		2013	\$0	\$0	\$957	\$0	\$38		\$400	\$518	-	0	0	0
		Total	\$22,325	\$1,912	\$2,977	\$11,216	\$139		\$1,235	\$1,603	881	13,215	8,807	132,110
Energy Assessment & Weatherization	0.42	2010	\$30	\$30	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$925	\$574	\$155	\$844	\$91		\$33	\$31	1,432	8,897	686	5,732
		2012	\$886	\$837	\$219	\$79	\$58		\$81	\$79	19	19	924	924
		2013	\$972	\$925	\$240	\$84	\$63		\$89	\$87	20	20	997	997
		Total	\$2,814	\$2,366	\$614	\$1,007	\$213		\$204	\$198	1,470	8,935	2,607	7,653
Common Costs	-	2010	\$2,001	\$2,001	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$3,960	\$3,960	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3,071	\$3,071	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$2,683	\$2,683	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$11,715	\$11,715	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	2.94		\$137,039	\$66,512	\$145,977	\$360,690	\$7,458		\$73,157	\$65,362	84,997	401,129	561,764	3,904,121

Section 8: Cost Effectiveness

TRC Benefits By Program Per Year (\$000)														
Residential														
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling Program	10.86	2009	\$771	\$771	\$808	\$6,652	\$75		\$392	\$341	1,011	8,066	8,828	70,577
		2010	\$2,768	\$2,768	\$4,444	\$26,701	\$349		\$2,227	\$1,869	4,046	32,264	35,311	282,309
		2011	\$2,770	\$2,770	\$8,297	\$26,607	\$396		\$4,281	\$3,620	4,046	32,264	35,311	282,309
		2012	\$2,773	\$2,773	\$12,649	\$25,913	\$620		\$6,494	\$5,534	4,046	32,264	35,311	282,309
Energy Efficiency Behavior & Education	3.33	2009	\$686	\$686	\$414	\$2,025	\$38		\$201	\$175	515	2,575	4,525	22,625
		2010	\$700	\$700	\$911	\$2,093	\$71		\$456	\$383	515	2,575	4,525	22,625
		2011	\$715	\$715	\$1,417	\$2,133	\$67		\$731	\$619	515	2,575	4,525	22,625
		2012	\$730	\$730	\$1,994	\$2,171	\$97		\$1,024	\$873	515	2,575	4,525	22,625
Residential Energy Assessment & Weatherization Program	1.26	2009	\$325	\$220	\$31	\$298	\$3		\$15	\$14	34	325	342	3,560
		2010	\$1,269	\$728	\$206	\$1,471	\$14		\$100	\$92	173	1,632	1,721	17,945
		2011	\$1,295	\$742	\$392	\$1,428	\$17		\$194	\$181	173	1,614	1,721	17,825
		2012	\$1,728	\$967	\$652	\$1,810	\$28		\$321	\$304	210	2,045	2,177	23,233
Direct Load Control Program	0.20	2009	\$291	\$291	\$0	\$0	\$0		\$0	\$0	0	0	0	0
		2010	\$1,325	\$1,325	\$0	\$0	\$0		\$0	\$0	0	0	0	0
		2011	\$1,579	\$1,579	\$418	\$358	\$418		\$0	\$0	9,596	9,596	0	0
		2012	<del>\$3,005</del>	<del>\$3,005</del>	<del>\$906</del>	<del>\$719</del>	<del>\$906</del>		<del>\$0</del>	<del>\$0</del>	<del>9,596</del>	<del>9,596</del>	<del>0</del>	<del>0</del>
Efficient Equipment Incentive Program	2.67	2009	\$1,986	\$949	\$407	\$5,281	\$46		\$182	\$179	620	7,535	4,267	59,756
		2010	\$3,579	\$1,860	\$1,238	\$8,807	\$131		\$585	\$522	1,282	15,678	7,574	101,439
		2011	\$4,354	\$2,312	\$2,228	\$9,924	\$151		\$1,102	\$976	1,565	19,032	8,934	117,831
		2012	\$4,446	\$2,361	\$3,353	\$9,586	\$237		\$1,642	\$1,474	1,565	19,032	8,934	117,831
Compact Fluorescent Lighting Campaign	4.82	2009	\$2,055	\$1,377	\$1,324	\$7,125	\$161		\$680	\$483	2,154	11,665	13,911	75,325
		2010	\$9,951	\$5,332	\$11,156	\$45,426	\$1,138		\$5,955	\$4,062	14,362	73,561	92,742	475,020
		2011	\$10,160	\$5,444	\$21,439	\$42,928	\$1,344		\$11,919	\$8,177	14,362	69,357	92,742	447,876
		2012	\$10,374	\$5,559	\$33,051	\$40,617	\$2,135		\$18,241	\$12,676	14,362	65,154	92,742	420,732
ENERGY STAR New Homes	1.40	2009	\$501	\$276	\$44	\$618	\$4		\$22	\$19	55	830	486	7,290
		2010	\$946	\$499	\$144	\$1,175	\$11		\$72	\$61	108	1,613	945	14,175
		2011	\$1,879	\$967	\$347	\$2,290	\$16		\$179	\$151	215	3,226	1,890	28,350
		2012	\$1,919	\$988	\$574	\$2,234	\$28		\$295	\$251	215	3,226	1,890	28,350
Time of Use Rates	3.55	2009	\$1,139	\$1,139	\$0	\$0	\$0		\$0	\$0	0	0	0	0
		2010	\$1,215	\$1,215	\$763	\$4,061	\$763		\$0	\$0	11,079	110,788	0	0
		2011	\$1,215	\$1,215	\$964	\$3,354	\$964		\$0	\$0	11,079	110,792	0	0
		2012	\$558	\$558	\$2,091	\$5,882	\$2,091		\$0	\$0	22,158	221,576	0	0
Renewable Energy Program	1.52	2009	\$301	\$111	\$28	\$396	\$2		\$12	\$14	24	363	307	4,612
		2010	\$846	\$267	\$120	\$1,159	\$7		\$55	\$59	72	1,078	919	13,782
		2011	\$1,144	\$355	\$250	\$1,511	\$8		\$117	\$125	96	1,441	1,226	18,394
		2012	\$1,168	\$363	\$398	\$1,478	\$14		\$185	\$200	96	1,441	1,226	18,394
Total	4.10		\$82,549	\$53,999	\$113,461	\$294,232	\$12,350		\$57,676	\$43,435	130,460	877,352	469,558	3,019,726

Section 8: Cost Effectiveness

Residential Low-Income	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
E-Power Wise	4.62	2010	\$32	\$32	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$194	\$194	\$218	\$1,215	\$22		\$98	\$99	340	2,043	2,119	12,715
		2012	\$213	\$213	\$351	\$691	\$23		\$164	\$165	231	1,387	1,182	7,092
		2013	\$179	\$179	\$480	\$570	\$33		\$223	\$224	189	1,134	967	5,802
		Total	\$618	\$618	\$1,050	\$2,475	\$78		\$484	\$488	761	4,564	4,268	25,610
Low Income WRAP	1.05	2010	\$3,022	\$3,022	\$109	\$1,559	\$6		\$40	\$62	93	1,397	1,200	18,000
		2011	\$9,417	\$9,417	\$656	\$6,983	\$49		\$238	\$369	676	10,135	5,425	81,368
		2012	\$9,151	\$9,151	\$1,509	\$10,352	\$60		\$568	\$881	720	10,803	8,305	124,574
		2013	\$7,083	\$7,083	\$2,284	\$7,596	\$88		\$861	\$1,335	540	8,093	6,222	93,327
		Total	\$28,673	\$28,673	\$4,559	\$26,489	\$203		\$1,707	\$2,648	2,029	30,428	21,151	317,269
Common Costs	-	2010	\$1,070	\$1,070	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$2,117	\$2,117	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$1,641	\$1,641	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$1,434	\$1,434	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$6,262	\$6,262	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	0.92		\$35,552	\$35,552	\$5,609	\$28,964	\$281		\$2,191	\$3,136	2,789	34,991	25,420	342,879

Section 8: Cost Effectiveness

Residential Low-Income	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
<i>E-Power Wise</i>	1.13	2009	\$119	\$119	\$11	\$75	\$1		\$5	\$4	16	106	113	796
		2010	\$193	\$193	\$48	\$228	\$4		\$24	\$19	49	323	353	2,437
		2011	\$192	\$192	\$85	\$211	\$5		\$45	\$36	47	301	338	2,279
		2012	\$176	\$176	\$121	\$168	\$7		\$63	\$51	38	241	278	1,830
<i>Direct Load Control Program</i>	0.20	2009	\$58	\$58	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$265	\$265	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$316	\$316	\$84	\$72	\$84		\$0	\$0	1,924	1,924	0	0
		2012	\$619	\$619	\$182	\$144	\$182		\$0	\$0	1,924	1,924	0	0
<i>Compact Fluorescent Lighting Campaign</i>	NA	2009	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
<i>Time of Use Rates</i>	3.53	2009	\$229	\$229	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$244	\$244	\$153	\$814	\$153		\$0	\$0	2,221	22,212	0	0
		2011	\$244	\$244	\$193	\$673	\$193		\$0	\$0	2,221	22,212	0	0
		2012	\$113	\$113	\$419	\$1,179	\$419		\$0	\$0	4,442	44,420	0	0
<i>Low Income WRAP</i>	0.80	2009	\$5,965	\$5,965	\$371	\$4,638	\$43		\$180	\$148	575	7,659	3,943	53,693
		2010	\$6,745	\$6,745	\$867	\$4,945	\$87		\$438	\$343	686	8,867	4,423	58,229
		2011	\$7,432	\$7,432	\$1,411	\$5,140	\$89		\$742	\$580	782	9,885	4,829	61,889
		2012	\$8,516	\$8,516	\$2,107	\$5,540	\$141		\$1,102	\$865	941	11,561	5,500	67,943
<b>Total</b>	<b>0.86</b>		\$31,426	\$31,426	\$6,052	\$23,826	\$1,408		\$2,599	\$2,045	15,866	131,633	19,775	249,095

## Section 8: Cost Effectiveness

Commercial / Industrial Small	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	15.70	2010	\$5	\$5	\$9	\$75	\$0		\$4	\$5	3	21	129	1,027
		2011	\$20	\$20	\$59	\$343	\$10		\$21	\$28	155	1,070	521	4,136
		2012	\$2	\$2	\$60	\$3	\$6		\$24	\$30	-	0	8	41
		2013	\$2	\$2	\$63	\$3	\$7		\$25	\$31	-	0	8	41
		Total	\$29	\$29	\$190	\$424	\$23		\$74	\$93	158	1,091	666	5,244
Custom Incentive	6.35	2010	\$117	\$101	\$3	\$39	\$0		\$1	\$1	3	44	39	580
		2011	\$460	\$138	\$175	\$1,694	\$66		\$50	\$60	1,033	15,499	1,396	20,940
		2012	\$1,179	\$993	\$861	\$7,541	\$162		\$318	\$381	3,003	45,039	7,150	107,250
		2013	\$600	\$507	\$1,272	\$3,625	\$241		\$469	\$562	1,501	22,520	3,575	53,625
		Total	\$2,356	\$1,739	\$2,311	\$12,899	\$470		\$838	\$1,004	5,540	83,103	12,160	182,395
Direct Load Control	0.13	2010	\$6	\$6	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$92	\$92	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$257	\$257	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$831	\$831	\$154	\$122	\$154		\$0	\$0	3,529	3,529	0	0
		Total	\$1,186	\$1,186	\$154	\$122	\$154		\$0	\$0	3,529	3,529	0	0
Efficient Equipment Incentive	1.20	2010	\$39	\$15	\$6	\$84	\$1		\$3	\$3	9	115	85	1,188
		2011	\$56,813	\$8,008	\$7,805	\$87,186	\$1,170		\$3,715	\$2,920	18,388	270,648	84,988	1,248,027
		2012	\$37,826	\$22,828	\$18,341	\$25,953	\$1,543		\$8,794	\$8,004	20,018	79,239	117,892	371,451
		2013	\$38,846	\$37,247	\$21,088	\$25,980	\$1,873		\$10,092	\$9,124	20,239	82,488	118,881	385,587
		Total	\$133,524	\$68,098	\$47,241	\$139,203	\$4,587		\$22,604	\$20,051	58,653	432,490	321,847	2,006,253
HVAC Tune-up	0.52	2010	\$37	\$37	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$112	\$112	\$69	\$64	\$33		\$21	\$15	521	521	464	464
		2012	\$6	\$6	\$2	\$6	\$0		\$1	\$1	0	1	29	87
		2013	\$6	\$6	\$5	\$7	\$0		\$3	\$2	0	1	32	97
		Total	\$161	\$161	\$77	\$78	\$33		\$26	\$19	521	523	525	647
Renewable Energy	0.22	2010	\$594	\$6	\$13	\$178	\$1		\$5	\$6	12	181	172	2,573
		2011	\$342	\$9	\$16	\$24	\$1		\$7	\$8	3	50	24	354
		2012	\$0	\$0	\$16	\$0	\$1		\$7	\$9	-	0	0	0
		2013	\$0	\$0	\$17	\$0	\$1		\$7	\$9	-	0	0	0
		Total	\$937	\$15	\$62	\$203	\$3		\$27	\$32	15	232	195	2,927
Common Costs	-	2010	\$2,601	\$2,601	\$0	\$0	\$0							
		2011	\$5,147	\$5,147	\$0	\$0	\$0							
		2012	\$3,991	\$3,991	\$0	\$0	\$0							
		2013	\$3,487	\$3,487	\$0	\$0	\$0							
		Total	\$15,227	\$15,227	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	1.15		\$153,420	\$86,455	\$50,036	\$152,929	\$5,270		\$23,568	\$21,199	68,417	520,968	335,393	2,197,466



Section 8: Cost Effectiveness

Commercial / Industrial Small		TRC Benefits By Program Per Year (\$000)												
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Commercial and Industrial Custom Incentive Program	3.05	2009	\$1,606	\$811	\$324	\$3,624	\$59		\$149	\$117	787	10,038	3,933	49,842
		2010	\$6,904	\$2,998	\$2,373	\$20,374	\$348		\$1,147	\$877	4,268	56,063	22,154	291,584
		2011	\$10,178	\$4,378	\$4,920	\$23,722	\$460		\$2,539	\$1,921	5,510	70,266	27,532	348,892
		2012	\$14,602	\$6,198	\$9,380	\$38,772	\$908		\$4,750	\$3,722	8,686	114,083	45,129	593,482
Direct Load Control Program	0.20	2009	\$136	\$136	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$603	\$603	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$720	\$720	\$189	\$162	\$189		\$0	\$0	4,352	4,352	0	0
		2012	\$1,407	\$1,407	\$411	\$326	\$411		\$0	\$0	4,352	4,352	0	0
Efficient Equipment Incentive Program	3.30	2009	\$6,804	\$2,694	\$1,791	\$21,144	\$294		\$911	\$586	3,946	50,828	21,961	282,516
		2010	\$33,262	\$12,214	\$11,939	\$102,237	\$1,640		\$6,382	\$3,918	19,847	255,312	109,870	1,411,413
		2011	\$47,480	\$17,406	\$26,155	\$137,920	\$2,244		\$14,778	\$9,133	27,775	357,213	154,112	1,979,492
		2012	\$62,196	\$22,756	\$46,279	\$170,971	\$4,120		\$25,908	\$16,251	35,743	459,429	198,127	2,543,856
Small Commercial HVAC Tune-up Program	5.54	2009	\$157	\$118	\$97	\$505	\$35		\$42	\$20	474	2,987	914	5,760
		2010	\$494	\$288	\$654	\$2,487	\$200		\$314	\$140	2,432	15,580	4,689	30,042
		2011	\$671	\$377	\$1,341	\$3,272	\$275		\$741	\$325	3,403	21,867	6,563	42,165
		2012	\$861	\$474	\$2,233	\$4,118	\$488		\$1,190	\$555	4,387	28,166	8,460	54,312
Time of Use Rates	3.14	2009	\$253	\$253	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$203	\$203	\$126	\$672	\$126		\$0	\$0	1,833	18,329	0	0
		2011	\$203	\$203	\$159	\$554	\$159		\$0	\$0	1,829	18,293	0	0
		2012	\$107	\$107	\$346	\$972	\$346		\$0	\$0	3,662	36,617	0	0
Compact Fluorescent Lighting Campaign	NA	2009	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
<b>Total</b>	<b>3.30</b>		\$188,847	\$74,346	\$108,718	\$531,832	\$12,302		\$58,851	\$37,565	133,286	1,523,774	603,444	7,633,356

Section 8: Cost Effectiveness

Commercial / Industrial Large	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	16.38	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1	\$1	\$2	\$15	\$1		\$1	\$1	8	59	26	210
		2012	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		2013	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		Total	\$1	\$1	\$6	\$15	\$1		\$2	\$3	8	59	26	210
Custom Incentive	3.09	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$5,347	\$1,300	\$802	\$9,490	\$62		\$337	\$404	967	14,501	11,873	178,092
		2012	\$27,053	\$9,526	\$7,702	\$75,692	\$357		\$3,341	\$4,005	7,929	118,935	98,400	1,476,000
		2013	\$8,334	\$2,990	\$10,154	\$22,222	\$493		\$4,394	\$5,267	2,417	36,261	30,000	450,000
		Total	\$40,735	\$13,816	\$18,658	\$107,404	\$912		\$8,071	\$9,676	11,313	169,697	140,273	2,104,092
Efficient Equipment Incentive	9.25	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$6,982	\$3,671	\$4,153	\$45,978	\$512		\$2,024	\$1,618	8,049	116,619	56,775	828,983
		2012	\$1,403	\$1,236	\$6,516	\$24,958	\$363		\$3,456	\$2,697	995	14,920	32,863	492,949
		2013	\$0	\$0	\$6,758	\$0	\$394		\$3,574	\$2,789	-	0	0	0
		Total	\$8,386	\$4,907	\$17,427	\$70,936	\$1,269		\$9,054	\$7,104	9,044	131,538	89,638	1,321,932
HVAC Tune-up	0.37	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$520	\$520	\$0	\$0	\$0		\$0	\$0	1	1	4	4
		2012	\$133	\$133	\$48	\$120	\$0		\$28	\$20	9	28	696	2,088
		2013	\$149	\$149	\$106	\$144	\$1		\$61	\$44	10	31	773	2,319
		Total	\$802	\$802	\$154	\$264	\$1		\$89	\$64	20	59	1,473	4,411
Load Curtailment	0.61	2010	\$75	\$75	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$61	\$61	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$4,152	\$4,152	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$5,401	\$5,401	\$6,115	\$4,855	\$6,115		\$0	\$0	140,400	140,400	0	0
		Total	\$9,689	\$9,689	\$6,115	\$4,855	\$6,115		\$0	\$0	140,400	140,400	0	0
Common Costs	-	2010	\$1,067	\$1,067	\$0	\$0	\$0				-	0	0	0
		2011	\$2,111	\$2,111	\$0	\$0	\$0				-	0	0	0
		2012	\$1,637	\$1,637	\$0	\$0	\$0				-	0	0	0
		2013	\$1,430	\$1,430	\$0	\$0	\$0				-	0	0	0
		Total	\$6,246	\$6,246	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	3.24		\$65,858	\$35,461	\$42,361	\$183,474	\$8,299		\$17,216	\$16,847	160,786	441,753	231,410	3,430,646

Section 8: Cost Effectiveness

Commercial / Industrial Large	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Load Curtailment Program	0.53	2009	\$50	\$50	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$51	\$51	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$5,972	\$5,972	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$5,973	\$5,973	\$6,636	\$5,268	\$5,667		\$969	\$0	124,950	124,950	12,495	12,495
Commercial and Industrial Custom Incentive Program	2.25	2009	\$372	\$183	\$38	\$331	\$8		\$17	\$12	118	1,275	534	5,242
		2010	\$1,331	\$579	\$324	\$2,686	\$54		\$156	\$115	693	8,874	3,705	46,989
		2011	\$1,913	\$827	\$680	\$3,201	\$71		\$351	\$257	893	11,202	4,695	57,937
		2012	\$3,044	\$1,288	\$1,441	\$6,542	\$155		\$727	\$558	1,724	22,769	9,495	124,967
Efficient Equipment Incentive Program	3.00	2009	\$1,513	\$689	\$343	\$4,300	\$62		\$161	\$120	868	12,305	5,135	73,040
		2010	\$6,531	\$2,833	\$2,051	\$17,736	\$307		\$1,027	\$717	3,768	52,905	22,126	311,687
		2011	\$10,618	\$4,687	\$4,744	\$27,465	\$446		\$2,519	\$1,778	6,034	85,455	35,681	506,943
		2012	\$13,968	\$6,161	\$8,471	\$33,892	\$836		\$4,424	\$3,210	7,770	110,045	45,945	652,808
<b>Total</b>	<b>2.34</b>		\$51,336	\$29,292	\$24,727	\$101,421	\$7,607		\$10,352	\$6,768	146,818	429,781	139,811	1,792,107

Section 8: Cost Effectiveness

Governmental/Schools/ Non-Profit	TRC Benefits By Program Per Year (\$000)													
	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	19.26	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$0	\$0	\$0	\$1	\$0		\$0	\$0	0	2	2	14
		2012	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$0	\$0	\$0	\$1	\$0		\$0	\$0	0	2	2	14
Custom Incentive	7.84	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1,842	\$348	\$266	\$3,275	\$12		\$115	\$138	186	2,795	3,336	50,047
		2012	\$2,869	\$2,907	\$3,379	\$35,657	\$13		\$1,531	\$1,835	143	2,150	38,000	570,000
		2013	\$1,440	\$358	\$3,773	\$2,696	\$21		\$1,707	\$2,046	143	2,150	2,920	43,800
		Total	\$6,151	\$3,613	\$7,418	\$41,628	\$46		\$3,353	\$4,019	473	7,095	44,256	663,847
Direct Load Control	0.13	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1	\$1	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3	\$3	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$9	\$9	\$2	\$1	\$2		\$0	\$0	40	40	0	0
		Total	\$13	\$13	\$2	\$1	\$2		\$0	\$0	40	40	0	0
Efficient Equipment Incentive	1.23	2010	\$12	\$2	\$1	\$15	\$0		\$1	\$0	2	26	15	215
		2011	\$36,027	\$4,039	\$3,288	\$36,246	\$532		\$1,540	\$1,215	8,363	122,954	35,319	516,120
		2012	\$14,630	\$2,501	\$5,084	\$17,622	\$760		\$2,384	\$1,940	10,553	155,655	16,568	231,612
		2013	\$14,380	\$2,375	\$7,140	\$16,499	\$1,278		\$3,215	\$2,647	10,427	155,027	15,699	227,272
		Total	\$65,050	\$8,917	\$15,513	\$70,383	\$2,570		\$7,141	\$5,803	29,344	433,662	67,601	975,219
HVAC Tune-up	0.57	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$12	\$12	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3	\$3	\$1	\$3	\$0		\$1	\$1	0	1	16	48
		2013	\$6	\$6	\$4	\$7	\$0		\$2	\$2	0	1	32	97
		Total	\$21	\$21	\$6	\$11	\$0		\$3	\$2	1	2	48	145
Load Curtailment	0.61	2010	\$8	\$8	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$7	\$7	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$470	\$470	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$612	\$612	\$693	\$550	\$693		\$0	\$0	15,900	15,900	0	0
		Total	\$1,097	\$1,097	\$693	\$550	\$693		\$0	\$0	15,900	15,900	0	0
Renewable Energy	0.51	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$16,391	\$2,056	\$520	\$6,046	\$86		\$196	\$238	1,358	20,373	5,670	85,056
		2012	\$7,023	\$1,599	\$954	\$4,683	\$152		\$364	\$439	2,419	36,292	4,202	63,029
		2013	\$0	\$0	\$1,003	\$0	\$165		\$379	\$458	-	0	0	0
		Total	\$23,415	\$3,655	\$2,477	\$10,729	\$403		\$939	\$1,135	3,778	56,665	9,872	148,085
Common Cost	-	2010	\$632	\$632	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1,251	\$1,251	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$970	\$970	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$848	\$848	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$3,702	\$3,702	\$0	\$0	\$0		\$0	\$0	-	0	0	0
<b>Total</b>	<b>1.40</b>		\$99,449	\$21,019	\$26,109	\$123,303	\$3,713		\$11,436	\$10,960	49,536	513,366	121,779	1,787,311

Section 8: Cost Effectiveness

Governmental / Non-Profit	TRC Benefits By Program Per Year (\$000)													
	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Commercial and Industrial Custom Incentive Program	3.13	2009	\$382	\$193	\$46	\$406	\$10		\$21	\$15	136	1,488	534	5,242
		2010	\$1,633	\$711	\$575	\$5,431	\$84		\$278	\$213	1,084	14,534	5,797	78,091
		2011	\$2,453	\$1,055	\$1,231	\$6,204	\$114		\$634	\$483	1,398	18,062	7,104	91,588
		2012	\$3,218	\$1,375	\$2,210	\$8,454	\$213		\$1,118	\$879	1,892	24,848	9,846	129,383
Direct Load Control Program	0.20	2009	\$10	\$10	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$49	\$49	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$54	\$54	\$14	\$12	\$14		\$0	\$0	328	328	0	0
		2012	\$105	\$105	\$31	\$25	\$31		\$0	\$0	328	328	0	0
Efficient Equipment Incentive Program	3.02	2009	\$1,437	\$570	\$338	\$3,981	\$56		\$172	\$111	745	9,572	4,147	53,189
		2010	\$7,196	\$2,672	\$2,291	\$19,734	\$311		\$1,221	\$759	3,775	48,551	21,213	273,101
		2011	\$10,175	\$3,753	\$5,010	\$26,392	\$426		\$2,821	\$1,763	5,263	67,648	29,502	379,338
		2012	\$13,540	\$5,016	\$8,894	\$33,104	\$782		\$4,960	\$3,151	6,802	87,431	38,348	493,604
HVAC Tune-Up Program	5.69	2009	\$11	\$8	\$7	\$39	\$3		\$3	\$2	36	229	70	442
		2010	\$36	\$21	\$49	\$188	\$15		\$24	\$11	183	1,175	353	2,266
		2011	\$49	\$27	\$101	\$244	\$21		\$56	\$24	255	1,631	491	3,146
		2012	\$64	\$35	\$168	\$310	\$37		\$89	\$42	330	2,122	637	4,092
Time of Use Rates	3.24	2009	\$18	\$18	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$15	\$15	\$10	\$51	\$10		\$0	\$0	138	1,382	0	0
		2011	\$15	\$15	\$12	\$42	\$12		\$0	\$0	138	1,377	0	0
		2012	\$8	\$8	\$26	\$73	\$26		\$0	\$0	275	2,754	0	0
Renewable Energy Program	1.09	2009	\$1,321	\$419	\$96	\$1,309	\$11		\$42	\$43	142	2,134	1,232	18,475
		2010	\$3,879	\$1,107	\$418	\$3,823	\$39		\$193	\$185	429	6,438	3,706	55,583
		2011	\$5,234	\$1,464	\$853	\$4,930	\$50		\$408	\$395	571	8,572	4,937	74,058
		2012	\$5,345	\$1,495	\$1,339	\$4,781	\$81		\$634	\$624	571	8,572	4,937	74,058
Load Curtailment Program	0.47	2009	\$11	\$11	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$11	\$11	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1,297	\$1,297	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$1,297	\$1,297	\$1,275	\$1,012	\$1,064		\$211	\$0	22,550	22,550	2,255	2,255
<b>Total</b>	<b>2.40</b>		\$58,862	\$22,812	\$24,993	\$120,542	\$3,408		\$12,885	\$8,700	47,369	331,725	135,109	1,737,909

## Section 8: Cost Effectiveness

All Sectors	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	8.80	2010	\$795	\$795	\$764	\$6,492	\$13		\$374	\$377	187	1,486	9,069	72,400
		2011	\$1,877	\$1,877	\$3,580	\$19,461	\$441		\$1,569	\$1,570	6,750	46,994	24,865	197,366
		2012	\$2,314	\$2,314	\$5,772	\$15,190	\$385		\$2,699	\$2,688	2,654	21,228	20,302	160,734
		2013	\$2,314	\$2,314	\$8,334	\$14,791	\$533		\$3,911	\$3,889	2,654	21,228	20,302	160,734
		Total	\$7,300	\$7,300	\$18,450	\$55,933	\$1,373		\$8,554	\$8,523	12,244	90,937	74,537	591,233
Compact Fluorescent Lighting Campaign	6.87	2010	\$5,549	\$2,078	\$5,420	\$33,416	\$250		\$2,838	\$2,331	3,636	21,816	61,839	371,031
		2011	\$12,499	\$4,598	\$20,300	\$80,565	\$779		\$10,718	\$8,804	8,608	51,649	145,999	875,997
		2012	\$8,911	\$4,417	\$31,193	\$52,609	\$749		\$16,714	\$13,729	6,410	38,460	94,234	565,406
		2013	\$8,603	\$4,114	\$42,586	\$50,572	\$1,087		\$22,784	\$18,715	6,296	37,779	90,065	540,390
		Total	\$35,563	\$15,207	\$99,499	\$217,162	\$2,865		\$53,054	\$43,580	24,951	149,704	392,137	2,352,824
Custom Incentive	3.85	2010	\$117	\$101	\$3	\$39	\$0		\$1	\$1	3	44	39	580
		2011	\$7,659	\$1,788	\$1,245	\$14,481	\$139		\$503	\$603	2,188	32,822	16,624	249,353
		2012	\$31,101	\$13,426	\$11,944	\$118,890	\$533		\$5,190	\$6,221	11,075	166,124	143,550	2,153,250
		2013	\$10,374	\$3,855	\$15,202	\$28,544	\$755		\$6,571	\$7,877	4,062	60,930	36,495	547,425
		Total	\$49,250	\$19,170	\$28,393	\$161,954	\$1,427		\$12,264	\$14,702	17,328	259,921	196,707	2,950,607
Energy Efficiency Behavior & Education	2.24	2010	\$142	\$142	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$815	\$815	\$1,225	\$1,135	\$0		\$610	\$615	-	0	13,207	13,207
		2012	\$936	\$936	\$2,554	\$2,190	\$217		\$1,164	\$1,173	5,397	5,397	23,504	23,504
		2013	\$936	\$936	\$2,699	\$2,142	\$235		\$1,227	\$1,236	5,397	5,397	23,504	23,504
		Total	\$2,829	\$2,829	\$6,478	\$5,466	\$452		\$3,002	\$3,024	5,397	5,397	23,504	23,504
Direct Load Control	0.13	2010	\$64	\$64	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$924	\$924	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$2,597	\$2,597	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$8,393	\$8,393	\$1,553	\$1,232	\$1,553		\$0	\$0	35,644	35,644	0	0
		Total	\$11,978	\$11,978	\$1,553	\$1,232	\$1,553		\$0	\$0	35,644	35,644	0	0
Efficient Equipment Incentive	1.59	2010	\$5,327	\$2,174	\$858	\$10,900	\$77		\$355	\$427	1,116	14,213	9,275	123,051
		2011	\$123,686	\$24,538	\$19,038	\$201,062	\$2,554		\$8,867	\$7,616	39,034	562,659	205,001	2,953,542
		2012	\$61,900	\$28,769	\$35,337	\$85,252	\$2,940		\$16,976	\$15,422	33,044	268,459	181,857	1,295,568
		2013	\$59,782	\$40,875	\$41,701	\$52,523	\$3,899		\$19,783	\$18,019	31,992	254,350	143,800	733,235
		Total	\$250,696	\$96,355	\$96,934	\$349,737	\$9,470		\$45,980	\$41,484	105,185	1,099,681	539,933	5,105,397
HVAC Tune-up	0.40	2010	\$38	\$38	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$644	\$644	\$70	\$65	\$33		\$21	\$15	521	521	468	468
		2012	\$141	\$141	\$52	\$129	\$0		\$30	\$22	10	30	741	2,223
		2013	\$161	\$161	\$115	\$158	\$1		\$66	\$48	11	33	838	2,513
		Total	\$985	\$985	\$237	\$352	\$34		\$118	\$85	542	584	2,046	5,203

Section 8: Cost Effectiveness

All Sectors	TRC BenefitsBy Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Load Curtailment	0.61	2010	\$83	\$83	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$68	\$68	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$4,622	\$4,622	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$6,013	\$6,013	\$6,808	\$5,404	\$6,808		\$0	\$0	156,300	156,300	0	0
		Total	\$10,786	\$10,786	\$6,808	\$5,404	\$6,808		\$0	\$0	156,300	156,300	0	0
Renewable Energy	0.51	2010	\$4,908	\$356	\$257	\$3,710	\$10		\$107	\$141	140	2,098	2,942	44,126
		2011	\$34,745	\$3,626	\$1,409	\$13,755	\$143		\$559	\$707	2,115	31,722	11,731	175,966
		2012	\$7,023	\$1,599	\$1,874	\$4,683	\$188		\$748	\$938	2,419	36,292	4,202	63,029
		2013	\$0	\$0	\$1,976	\$0	\$204		\$787	\$986	-	0	0	0
		Total	\$46,676	\$5,582	\$5,516	\$22,147	\$544		\$2,201	\$2,771	4,674	70,112	18,875	283,122
Energy Assessment & Weatherization	0.42	2010	\$30	\$30	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$925	\$574	\$155	\$844	\$91		\$33	\$31	1,432	8,897	686	5,732
		2012	\$886	\$837	\$219	\$79	\$58		\$81	\$79	19	19	924	924
		2013	\$972	\$925	\$240	\$84	\$63		\$89	\$87	20	20	997	997
		Total	\$2,814	\$2,366	\$614	\$1,007	\$213		\$204	\$198	1,470	8,935	2,607	7,653
E-Power Wise	4.62	2010	\$32	\$32	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$194	\$194	\$218	\$1,215	\$22		\$98	\$99	340	2,043	2,119	12,715
		2012	\$213	\$213	\$351	\$691	\$23		\$164	\$165	231	1,387	1,182	7,092
		2013	\$179	\$179	\$480	\$570	\$33		\$223	\$224	189	1,134	967	5,802
		Total	\$618	\$618	\$1,050	\$2,475	\$78		\$484	\$488	761	4,564	4,268	25,610
Low Income WRAP	1.05	2010	\$3,022	\$3,022	\$109	\$1,559	\$6		\$40	\$62	93	1,397	1,200	18,000
		2011	\$9,417	\$9,417	\$656	\$6,983	\$49		\$238	\$369	676	10,135	5,425	81,368
		2012	\$9,151	\$9,151	\$1,509	\$10,352	\$60		\$568	\$881	720	10,803	8,305	124,574
		2013	\$7,083	\$7,083	\$2,284	\$7,596	\$88		\$861	\$1,335	540	8,093	6,222	93,327
		Total	\$28,673	\$28,673	\$4,559	\$26,489	\$203		\$1,707	\$2,648	2,029	30,428	21,151	317,269
Portfolio Costs	-	2010	\$7,371	\$7,371										
		2011	\$14,587	\$14,587										
		2012	\$11,310	\$11,310										
		2013	\$9,883	\$9,883										
		Total	\$43,151	\$43,151	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	1.97		\$491,319	\$245,000	\$270,092	\$849,360	\$25,020		\$127,568	\$117,503	366,525	1,912,207	1,275,766	11,662,422

## Section 8: Cost Effectiveness

All Sectors	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling Program	10.86	2009	\$771	\$771	\$808	\$6,652	\$75		\$392	\$341	1,011	8,066	8,828	70,577
		2010	\$2,768	\$2,768	\$4,444	\$26,701	\$349		\$2,227	\$1,869	4,046	32,264	35,311	282,309
		2011	\$2,770	\$2,770	\$8,297	\$26,607	\$396		\$4,281	\$3,620	4,046	32,264	35,311	282,309
		2012	\$2,773	\$2,773	\$12,649	\$25,913	\$620		\$6,494	\$5,534	4,046	32,264	35,311	282,309
Energy Efficiency Behavior & Education	3.33	2009	\$686	\$686	\$414	\$2,025	\$38		\$201	\$175	515	2,575	4,525	22,625
		2010	\$700	\$700	\$911	\$2,093	\$71		\$456	\$383	515	2,575	4,525	22,625
		2011	\$715	\$715	\$1,417	\$2,133	\$67		\$731	\$619	515	2,575	4,525	22,625
		2012	\$730	\$730	\$1,994	\$2,171	\$97		\$1,024	\$873	515	2,575	4,525	22,625
Residential Energy Assessment & Weatherization	1.26	2009	\$325	\$220	\$31	\$298	\$3		\$15	\$14	34	325	342	3,560
		2010	\$1,269	\$728	\$206	\$1,471	\$14		\$100	\$92	173	1,632	1,721	17,945
		2011	\$1,295	\$742	\$392	\$1,428	\$17		\$194	\$181	173	1,614	1,721	17,825
		2012	\$1,728	\$967	\$652	\$1,810	\$28		\$321	\$304	210	2,045	2,177	23,233
Direct Load		2009	\$495	\$495	\$0	\$0	\$0		\$0	\$0	0	0	0	0
Control Program	0.20	2010	\$2,242	\$2,242	\$0	\$0	\$0		\$0	\$0	0	0	0	0
		2011	\$2,668	\$2,668	\$705	\$604	\$705		\$0	\$0	16,200	16,200	0	0
		2012	\$5,217	\$5,217	\$1,529	\$1,214	\$1,529		\$0	\$0	16,200	16,200	0	0
Efficient Equipment Incentive Program	3.23	2009	\$11,740	\$4,902	\$2,879	\$34,706	\$458		\$1,425	\$996	6,179	80,240	35,509	468,500
		2010	\$50,567	\$19,579	\$17,520	\$148,513	\$2,389		\$9,215	\$5,916	28,672	372,446	160,784	2,097,640
		2011	\$72,628	\$28,158	\$38,137	\$201,701	\$3,266		\$21,221	\$13,650	40,637	529,348	228,229	2,983,604
		2012	\$94,151	\$36,295	\$66,997	\$247,553	\$5,976		\$36,935	\$24,086	51,879	675,937	291,353	3,808,100
Compact Fluorescent Lighting Campaign	4.82	2009	\$2,055	\$1,377	\$1,324	\$7,125	\$161		\$680	\$483	2,154	11,665	13,911	75,325
		2010	\$9,951	\$5,332	\$11,156	\$45,426	\$1,138		\$5,955	\$4,062	14,362	73,561	92,742	475,020
		2011	\$10,160	\$5,444	\$21,439	\$42,928	\$1,344		\$11,919	\$8,177	14,362	69,357	92,742	447,876
		2012	\$10,374	\$5,559	\$33,051	\$40,617	\$2,135		\$18,241	\$12,676	14,362	65,154	92,742	420,732
ENERGY STAR New Homes	1.40	2009	\$501	\$276	\$44	\$618	\$4		\$22	\$19	55	830	486	7,290
		2010	\$946	\$499	\$144	\$1,175	\$11		\$72	\$61	108	1,613	945	14,175
		2011	\$1,879	\$967	\$347	\$2,290	\$16		\$179	\$151	215	3,226	1,890	28,350
		2012	\$1,919	\$988	\$574	\$2,234	\$28		\$295	\$251	215	3,226	1,890	28,350
Time of Use Rates	3.49	2009	\$1,640	\$1,640	\$0	\$0	\$0		\$0	\$0	0	0	0	0
		2010	\$1,678	\$1,678	\$1,052	\$5,598	\$1,052		\$0	\$0	15,271	152,710	0	0
		2011	\$1,678	\$1,678	\$1,329	\$4,622	\$1,329		\$0	\$0	15,267	152,674	0	0
		2012	\$787	\$787	\$2,882	\$8,106	\$2,882		\$0	\$0	30,537	305,367	0	0



Section 8: Cost Effectiveness

					Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
Program	TRC Ratio	Program Year	TRC	Program Costs (\$000)	Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
HVAC Tune-Up Program	5.55	2009	\$168	\$126	\$104	\$543	\$38		\$45	\$21	510	3,216	984	6,202
		2010	\$530	\$309	\$703	\$2,675	\$215		\$337	\$151	2,615	16,755	5,042	32,308
		2011	\$720	\$404	\$1,441	\$3,517	\$295		\$797	\$349	3,658	23,498	7,054	45,311
		2012	\$924	\$508	\$2,401	\$4,428	\$525		\$1,279	\$597	4,717	30,288	9,097	58,405
Commercial and Industrial Custom Incentive Program	2.95	2009	\$2,361	\$1,188	\$408	\$4,362	\$77		\$187	\$144	1,041	12,801	5,001	60,326
		2010	\$9,868	\$4,288	\$3,272	\$28,490	\$486		\$1,581	\$1,206	6,045	79,471	31,657	416,663
		2011	\$14,544	\$6,260	\$6,831	\$33,127	\$645		\$3,524	\$2,662	7,800	99,529	39,331	498,416
		2012	\$20,864	\$8,862	\$13,031	\$53,767	\$1,277		\$6,595	\$5,159	12,302	161,700	64,470	847,831
Load Curtailment Program	0.52	2009	\$61	\$61	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2010	\$62	\$62	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$7,269	\$7,269	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$7,270	\$7,270	\$7,911	\$6,280	\$6,731		\$1,180	\$0	147,500	147,500	14,750	14,750
E-Power Wise	1.13	2009	\$119	\$119	\$11	\$75	\$1		\$5	\$4	16	106	113	796
		2010	\$193	\$193	\$48	\$228	\$4		\$24	\$19	49	323	353	2,437
		2011	\$192	\$192	\$85	\$211	\$5		\$45	\$36	47	301	338	2,279
		2012	\$176	\$176	\$121	\$168	\$7		\$63	\$51	38	241	278	1,830
Low Income WRAP	0.80	2009	\$5,965	\$5,965	\$371	\$4,638	\$43		\$180	\$148	575	7,659	3,943	53,693
		2010	\$6,745	\$6,745	\$867	\$4,945	\$87		\$438	\$343	686	8,867	4,423	58,229
		2011	\$7,432	\$7,432	\$1,411	\$5,140	\$89		\$742	\$580	782	9,885	4,829	61,889
		2012	\$8,516	\$8,516	\$2,107	\$5,540	\$141		\$1,102	\$865	941	11,561	5,500	67,943
Renewable Energy Program	1.17	2009	\$1,622	\$531	\$124	\$1,705	\$12		\$54	\$57	166	2,497	1,539	23,086
		2010	\$4,725	\$1,374	\$538	\$4,982	\$46		\$249	\$244	501	7,515	4,624	69,366
		2011	\$6,378	\$1,819	\$1,103	\$6,440	\$58		\$525	\$520	668	10,013	6,163	92,452
		2012	\$6,513	\$1,858	\$1,737	\$6,259	\$94		\$819	\$824	668	10,013	6,163	92,452
Portfolio Costs		2009	\$8,998	\$8,998										
		2010	\$8,306	\$8,306										
		2011	\$8,497	\$8,497										
		2012	\$8,330	\$8,330										
Total	2.79		\$447,151	\$246,005	\$277,951	\$1,071,853	\$37,076		\$142,362	\$98,513	473,798	3,294,265	1,367,697	14,432,194

## 9. Plan Compliance Information and Other Key Issues

### 9.1. Plan Compliance Issues.

#### 9.1.1. Describe how the plan provides a variety of energy-efficiency, conservation, and load management measures and will provide the measures equitably to all classes of customers in accordance with the January 15 Implementation Order.

PPL Electric went to considerable lengths to develop a Plan that would satisfy and balance the requirements of Act 129. The Plan Development Process, which provides an overview of the myriad of considerations and steps taken to ensure compliance with the January 15th Implementation Order, is outlined in Sections 1.2.2 – 1.2.1.3. Table 6 and Table 9 shows the ~~fourteen proposed~~ programs broken out by customer sector, ~~that comprise PPL Electric's EE&C Plan.~~ As shown on ~~that those~~ tables, each customer class ~~will have~~ has an opportunity to choose among a broad range of programs that offer energy-efficiency, conservation and load management measures. ~~No customer class has fewer than five program options.~~ Within many of those programs, especially the Efficient Equipment Program, there are many energy efficiency measures available.

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Also, as shown in Table 7, the proportion of the EE&C Plan's energy savings and budget for each customer sector are reasonably equitable by several metrics including each sector's share of total PPL Electric revenue and total PPL Electric load (kWh/yr).

#### 9.1.2. Provide statement delineating the manner in which the EE&C plan will achieve the requirements of the program under 66 Pa. C.S. §§ 2806.1(c) & 2806.1(d).

Act 129 requires 10% of the required energy and peak load reductions (compliance target) to come from institutional customers. For PPL Electric, those targets are ~~434,609~~ 114,600 MWh/yr (May 2013 energy reduction target) and ~~33-30~~ MW (2012 peak load reduction target). ~~respectively.~~ Through careful analysis and planning, PPL Electric has developed a portfolio of programs which it believes create a reasonable mix of energy-efficiency and demand response measures to achieve the energy ~~conservation~~ reduction and peak load reduction targets set forth in Act 129 within all of the other requirements of the Act. ~~As discussed in Section 1.1.3, achieving these targets also will require ongoing customer support, trade ally outreach, promotion, training and coordination with key delivery channels, stakeholders and market partners throughout the state.~~

Act 129, in 66 Pa. C.S. § 2806.1(c), requires each EDC to achieve 3% energy savings by May 31, 2013. In PPL Electric's case, that target equates to approximately 1.15 million MWh/yr. The Company's EE&C Plan, as described herein, is designed to achieve ~~energy savings by May 31, 2013 of approximately more than 1.3~~ 1.275 million MWh/yr of energy reductions by May 2013. The approximately 10% excess is intended to provide a reasonable cushion for uncertainties such as a realization rate that is worse than expected.<sup>104</sup> Similarly, 66 Pa. C.S. § 2806.1(d) requires each EDC to achieve 4.5%

<sup>104</sup> The realization rate is the ratio of verified gross savings to reported gross savings and it will not be known until the Company's independent evaluator completes the impact evaluation, approximately 6 months after the compliance dates.

peak load reduction by May 31, 2013 (which, due to summer peak season as discussed above, must be achieved by September 30, 2012). In PPL Electric's case, that target equates to 297 MW. ~~The Company's~~ PPL Electric's EE&C Plan is designed to achieve approximately 321 MW of peak load reductions ~~meets that target~~ by September 30, 2012. The approximately 8% excess is intended to provide a reasonable cushion for uncertainties such as a realization rate that is worse than expected. Given the uncertainties previously discussed about peak load reductions and predicting the peak hours, PPL Electric would prefer a larger cushion for uncertainty. However, a larger cushion is not possible within current budget constraints.

**9.1.3. Provide statement delineating the manner in which the EE&C plan will achieve the Low-Income requirements under 66 Pa. C.S. §§ 2806.1(b)(1)(i)(G).**

In accordance with the Commission's Low-Income Working Group (LIWG) Report dated April 27, 2010, an EDC is compliant with the Act 129 low-income requirement if the number of measures available to low-income customers is consistent with the percentage of low-income household usage shown in the last column on Table 1 of the LIWG Report. For PPL Electric, that percentage is 8.64%. PPL Electric's EE&C Plan is designed to dedicate (make available) at least 8.64% of the total measures to low-income customers. Approximately 63% of the total unique measures in PPL Electric's EE&C Plan are available to low-income customers. This percentage of measures available to low-income customers significantly exceeds the proportion required by Act 129 (8.64% in PPL Electric's case). Those measures are expected to achieve approximately 6% of the energy consumption and peak load reductions from the low-income customer sector. A list of measures is included in Appendix G. As discussed in Section 3.2.1, the Company has developed two programs specifically for the low-income sector to obtain energy and demand reductions from this sector. Additional multi-sector programs, including both efficiency and demand reduction programs, are available and will be promoted to low-income customers. Since it is not feasible to track low-income customer's participation in non low-income programs, the Company will not accrue energy and demand savings to the low-income sector when low-income customers participate in non low-income programs. In that situation, energy and demand savings will accrue to the customer sector for the customer's rate class (typically the residential sector). However, as agreed with the Commission, PPL Electric will estimate the savings from low-income customers who participate in non low-income programs. Those estimated savings will be included in PPL Electric's final annual report starting with Program Year 2.

In order to meet the energy and demand reduction set aside for the low-income sector, PPL Electric will leverage its existing delivery infrastructure, implement new grassroots social marketing efforts targeted to low-income communities and community groups, reach out to new low-income market partners to develop and implement co-marketing strategies, and expand its low-income WRAP program to reach new customers and increase measure installation.

**9.1.4. Provide statement delineating the manner in which the EE&C plan will achieve the Government/Non-Profit requirements under 66 Pa. C.S. §§ 2806.1(b)(1)(i)(B).**

Institutional customers will be eligible for the same range of energy-efficiency and demand response programs and measures as other customers in their underlying rate

class (~~e.g., commercial and industrial~~ includes residential, small C&I, and large C&I rate classes). Institutional customers also will be eligible to participate in the Renewable Energy program, ~~which the Company expects to promote aggressively to schools~~. In its Efficient Equipment Incentive Program, PPL Electric has included street-traffic lighting measures, designated primarily for municipalities. See section 3.5 for a complete listing of governmental/non-profit programs.

PPL Electric believes this mix of programs provides an extensive selection of program opportunities and EE&C measures to support the governmental/non-profit sector. PPL Electric recognizes the importance of obtaining participation from this sector and plans targeted promotions for those customers. To support program uptake in the governmental and non-profit sector, PPL Electric will increase its already active outreach to schools, school districts, and universities in its service territory, as well as to other public entities, particularly those with significant energy-efficiency potential. PPL Electric further plans to leverage municipal and other public sector interest in energy-efficiency stemming from the influx of Federal ARRA funding designated for community and state government facility energy-efficiency upgrades. In addition, PPL Electric ~~may assign specific key account managers or other staff to~~ and the C&I CSP may focus on increasing governmental/non-profit sector participation, particularly among larger customers such as universities and hospitals. PPL Electric ~~program management staff and the C&I CSP may~~ also will conduct outreach to target governmental, institutional and non-profit facilities to explain program advantages and discuss opportunities to leverage ARRA funded efficiency activities with Act 129 funding.

**9.1.5. Describe how EDC will ensure that no more than two percent of funds available to implement the plan shall be allocated for experimental equipment or devices.**

All measures included in the Plan are proven technologies that are commercially available, ~~and~~ technically sound, and most, if not all, are in the TRM, will be added to the TRM, or will be treated as custom measures. However, the Company expects to explore emerging technologies and energy efficient practices if such measures can be shown to be cost effective. The Company expects that, under the Commercial and Industrial Custom program, certain projects will include experimental or emerging technologies. In such cases, the Company will track those measures separately and will limit expenditures on measure deemed "experimental" to comply with this requirement of Act 129.

**9.1.6. Describe how the plan will be competitively neutral to all distribution customers even if they are receiving supply from an EGS.**

As described in Section 9.1.1, ~~PPL Electric's plan is comprised of fourteen programs. Each~~ each customer class ~~will have~~ has an opportunity to choose among a range of programs and measures, ~~such that no class of customers will have fewer than five program options. Thirteen~~ All of ~~these~~ the programs are available to customers regardless of whether they receive default generation service from PPL Electric or obtain competitive supply from an Electric Generation Supplier (EGS). Default and competitive-supply customers alike will be able to participate in these programs and obtain the benefits available to participants. Monthly bill savings may be different for a competitive-supply customer to the extent that the customer may have purchased generation supply at a rate that is different from PPL Electric's rate for default generation service. ~~The Time of Use Rate Programs described in Section 3 are default generation~~

~~service rates and, accordingly, are not available to customers being supplied by an EGS. Nevertheless, the Company anticipates that EGSs may offer their own time-varying rates which may be more attractive to certain customers than those offered by the Company.~~

## **9.2. Other Key Issues:**

### **9.2.1. Describe how this EE&C plan will lead to long-term, sustainable energy-efficiency savings in the EDC's service territory and in Pennsylvania.**

The proposed Plan describes a four-year undertaking, designed to satisfy the performance requirements set forth by Act 129 in a manner that is consistent with the Commission's February 2009 Implementation Order and PPL Electric's own mission. Many of the measures installed under the proposed programs will continue to perform and produce savings well beyond the term of the Plan. PPL Electric expects that the information and educational services offered over the course of the Plan will have a lasting, transformative effect on consumers' purchasing decisions regarding energy-using equipment and appliances and their energy consumption behavior. Programs offered by PPL Electric and other EDCs will stimulate demand for energy efficient products and encourage distributors and retailers to stock such equipment. It appears reasonable to expect that the program-induced increase in demand for and wider availability of energy-efficient equipment will have at least a role in transforming local and regional markets.

### **9.2.2. Describe how this EE&C plan, and the EDC, will avoid possible overlaps between programs offered in different Pennsylvania EDC service territories as well as possibly programs offered in neighboring states.**

PPL Electric recognizes the importance of minimizing customer confusion (and maximizing customer participation and benefits) by coordinating program activities and incentives with neighboring EDCs. All of the Pennsylvania EDCs coordinated during the development of their EE&C Plans and continue to collaborate, coordinate, and share best practices during the implementation of programs. The focus of the coordination ~~was~~ is to develop consistent programs and program design elements (such as the types and magnitude of customer incentives) where that consistency ~~was~~ is appropriate. PPL Electric and PECO also investigated implementing joint programs, such as CFL and appliance recycling programs, but the benefits of those joint programs were not significant. However, several of the EDCs are using the same CSPs (such as the Appliance Recycling CSP and the Residential Lighting CSP) and sharing CSP resources such as a new appliance recycling facility. ~~Coordination among all EDCs will be an ongoing process that will continue throughout the Plan period.~~

~~In addition, PPL Electric has coordinated its efforts with PHFA and Keystone HELP, both of which offer energy-efficiency programs that entail some overlapping services and measures with those proposed in PPL Electric's Plan. Each of these entities has agreed to look for areas to co-market programs, help customers identify programs that offer the best fit with their efficiency objectives and the greatest benefits in terms of incentives and other support, and direct customers to those programs best suited to their needs regardless of the entity offering the program.~~

PPL Electric expects to continue such coordination activities on an ongoing basis, look for potential overlaps with other programs or entities and work to resolve any issues that may dilute overall state efficiency results or confuse customers.

**9.2.3. Describe how this EE&C plan will leverage and utilize other financial resources, including funds from other public and private sector energy-efficiency and solar energy programs.**

With respect to leveraging and utilizing other financial resources, PPL Electric's ~~approach will be to encourage~~ customers to use these resources to gain the maximum possible financial support available to install energy-efficiency projects during these challenging economic conditions. PPL Electric ~~will educate~~ customers ~~on the full array about other sources~~ of funding ~~mechanisms~~ that are available, ~~including PPL Electric's programs, Act 1 programs, and federal tax incentives.~~ Customers may use financial incentives that are outside of Act 129 to help offset some of their capital outlay. ~~The impact of several major incentive programs are described below. PPL Electric will track a customer's non-Act 129 incentives (ARRA, Act 1, etc.) so they can be reflected as lower participant costs in the TRC's cost-benefit analysis.~~

**~~American Recovery and Reinvestment Act (ARRA) Energy-efficiency and Conservation Block Grant Program (EECBG)~~**

~~Some of the ARRA funding will flow directly to cities, towns and counties within PPL Electric's territory. Additional funding will be distributed by DEP on behalf of communities of less than 35,000 residents. PPL Electric expects much of this funding may be used to purchase energy conservation measures that are also eligible for incentives under PPL Electric's Act 129 programs. PPL Electric will work with CBOs, trade allies, market partners, and others who have already begun reaching out to these customers to help them develop strategies to leverage both ARRA funds and PPL Electric incentives to optimize the scope and impact of their energy-efficiency upgrades, while offsetting a significant portion of the customers' investment. These customers are most likely to participate in the Efficient Equipment Incentive Program and Commercial and Industrial Custom Incentive Program, which do not include provisions prohibiting additional outside funding support.~~

**~~American Recovery and Reinvestment Act (ARRA) State Energy Program (SEP)~~**

~~Because relatively few details have been released about how this funding will be distributed, it is difficult to estimate the probable interaction of these funds with PPL Electric's programs. Early indications are that much of the funding will flow to alternative energy projects rather than energy-efficiency projects, possibly through the PEDAs grant program vehicle. Thus the impact of this funding on Act 129 programs will most likely not be as significant as some stakeholders initially thought. The Company plans to work with DEP to ensure that PEDAs grantees are aware of and take advantage of PPL Electric's programs.~~

**~~PHFA~~**

~~As discussed previously, PPL Electric intends to look for co-marketing opportunities with PHFA on mutual energy-efficiency programs. Customers that participate in PHFA's energy audit program will be eligible for incentives under PPL Electric's Act 129 programs. Most of the customers that install measures identified in PHFA audits will make use of the Efficient Equipment Incentive Program and Commercial and Industrial Custom Incentive Program to help offset some of the cost of the measures.~~

### **Keystone HELP**

~~PPL Electric views Keystone HELP as an important marketing partner for its Efficient Equipment Incentive Program. Keystone HELP's network of contractors will be educated on PPL Electric programs and incentives. Those contractors will be asked to help customers leverage the combined incentives of the Keystone HELP loan program and the PPL Electric equipment incentives. PPL Electric's incentives are expected to help drive demand for Keystone HELP loans within PPL Electric's service territory.~~

### **HB1 Funding – PA Sunshine Solar Program**

~~PPL Electric intends to continue to investigate the best options for promoting solar energy within Act 129. It is likely that any strategy would assume that most eligible customers would participate in PPL Electric's Renewable Energy Program as well as the PA Sunshine Solar Program and Federal Tax incentives.~~

#### **9.2.4. Describe how the EDC will address consumer education on energy-efficiency, conservation, solar and solar photovoltaic systems, and geothermal heating, and other measures.**

~~PPL Electric plans to assign~~has dedicated staff to manage its customer communication and education efforts. In addition, program CSPs also provide educational information to customers. ~~This staff will be tasked with pursuing ongoing improvement in the Company's efficiency and conservation education messages and delivery strategies. At a minimum, the Company will address~~provides the following consumer education ~~through the following tactics:~~

- Consumer Energy Use Education Program. PPL Electric has ~~developed~~ a program specifically focused on promoting energy-efficiency and peak load reduction through behavioral changes. A detailed description of this program is provided in section 3.2.
- E-Power Wise Program. PPL Electric's low-income program, E-Power Wise is focused on providing energy-efficiency education and low cost energy saving measures to low-income customers that promote ongoing energy awareness and conservation behavior. A detailed description of this program is provided in section 3.2.1.
- Educational Material. PPL Electric ~~will develop~~ed and provides ~~appropriate~~ consumer educational materials ~~to be distributed~~ during customer interactions in specific programs. These materials may include customer or sector-specific energy use information, personal carbon footprint or energy benchmarking, fact sheets on energy efficient equipment and behaviors, do-it-yourself installation and maintenance guides and general energy-efficiency educational materials. For example, a full range of educational materials focused on residential energy use will be provided to customers participating in the Company's Residential Energy Assessment & Weatherization program, while materials focused on peak load reduction will be provided to participants in PPL Electric's demand response programs. The Company will continue to look for opportunities to reach customers with educational messages and will explore new tactics in grassroots marketing and market transformation.
- PPL Electric's e-power Website. PPL Electric's popular consumer website, e-power, ~~already~~ contains information and tools to support customer energy-efficiency strategies. ~~The Company will increase the information available on its website by posting customer educational materials developed for its programs and creating new~~



~~materials and tools to increase customers' ability to monitor and manage their energy use. PPL Electric will also leverage its smart meter system and Energy Analyzer to help customers see and understand the impact of implementing energy-efficiency improvements.~~

- General efficiency awareness. PPL Electric ~~will work~~s with its ~~selected~~ Advertising CSP to develop a broad customer awareness ~~and marketing plan~~ and specific messaging ~~to be~~ delivered through a variety of tactics, such as mass media advertising, presentations at community events, bill inserts, outreach to schools, etc.

**9.2.5. Indicate that the EDC will provide a list of all eligible federal and state funding programs available to ratepayers for energy-efficiency and conservation.**

PPL Electric ~~will provide~~provides information to participants in specific programs, on corresponding, state and federal funding available. For example, participants in the Renewable Energy Program ~~will be~~were given information on incentives available through the PA Sunshine Solar Program and Federal tax incentives to support the installation of renewable energy systems. ~~This information may be provided on program applications or as stand alone materials provided to customers during the program participation process.~~

**9.2.6. Describe how the EDC will provide the public with information about the results from the programs.**

~~As part of its overall communication plan,~~ PPL Electric will inform customers, stakeholders, and the general public about the results of the energy-efficiency programs and progress toward Plan goals, primarily through its ~~Web~~e-power web site. PPL Electric reviews results with stakeholders during its stakeholder meetings and provides its quarterly and annual reports to stakeholders via the e-power website. ~~PPL Electric will make its annual EE&C Evaluation Reports available to interested parties. PPL Electric will consider including an energy-efficiency "score card" on its ePower Web site to communicate the total energy and peak load reductions from the Plan, and to put the impact of those savings into meaningful perspective for the general public (equivalent number of cars removed, total dollar savings for customers, etc.). PPL Electric will likely~~ shares customer success stories with customers, trade allies, and the public.



# **APPENDIX B**

## **TABLES 5a-1, 5a-2 & 5a-3**

Table 5a-1. Proposed EE&C Plan

Table 5a. Program Summary by Sector (\$1000)

MODEL (Revision Date:01/04/2012)

Program	Residential	Low Income	Small C&I	Large C&I	Govt/Non-Profit	Total Cost	Total MWh/yr Reduction*	Total MW Reduction*
Efficient Equipment Incentive Program	\$14,432	\$0	\$68,099	\$4,907	\$8,917	<b>\$96,355</b>	539,907	73.2
Residential Energy Assessment & Weatherization	\$2,366	\$0	\$0	\$0	\$0	<b>\$2,366</b>	2,607	1.5
Compact Fluorescent Lighting Campaign	\$15,207	\$0	\$0	\$0	\$0	<b>\$15,207</b>	392,137	18.9
Appliance Recycling	\$7,270	\$0	\$29	\$1	\$0	<b>\$7,300</b>	74,537	9.6
ENERGY STAR New Homes	\$0	\$0	\$0	\$0	\$0	<b>\$0</b>	-	-
Renewable Energy Program	\$1,912	\$0	\$15	\$0	\$3,655	<b>\$5,582</b>	18,875	4.7
Direct Load Control Program	\$10,779	\$0	\$1,186	\$0	\$13	<b>\$11,978</b>	-	35.6
Time of Use Rates	\$0	\$0	\$0	\$0	\$0	<b>\$0</b>	-	-
Customer Education and Behavior	\$2,829	\$0	\$0	\$0	\$0	<b>\$2,829</b>	23,504	5.4
Low Income WRAP	\$0	\$28,673	\$0	\$0	\$0	<b>\$28,673</b>	21,151	1.5
E-Power Wise Program	\$0	\$618	\$0	\$0	\$0	<b>\$618</b>	4,268	0.6
Custom Incentive Program	\$2	\$0	\$1,739	\$13,816	\$3,613	<b>\$19,170</b>	196,707	13.3
HVAC Tune-Up Program	\$0	\$0	\$161	\$802	\$21	<b>\$985</b>	2,046	0.5
Load Curtailment Program	\$0	\$0	\$0	\$9,689	\$1,097	<b>\$10,786</b>	-	156.3
Total - Direct Program Cost	\$54,797	\$29,290	\$71,228	\$29,216	\$17,317	<b>\$201,849</b>		
Common Cost Allocation ****	\$11,715	\$6,262	\$15,227	\$6,246	\$3,702	<b>\$43,151</b>		
<b>TOTAL ESTIMATED COST</b>	<b>\$66,512</b>	<b>\$35,552</b>	<b>\$86,456</b>	<b>\$35,461</b>	<b>\$21,019</b>	<b>\$245,000</b>		
Total Estimated MWh/yr Reduction **	561,764	25,420	335,366	231,410	121,779		1,275,740	
MWh/yr Reduction Target							1,146,431	
Total Estimated MW Reduction ***	74.97	2.06	46.67	158.36	38.96			321
MW Reduction Target								297

\* MWh and MW are on a Verified Gross Basis - MW have been grossed-up to reflect T&D losses (compliance is at the "Generation" level)

\*\* Life of Plan (thru 5/31/13)

\*\*\* As of 9/30/12 (assumes energy efficiency measures with peak load reductions are installed by 5/31/12 so their peak load reductions count in the summer of 2012)

\*\*\*\*Includes \$4MM not subject to the cost cap.

Table 5a-2. Current EE&C Plan (May 5, 2011) with items not subject to the two percent cost cap included

**Table 5a. Program Summary by Sector (\$1000)**

**PLAN (5/5/2011 Filing) WITH ITEMS NOT SUBJECT TO COST CAP INCLUDED**

Program	Residential	Low-Income	Small C&I	Large C&I	Institutional	TOTAL - Direct Program Cost	Total MWh/yr Reduction*	Total MW Reduction*
Efficient Equipment Incentive	\$7,481	\$0	\$55,071	\$14,371	\$12,011	\$88,934	715,875	75
Energy Assessment & Weatherization	\$2,658	\$0	\$0	\$0	\$0	\$2,658	5,961	0
CFL	\$17,712	\$0	\$0	\$0	\$0	\$17,712	292,137	31
Appliance Recycling	\$9,082	\$0	\$0	\$0	\$0	\$9,082	114,761	9
ENERGY STAR New Homes	\$2,731	\$0	\$0	\$0	\$0	\$2,731	5,211	0
Renewable Energy	\$1,097	\$0	\$0	\$0	\$4,484	\$5,581	18,490	1
Direct Load Control	\$6,280	\$1,258	\$2,866	\$0	\$218	\$10,622	0	32
Time of Use Rates	\$4,128	\$830	\$766	\$0	\$56	\$5,780	0	61
Energy Efficiency Behavior and Education	\$2,830	\$0	\$0	\$0	\$0	\$2,830	18,100	2
Low-Income WRAP	\$0	\$28,657	\$0	\$0	\$0	\$28,657	18,695	2
ePower Wise	\$0	\$681	\$0	\$0	\$0	\$681	1,080	0
C&I Custom Incentives	\$0	\$0	\$14,386	\$2,876	\$3,336	\$20,598	140,459	15
HVAC Tune-up	\$0	\$0	\$1,257	\$0	\$90	\$1,347	22,176	7
Load Curtailment	\$0	\$0	\$0	\$12,045	\$2,616	\$14,661	15,000	148
Total - Direct Program Cost	\$53,999	\$31,426	\$74,346	\$29,292	\$22,811	<b>\$211,874</b>		
Common Cost Allocation ****	\$9,717	\$5,655	\$13,380	\$5,271	\$4,106	<b>\$38,129</b>		
<b>TOTAL ESTIMATED COST</b>	<b>\$63,716</b>	<b>\$37,081</b>	<b>\$87,726</b>	<b>\$34,563</b>	<b>\$26,917</b>	<b>\$250,003</b>		
Total Estimated MWh/yr Reduction **	469,558	19,775	602,782	139,811	135,054		1,366,980	
MWh/yr Reduction Target							1,146,431	
Total Estimated MW Reduction ***	109	15	84	137	38			383
MW Reduction Target								297

\* MWh and MW are on a Verified Gross Basis - MW have been grossed-up to reflect T&D losses (compliance is at the "Generation" level)

\*\* Life of Plan (thru 5/31/13)

\*\*\* As of 9/30/12 (assumes energy efficiency measures with peak load reductions are installed by 5/31/12 so their peak load reductions count in the summer of 2012)

\*\*\*\*INCLUDES \$4MM not subject to the cost cap.

Table 5a-3. Difference between Table 5a-1 and Table 5a-2.

**Table 5a. Program Summary by Sector (\$1000)**

**DELTA (MODEL vs. PLAN WITH ITEMS NOT SUBJECT TO COST CAP INCLUDED)**

Program	Residential	Low-Income	Small C&I	Large C&I	Institutional	TOTAL - Direct Program Cost	Total MWh/yr Reduction*	Total MW Reduction*
Efficient Equipment Incentive	\$6,951	\$0	\$13,028	(\$9,464)	(\$3,094)	\$7,421	(175,968)	(2)
Energy Assessment & Weatherization	(\$292)	\$0	\$0	\$0	\$0	(\$292)	(3,354)	1
CFL	(\$2,505)	\$0	\$0	\$0	\$0	(\$2,505)	100,000	(12)
Appliance Recycling	(\$1,812)	\$0	\$29	\$1	\$0	(\$1,782)	(40,224)	1
ENERGY STAR New Homes	(\$2,731)	\$0	\$0	\$0	\$0	(\$2,731)	(5,211)	(0)
Renewable Energy	\$815	\$0	\$15	\$0	(\$829)	\$1	385	4
Direct Load Control	\$4,499	(\$1,258)	(\$1,680)	\$0	(\$205)	\$1,356	0	4
Time of Use Rates	(\$4,128)	(\$830)	(\$766)	\$0	(\$56)	(\$5,780)	0	(61)
Energy Efficiency Behavior and Education	(\$1)	\$0	\$0	\$0	\$0	(\$1)	5,404	3
Low-Income WRAP	\$0	\$16	\$0	\$0	\$0	\$16	2,456	(1)
ePower Wise	\$0	(\$63)	\$0	\$0	\$0	(\$63)	3,188	1
C&I Custom Incentives	\$2	\$0	(\$12,647)	\$10,940	\$277	(\$1,428)	56,248	(2)
HVAC Tune-up	\$0	\$0	(\$1,096)	\$802	(\$69)	(\$362)	(20,130)	(6)
Load Curtailment	\$0	\$0	\$0	(\$2,356)	(\$1,519)	(\$3,875)	(15,000)	8
Total - Direct Program Cost	\$798	(\$2,136)	(\$3,118)	(\$76)	(\$5,494)	(\$10,025)		
Common Cost Allocation****	\$1,997	\$606	\$1,848	\$975	(\$404)	\$5,022		
<b>TOTAL ESTIMATED COST</b>	\$2,795	(\$1,529)	(\$1,270)	\$898	(\$5,897)	(\$5,003)	-	-
Total Estimated MWh/yr Reduction **	92,206	5,645	(267,416)	91,599	(13,275)		(91,240)	
MWh/yr Reduction Target	0							
Total Estimated MW Reduction ***	(34)	(13)	(37)	21				(62)
MW Reduction Target								0

\* MWh and MW are on a Verified Gross Basis - MW have been grossed-up to reflect T&D losses (compliance is at the "Generation" level)

\*\* Life of Plan (thru 5/31/13)

\*\*\* As of 9/30/12 (assumes energy efficiency measures with peak load reductions are installed by 5/31/12 so their peak load reductions count in the summer of 2012)

\*\*\*\*INCLUDES \$4MM not subject to the cost cap.