Before the

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PPL Electric Utilities Corporation

Energy Efficiency and Conservation Plan

Docket No. M-2009-2093216

Revised December 15, 2009

To reflect the Pa Public Utility Commission's Opinion and Order entered October 26, 2009

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Glossary of Terms and Abbreviations

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
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

1. 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
4. Appliance Recycling Program
5. ENERGY STAR® New Homes Program
6. Renewable Energy Program
7. Direct Load Control Program
8. Time of Use Rates
9. Energy-efficiency Behavior & Education
10. Low-income WRAP
11. Low-income E-Power Wise
12. Commercial and Industrial Custom Incentive Program
13. HVAC Tune-Up Program
14. Load Curtailment Program

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 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."[1]

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.

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
    - 3% energy savings by 2013 = 1,146,000 MWh
    - 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 $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. Recognizing that approximately 6% of PPL Electric's total

[1] Implementation Order at page 2.

load is consumed by low-income customers, PPL Electric's EE&C Plan is designed to dedicate (make available) at least 6% 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 (6% 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.
PPL Electric will participate in a Commission sponsored working group to identify the standardized data to be used in determining the proper proportion of low-income households for compliance with Section 2806.1(b)(i)(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.
- 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 1,361,979 MWh of reduced energy consumption and 334 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.

The Plan also reflects significant input from a large group of external stakeholders. Input was gathered from three large group meetings, which included break-out sessions and many meetings with individual stakeholders. Furthermore, the Plan incorporates elements of PPL Electric's coordination activities with Pennsylvania's other EDCs,

including ideas, insights, and, where appropriate, consistent program features, design elements, and implementation details.

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 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.
- 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 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.

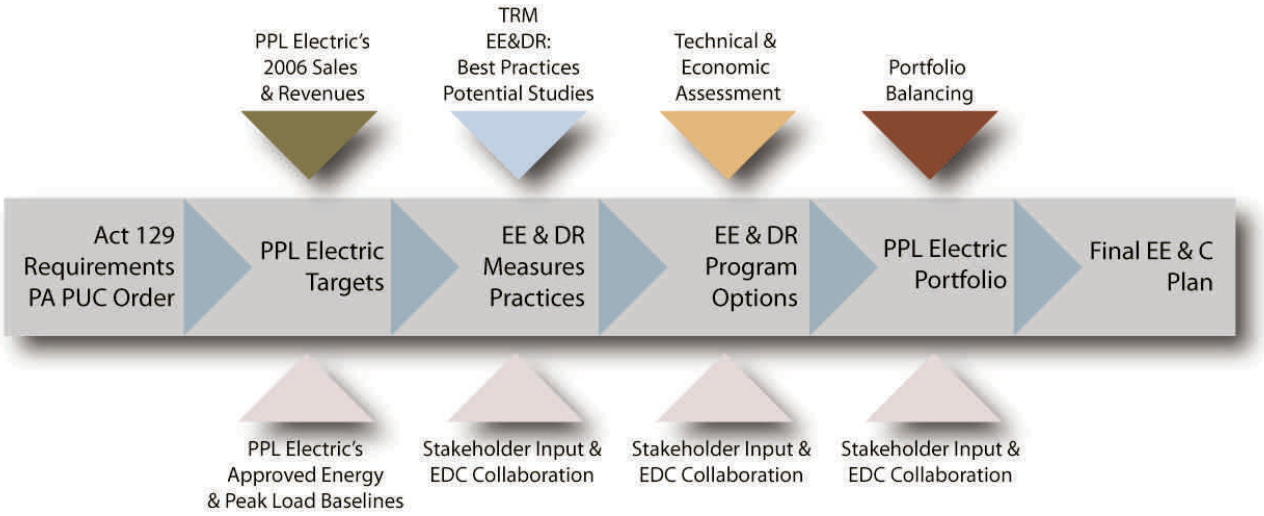
1.2. Summary description of process used to develop the EE&C Plan and key assumptions used in preparing the Plan.

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 is 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.

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 energy-efficiency and demand response programs to low-income program 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),[2] as a primary resource from which to evaluate a number of energy conservation and demand response strategies for its 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."

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.

[2] Developed with funding from the Pennsylvania Department of Environmental Protection, the U.S. Department of Energy, and the U.S. Environmental Protection Agency.

- 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. The Company's proposed mix of measures and distribution of savings among sectors are in line with the data presented in the studies.

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 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 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. 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. Peak load impacts for each measure were calculated directly from 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[3]*.* Application of the TRC screen identified measures which did not meet the cost-effectiveness threshold.[4] 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.

[3] Calculation methods and assumptions used for estimating all program costs are provided in Appendix E.
[4] 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.

Table 1. Key Assumptions Used in Cost-Effectiveness Calculations

	Residential	Small C&I	Large C&I
Energy*	**$46.02/MWh**	**$46.02/MWh**	**$46.02MWh**
Capacity*	**$68.82/kW-year**	**$68.82/kW-year**	**$68.82/kW-year**
Line Losses	**8.33%**	**8.33%**	**4.12%**
Transmission & PJM Ancillary Services*	**$0.00757/kWh**	**$0.00511/kWh**	**$0.00511/kWh**
Distribution*	**$0.0222/kWh**	**$0.00927**	**$0.000002**[5]
Discount Rate (after-tax weighted cost of capital)	**8%**	**8%**	**8%**
Escalation factor	**8.45%**	**8.45%**	**8.45%**
Total Avoided Cost- Planning Year 2009	**$75.79/MWh**	**$61.10/MWh**	**$51.14/MWh**
Total Avoided Cost- Planning Year 2010	**$84.74/MWh**	**$69.54/MWh**	**$59.23/MWh**
Total Avoided Cost- Planning Year 2011	**$91.00/MWh**	**$74.52/MWh**	**$63.33/MWh**
Total Avoided Cost- Planning Year 2012	**$95.70/MWh**	**$77.82/MWh**	**$65.69/MWh**

*** 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. 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.

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.

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.

[5] 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.

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.[6] 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 available, only three states – Rhode Island, Vermont and Connecticut – were able to achieve annual savings of 1 percent or greater.[7]

The Plan strives to exceed the reduction targets by approximately 10% to provide a reasonable margin for uncertainty. 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. The state of the economy and customer willingness and ability to implement energy-efficiency measures, the limited time to develop the infrastructure to promptly implement programs in time to meet the reduction targets by the required dates, the cost and logistics associated with peak load reductions, and general market uncertainty associated with expected customer participation levels.

First, the state of the economy and customers' ability to make investments in energy-efficiency is very challenging, especially for commercial and industrial customers who comprise a significant portion of the expected portfolio savings. To address this uncertainty, PPL Electric has included generous incentive levels for customers and will educate customers about additional funding sources that may be available to help offset the customer's investment.

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 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.

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6 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

7 The 2008 State Energy-efficiency Scorecard, Maggie Eldridge et. al., ACEEE Report E086

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. Following 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% of the portfolio savings must 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 most of its infrastructure of new staff, CSPs, Trade Allies, systems, and processes in place before November so it is prepared to launch programs quickly and can maximize the time available to deliver programs. PPL Electric has already begun to implement this infrastructure. PPL Electric has also started to work 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 third major uncertainty is the 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.[8] Accordingly, an EDC must demonstrate its EE&C Plan meets the requirement for the period June 1, 2012, through September 30, 3012.[9] Demand reductions from implementation of energy-efficiency measures in the Plan are expected to produce 233 MW of peak coincident savings. The remaining peak load reductions will be obtained through demand response programs, including approximately 98 MW from commercial and industrial curtailment contracts and approximately 93 MW from direct load control (DLC) of residential and small C&I customers and Time of Use Rates.

[8] January 15 Implementation Order at p. 21
[9] ibid p. 29

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.[10]

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 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 portfolio includes 200 MW of curtailable load customers, each willing to interrupt for 50 hours. 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.

[10] 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.

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 PPL Electric is limited to contracts that expire on 9/30/2012 (the compliance date for peak load reductions), those short-term contracts may be more costly because the recovery of CSP costs will be compressed into very few years. 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 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.

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 collaborative process will increase the likelihood of success in implementing the portfolio. This process should also help expedite Plan approval, thereby allowing more time to prepare for implementation and expanding opportunities for consumer savings. Further, PPL Electric plans to solicit formal and informal input from stakeholders periodically throughout the Plan delivery period to improve programs. PPL will meet with stakeholders as needed, but not less than twice annually until May 31, 2013, unless otherwise ordered by the Commission.

Table 2 summarizes the stakeholder meetings and stakeholders who were invited to participate in the process.

Table 2. Stakeholder Coordination Activities and Participation

Meeting	Invitees or Attendees	Topics Discussed
3/10/09	Major statutory and intervener 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. 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.

* 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
- PA Treasury Department

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

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

- Table 3 provides a summary of lifetime costs and benefits by program for PPL Electric's entire portfolio.

- Table 4 shows a summary of portfolio of energy and demand savings.

- Table 5 shows the overall portfolio budget, broken out by sector and program year.

Table 3. Portfolio Summary of Lifetime Costs and Benefits[11]

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%	$73,159	$265,005	$191,847	$3.62
Residential Low-Income	8%	$36,826	$46,615	$9,789	1.27
Commercial / Industrial Small	8%	$174,297	$537,781	$363,482	3.09
Commercial / Industrial Large	8%	$46,949	$102,859	$55,909	2.19
Governmental / Non-Profit	8%	$53,692	$121,078	$67,386	2.26
Total		**$384,923**	**$1,073,337**	**$688,414**	**2.79**

[11] This is Table 1 in the PUC template.

Table 4. Summary of Portfolio Energy and Demand Savings[12]

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)*	29,647	3,947	153,260	37,265	279,484	70,997	406,164	120,643
Residential Low-Income Sector	6,379	950	26,642	7,267	47,297	13,677	68,562	23,421
Commercial / Industrial Small Sector	27,503	5,333	168,854	36,731	361,698	78,266	617,389	135,595
Commercial / Industrial Large Sector	5,669	986	33,645	26,897	76,166	55,274	135,311	101,818
Governmental/Non-Profit Sector	5,982	1,059	37,506	11,382	79,996	23,720	134,554	42,342
EE&C Plan Total	75,180	12,276	419,907	119,542	844,641	241,935	1,361,979	423,818
Percent Reduction From Baseline	0.2%	0.2%	1.1%	1.8%	2.2%	3.7%	3.6%	6.4%
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.

[12] This is Table 2 in the PUC template.

Table 5. Summary of Portfolio Costs[13]

	Program Year 2009		Program Year 2010		Program Year 2011		Program Year 2012		Total	
	Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget	
	$000	%	$000	%	$000	%	$000	%	$000	%
Residential Portfolio Annual Budget	$7,533	27%	$15,702	28%	$17,113	24%	$18,210	20%	$58,558	23.8%
Residential Low-Income Portfolio Annual Budget	$7,855	29%	$9,529	17%	$10,308	14%	$11,552	13%	$39,244	16%
Commercial/Industrial Small- Portfolio Annual Budget	$7,788	28%	$19,714	35%	$26,561	37%	$34,403	38%	$88,466	36%
Commercial/Industrial Large- Portfolio Annual Budget	$2,017	7%	$6,189	11%	$10,027	14%	$14,944	17%	$33,177	13.5%
Governmental/Non-Profit Portfolio- Annual Budget	$2,314	8%	$5,847	10%	$8,023	11%	$10,377	12%	$26,561	10.8%
Total Portfolio Annual Budget	$27,506	100%	$56,981	100%	$72,033	100%	$89,485	100%	$246,007	100%

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.

[13]This is Table 3 in the PUC Template.

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

Program	Residential	Low-Income	Small C&I	Large C&I	Institutional	**TOTAL Direct Program Cost**	Common Cost Allocation	**TOTAL Program Cost (including common cost)**	Total MWh Reduction**	% of Total MWH	Total MW Reduction***	% of Total MW***	Benefit Cost Ratio
Efficient Equipment Incentive	$7,824		$57,837	$14,583	$12,612	**$97,857**	$11,754	**$104,610**	715,875	52.5%	75	22.5%	2.6 - 3.0*
Energy Assessment & Weatherization	$2,756					**$2,756**	$349	**$3,105**	5,961	0.4%	0.3	0.1%	1.2
CFL	$13,887	$3,050	$795			**$17,733**	$2,245	**$19,977**	292,137	21.4%	31	9.3%	4.8
Appliance Recycling	$10,036					**$10,036**	$1,270	**$11,306**	114,761	8.4%	9	2.7%	9.8
ENERGY STAR® New Homes	$2,819					**$2,819**	$357	**$3,176**	5,211	0.4%	0.3	0.1%	1.4
Renewable Energy	$1,109				$4,540	**$5,649**	$715	**$6,364**	18,490	1.4%	1	0.4%	1.1 - 1.5*
Direct Load Control	$6,931	$1,389	$3,159		$243	**$11,722**	$1,484	**$13,206**		0.0%	32	9.6%	0.2
Time of Use Rates	$4,038	$813	$750		$56	**$5,657**	$716	**$6,373**		0.0%	61	18.3%	3.2 - 3.6*
Energy Efficiency Behavior & Education	$2,579					**$2,579**	$326	**$2,905**	18,100	1.3%	2	0.5%	3.7
Low-Income WRAP		$29,038				**$29,038**	$3,676	**$32,714**	18,695	1.4%	2	0.6%	0.8
ePower Wise		$542				**$542**	$69	**$611**	1,080	0.1%		0.0%	1.4
C&I Custom Incentives			$14,829	$2,965	$3,458	**$21,252**	$2,690	**$23,942**	140,459	10.3%	15	4.5%	2.2 - 3.0*
HVAC Tune-up			$1,154		$83	**$1,238**	$157	**$1,394**	22,176	1.6%	7	2.1%	5.8
Load Curtailment				$11,901	$2,585	**$14,486**	$1,834	**$16,320**	9,750	0.7%	98	29.3%	0.7
Total- Direct Program Cost	$51,979	$34,832	$78,524	$29,449	$23,577	**$218,361**							
Common Cost Allocation	$6,580	$4,409	$9,940	$3,728	$2,984		$27,641						
TOTAL ESTIMATED COST	**$58,559**	**$39,241**	**$88,464**	**$33,177**	**$26,561**	**$218,361**	**$27,641**	**$246,002**					**2.79**
Total Estimated kWH Reduction**	406,164	68,562	618,051	135,311	134,609				1,362,697	100.0%			
kWH Reduction Target									1,146,431				
Total Estimated MW Reduction***	103	20	86	92	33						334	100.0%	
MW Reduction Target											297		

* Varies by customer sector.
** Life of Plan (thru 5/31/13)
*** As of 9/30/12

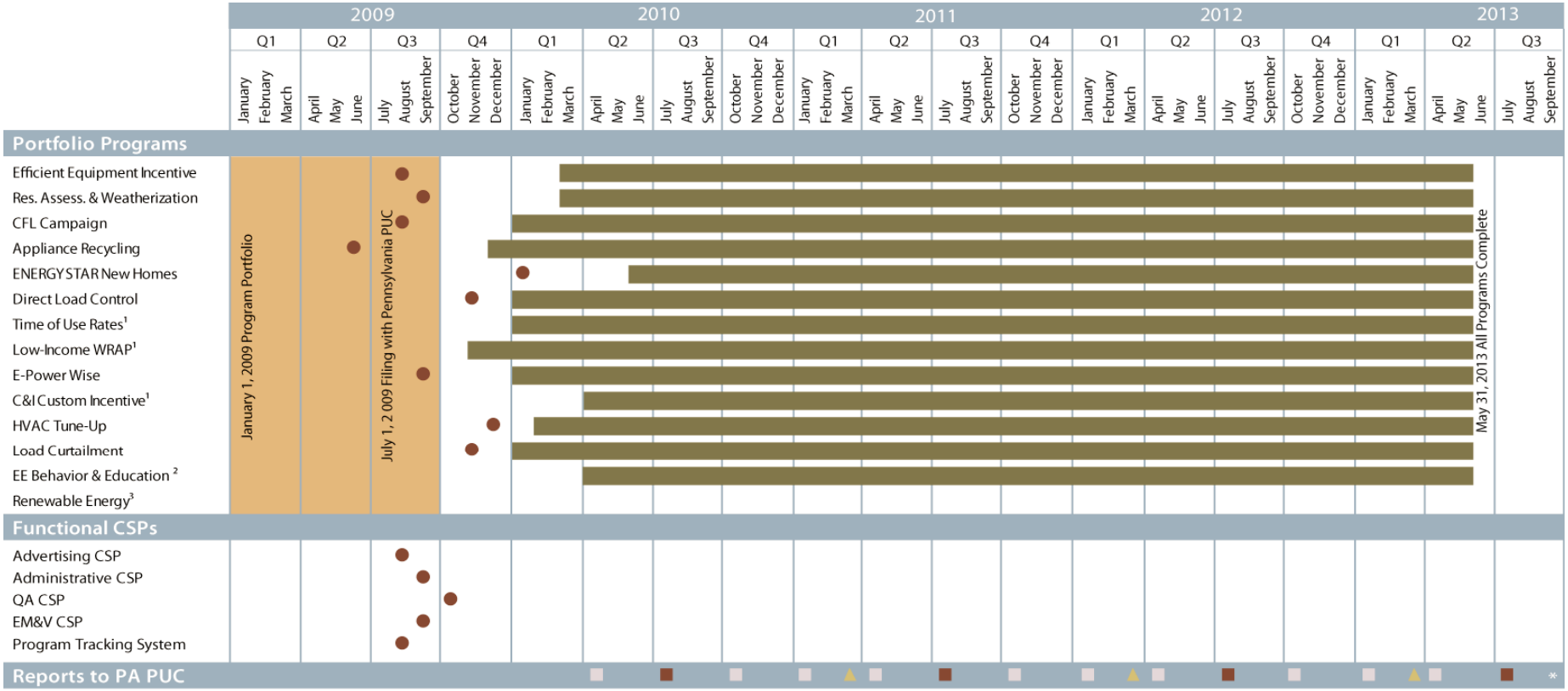
1.4. Summary of Program Implementation Schedule over Four Year Plan Period.

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.

Figure 2. Program Implementation Schedule



Key

- Program Operation
- Program Development
- EDC provides quarterly report to PUC
- EDC provides annual report to PUC
- EDC provides energy savings reconciliation report to PUC
- CSP selected and placed under contract

[1]Program does not require CSP to be placed under contract. Program launch date is approximately one month after Commission approval of TOU tariff filing.
[2]CSP selection and placement under contract to be determined.
[3]Program launch date and CSP selection to be determined.
* Final report to be delivered March 2014.

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 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 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 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 and a process analysis. The impact assessment will focus on developing accurate estimates of the program's actual savings, based on protocols developed by the Statewide EM&V contractor. The process analysis 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 are collected. 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.

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 its ongoing monitoring and management as soon as each program launches. The Company plans to begin 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 used to identify program aspects that work well or do not, and to adjust program features as warranted. The Company expects to 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 market conditions warrant. All such revisions 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.[14]

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.[15] 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.

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.[16] PPL Electric will follow this direct assignment approach wherever possible. However, some costs will relate to EE&C measures that are applicable to more

[14] Implementation Order, page 34
[15] Ibid, p. 33
[16] Ibid, p. 36

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.[17] 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.[18] 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.[19] 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 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

[17] Ibid, p. 37
[18] Implementation Order, at page 38
[19] Ibid, p. 38

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

Table 6. Program Summaries[20]

	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 Portfolio Programs (exclusive of Low Income)	*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	1,111,040	35,423	17%	8%
	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
	Renewable Energy Program	Existing and new single family homes	Prescriptive rebates for the installation of renewable energy equipment	2010-2012	55,183	288	0.3%	0.4%
	Totals for Residential Sector				2,656,630	120,355	30%	19%

[20] This is Table 4 in the PUC Template.

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.	2010-2012	236,965	7,555	4%	2%
	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				486,060	23,421	5%*	3%

* 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.

	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 (%)
Commercial/ Industrial Small Portfolio Programs	*Commercial and Industrial Custom Incentive Program*	C&I new and existing facilities	Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.	2010-2012	1,283,798	19,250	7%	9%
	Direct Load Control Program	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.	2010-2012	0	8,705	NA	NA
	Efficient Equipment Incentive Program	All customers	Prescriptive rebate for the purchase of energy efficient electric equipment.	2010-2012	6,217,277	87,310	36%	44%
	Small Commercial HVAC Tune-up Program	Small C&I with packaged HVAC systems	Incentives for inspection, tune up and retrofits of packaged HVAC equipment.	2010-2012	132,280	10,353	2%	1%
	Time of Use Rates	All customers	Variable electricity prices based on peak and off-peak use.	2010-2012	0	7,324	NA	NA
	Compact Fluorescent Lighting Campaign	All customers	Up-stream incentives on ENERGY STAR CFLs. Customers receive discount at the register when purchasing.	2010-2012	70,948	2,653	1%	1%
	Totals for C/I Small Sector				7,633,356	132,942	45%	54%

	Program Name	Program Market	Program Two Sentence 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 (%)
Commercial/ Industrial Large Portfolio Programs	*Load 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	13,869	76,843	1%	0%
	Commercial and Industrial Custom Incentive Program	C&I; new and existing facilities	Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.	2010-2012	225,997	3,294	1%	2%
	Efficient Equipment Incentive Program	All customers	Prescriptive rebate for the purchase of energy efficient electric equipment.	2010-2012	1,484,463	17,724	8%	11%
	Totals for C/I Large Sector				1,724,329	97,862	10%	12%

	Program Name	Program Market	Program Two Sentence 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 (%)
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%	9%
	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	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	3,120	17,550	0.2%	0.0%
	Totals for Gov't/NP Sector Programs				1,513,481	23,077	11%	11%
Total for Plan					14,083,569	401,613	100%	100%

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

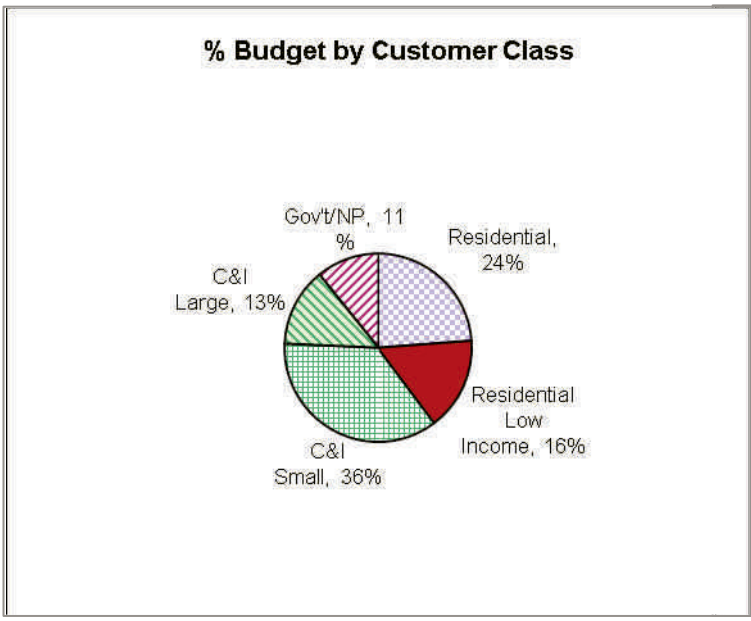
- Table 3 (see page 18) provides a summary of lifetime costs and benefits by program for PPL Electric's entire portfolio.
- Table 4 (see page 19) reports PPL Electric's estimated energy savings and demand impacts for each customer sector by program year, as well as cumulative projected Portfolio savings by sector.
- Table 5 (see page 20) includes the overall portfolio budget broken out by sector and program year.
- Table 5a (see page 21) includes a summary of program costs by customer sector.
- Table 6 (see pages 30 through 34) provides a summary of net lifetime energy savings and peak demand savings for each program in PPL Electric's portfolio, segregated by customer sector.

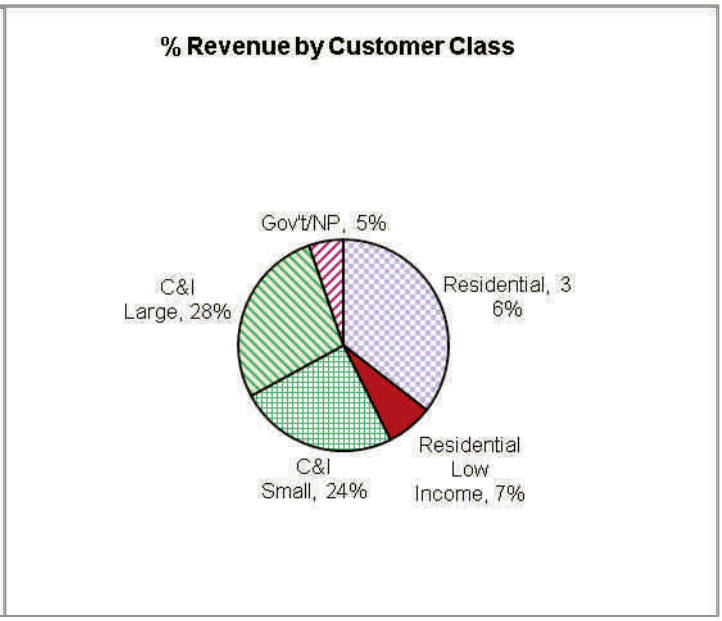
2.3. Budget and Parity Analysis

Table 7. Budget and Parity Analysis Summary[21]

Customer Class	Budget	% of Total EDC Budget	% of Total Budget Excluding Other Expenditures	% of Total Customer Revenue	Difference
Residential	$58,557,922	24%	24%	35%	-11%
Residential Low-Income	$39,242,415	16%	16%	7%	9%
Residential Subtotal	$97,800,337	40%	40%	42%	-2%
C&I Small	$88,465,442	36%	36%	24%	12%
C&I Large	$33,177,388	13%	13%	27%	-14%
C&I Subtotal	$121,642,830	49%	49%	52%	-3%
Governmental/Non-Profit	$26,561,806	11%	11%	5%	6%
Governmental/Non-Profit Subtotal	$26,561,806	11%	11%	5%	6%
TOTAL					
	$246,004,973	100%	100%	100%	
Other Expenditures	$0				
Other Expenditures Subtotal	$0	0%			
EDC TOTAL	**$246,004,973**	**100%**			

[21] This is Table 5 in the PUC Template


% Budget by Customer Class
Gov't/NP, 11 %
Residential, 24%
C&I Large, 13%
Residential Low Income, 16%
C&I Small, 36%


% Revenue by Customer Class
Gov't/NP, 5%
Residential, 3 6%
C&I Large, 28%
Residential Low Income, 7%
C&I Small, 24%

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.

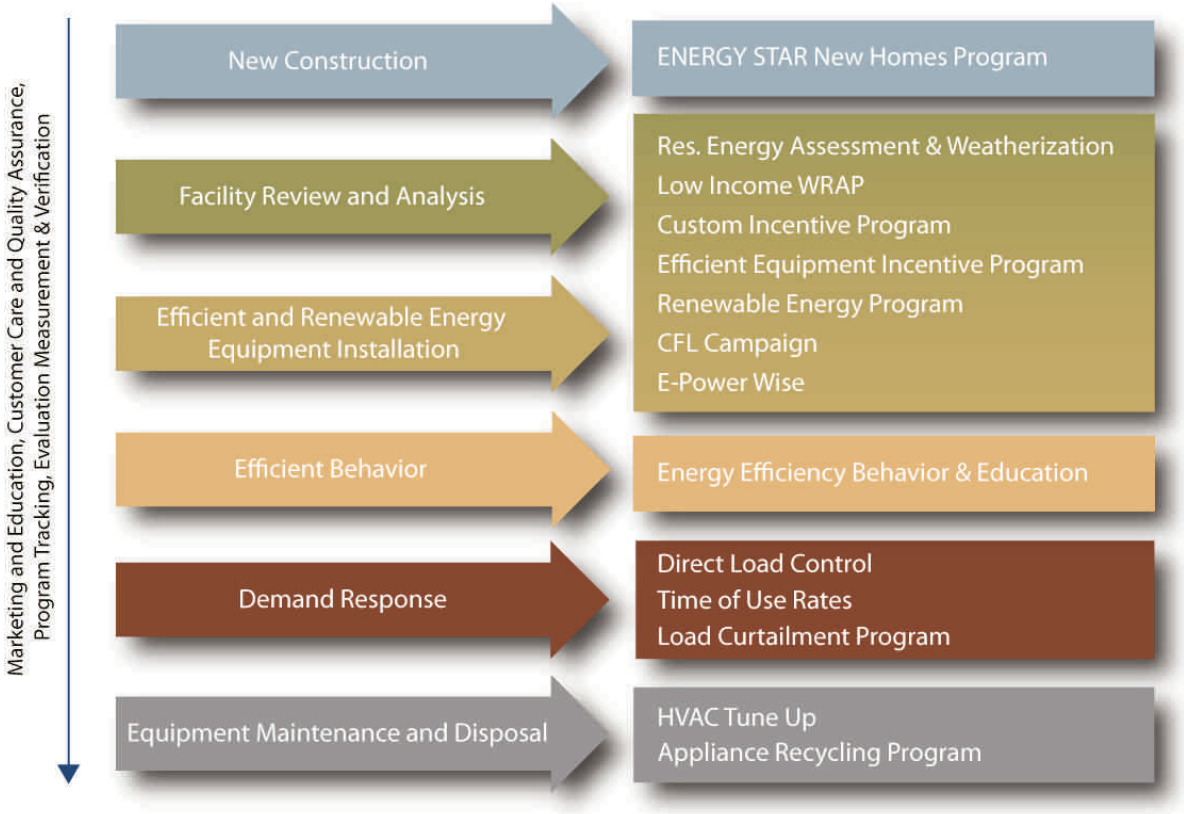
PPL Electric welcomes the opportunity to provide energy-efficiency services to its customers in support of the Commonwealth's goals. To achieve these goals, PPL Electric has designed a portfolio that:

- 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.

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.

Table 8. Key Indicators and Metrics for Monitoring Portfolio Success

Key Indicator	Metrics
Market Response	• Number of participants • Number of measures installed
Impacts	• kWh savings • Peak savings (as defined by Act 129)
Customer Satisfaction	• Responses to periodic surveys administered as part of quality assurance
Operating Efficiency Cost-Effectiveness	• Application processing time • Incentive processing time • Expenditures in each category • Net-to-gross ratio (energy and peak demand impacts adjusted for free-ridership and spillover effects) • TRC benefit-to-cost ratio

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	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

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.

Savings for most measures in the Plan are drawn from the Commission's TRM. 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.[22]

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 and expenditure targets required in the Act and PPL Electric's objectives.

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

[22] 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.

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 incentives for additional renewable energy technologies over time as its programs and the technologies mature. The resulting portfolio represents a balance between common, market-ready energy-efficiency solutions and opportunities for customers to implement innovative technologies.

3.2. Residential Sector Programs

Efficient Equipment Incentive Program 2010-2013
(Residential Sector)

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®-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 716,000 MWh and 127,370 kW.[23]

Target Market

PPL Electric's Efficient Equipment Incentive Program will be 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, participation, budgets, savings, and other appropriate details broken out for each sector.[24]

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 outlines eligibility parameters for the residential sector.

Table 10. Customer Eligibility Parameters

Customers Type	Residential
Rate Class	RS, RTS, RTD, TOU after 1/1/2010
Building Type	Single family, multifamily, mobile home
Building Vintage	Existing and new construction
Building ownership	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

[23] Combined totals for all target customer segments.
[24] 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.

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 (Administrative CSP) to provide customer intake, eligibility verification, rebate processing, and tracking. The CSP will work with trade allies (such as equipment dealers and installers), help customers understand the features and benefits of high-efficiency equipment, select high-efficiency equipment, and fill out program applications. 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 provide 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:

- 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 with the equipment/appliance retailer or installation contractor to fill out program applications and ensure the required documentation is submitted to the program CSP for processing.
- The Administrative CSP will review documentation to verify the applicant is a PPL Electric customer and the installed equipment meets the minimum efficiency standard.
- Customers installing eligible high-efficiency equipment will schedule the work directly with their equipment dealer or 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 presents key market risks to an effective Efficient Equipment Incentive Program as well as the strategies the program will use to address each risk.

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 50% of the customer incremental cost.

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 Advertising CSP will work with its Customer Strategy division to create a marketing strategy for the program; this 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 (i.e., Pennsylvania Restaurant Association publication, other food service publications).
- Brand marketing material with ENERGY STAR®.
- Present program information at seminars, conferences, home shows, and community events.

- Outreach to and coordinated 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)).
- Publish and distribute program brochure.
- Cross-promote 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 be a fixed amount per device, paid by check to customers who complete a rebate application and submit documentation of the equipment purchase to PPL Electric's Administrative CSP.

Table 12 shows PPL Electric's proposed list of eligible equipment, incentive levels and efficiency qualifications. 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
Central Air Conditioner	SEER 14.5	$150
Central Air Conditioner	SEER 15	$225
Central Air Conditioner	SEER 16	$300
Room AC (1st unit)	ENERGY STAR	$25
Room AC (2nd unit)	ENERGY STAR	$25
Programmable Thermostat	ENERGY STAR	$50
Air-Source Heat Pump	SEER 14.5	$250
Air-Source Heat Pump	SEER 15	$325
Air-Source Heat Pump	SEER 16	$400
Heat Pump Hot Water Heater	ENERGY STAR, EF >= 2.0, or COP >= 2.0[25]	$300
Dishwasher	ENERGY STAR	$30
Clothes Washer	ENERGY STAR	$75
Refrigerator	ENERGY STAR	$50
Dehumidifier	ENERGY STAR	$10
High-Efficiency Gas Furnace (fuel switching is for RTS customers only)	AFUE >= 92%	$550

[25] While there is an ENERGY STAR rating for heat pump hot water heaters, it is relatively new and qualifying equipment is not currently available.

Measure	Eligibility Rating	Incentive
Light Fixture	ENERGY STAR	$10

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

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.[26]

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

[26] Assumes Commission approval of Plan by 11/30/2009

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.

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:

- 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, and track and report customer and program information to PPL Electric.
- 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.

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.

Table 14. Projected Participation

	Year 1[27]	Year 2	Year 3	Year 4	Total
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 Furnace (RTS fuel switching)	125	125	125	125	500
ENERGY STAR® Light Fixtures	4,240	12,720	12,720	12,720	42,400
Total	**15,855**	**35,785**	**41,525**	**41,525**	**134,690**

Program Budget, Costs and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 29,708 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 15. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	4,267	7,574	8,934	8,934	29,708
Capacity Savings (MW)	0.6	1	2	2	5
Total Resource Cost	$2,114,630	$3,649,598	$4,425,853	$4,519,234	$14,709,315
Direct Participant Costs	$1,037,280	$1,719,640	$2,042,694	$2,085,591	$6,885,205
Direct Utility Costs	$1,077,350	$1,929,958	$2,383,159	$2,433,643	$7,824,110
Customer Incentives	$902,350	$1,811,458	$2,261,159	$2,308,643	$7,283,610
CSP Labor	$29,000	$30,000	$31,000	$32,000	$122,000
CSP Materials and Supplies	$29,000	$30,000	$31,000	$32,000	$122,000
Other (Marketing and Trade Ally)	$117,000	$58,500	$60,000	$61,000	$296,500

	TRC Test
NPV Benefits	$33,597,473
NPV Costs	$12,875,857
Net Benefits (NPV)	$20,721,616
Benefit-Cost Ratio	**2.61**

[27] 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.

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 2010-2013
(Residential Sector)

Objectives

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

- Provide customers with the opportunity to participate in a walk-though 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 5,940 customers through 2013, with a total reduction of 5,960 MWh and 590 kW.

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 outlines eligibility parameters.

Table 16. Customer Eligibility Parameters

Customers Type	Residential
Rate Class	RS, RTS, TOU after 1/1/2010
Building Type	Single-family; mobile home
Building Vintage	Existing
Building ownership	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 delivered by a Residential Energy Survey CSP, which will conduct 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 customers with a electronically–generated energy survey report[28] that includes recommendations for appropriate follow-up activities.

The comprehensive energy audit will be delivered through PPL Electric's existing network of Building Performance Institute (BPI) trained and certified energy auditor trade allies. This structure will encourage 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[29] and perform specific minimum diagnostic tests.[30] 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 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 eligible for incentives to install weatherization measures, including attic, wall, and foundation insulation, and duct sealing; and
- Will be 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 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

3. Both.

The Administrative CSP will manage customer intake and routing to the appropriate track, process applications and rebates, track and verify program data, and provide customer and transaction information to PPL Electric. The Administrative CSP will refer

[28] PPL Electric will review energy audit software proposed by potential CSPs as an evaluation criteria in its selection of walk through survey CSPs.
[29] BPI certified or equivalent whole-house assessment training.
[30] Blower door and duct blaster testing required. Infrared cameras may be used as alternative to blower door testing.

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:

- 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 will explain both program tracks to the customer and direct the customer to the appropriate track. For walk-though survey participants, the Residential Energy Survey CSPs, will contact 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 certified auditor will conduct 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 best practices for operating home energy systems efficiently, and disseminate 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 for tracking 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 Energy Survey CSP. Customers in the comprehensive audit track will issue payment to the contractor and send a rebate application with documentation of their audit and any applicable weatherization measures to PPL Electric's Administrative CSP for eligibility verification, tracking and rebate processing. 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 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.

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.
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 cost at $500 ($250 post-incentive cost for an all-electric customer; $400 post-incentive cost for an air conditioning or electric heating only customer). The cost of weatherization measures will vary depending on the type, location, and amount of insulation, air sealing and/or duct sealing performed.

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 and promotion by the Residential Energy Survey CSP and free market auditors. PPL Electric's Advertising CSP will work with its Customer Strategy division to create a marketing strategy for the program; this 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.
- 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.

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:

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

- Direct installation of six CFLs, one smart strip, one faucet aerator, water heater set-back, and water heater pipe insulation[31] by the Energy Survey CSP during the survey.
- 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 or $250 depending on heating and cooling systems;
- Direct installation of six CFLs, one smart strip, one faucet aerator, water heater set back, and water heater pipe insluation[23] 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:

- 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

[31] Customer must have electric water heat to receive hot water measures.

customers to take action on the energy assessment recommendations and to reimburse the full cost of energy surveys.

Table 18. Eligible Measures

Measure	Eligibility Rating	Incentive
Direct Installation of 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	Air conditioning *and* electric heat	$250
	Air conditioning *or* electric heat	$100
Walk-though Survey	Air conditioning and/or electric heat	$50 customer cost
Infiltration	Audit recommendation	50% of installed cost with $700 cap
Ceiling insulation	Audit recommendation; Meets current building code requirements	
Wall insulation		
Duct sealing	Audit recommendation	$100
Bonus rebate	> 1 recommended measure installed	$50/installed measure >1 up to four measures ($150)

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.

Schedule	Milestones
12/31/2009 – 03/01/2010	Program training.
02/01/2010	Final marketing and customer education materials and program applications.
02/01/2010	Purchase direct installation measures.
03/01/2010	Launch program.[32]

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.

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.

[32] Assumes Commission approval of Plan by 11/30/2009.

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 Administrative CSP will track all program activities and report 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.

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.

Table 20. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
CFLs	2,010	10,040	10,040	13,380	35,470
SmartStrips	330	1,670	1,670	2,230	5,900
Faucet Aerators	240	1,180	1,180	1,570	4,170
Water Heater Setback	80	390	390	520	1,380
Hot Water Pipe Insulation	80	390	390	520	1,380
Infiltration	100	490	490	660	1,740
Insulation	140	740	740	1,000	2,620
Duct Sealing	70	350	350	480	1,250
Total	**3,050**	**15,250**	**15,250**	**20,360**	**53,910**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 5,961 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 21. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
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	$364,400	$1,288,472	$1,314,968	$1,747,345	$4,715,185
Direct Participant Costs	$104,405	$541,462	$552,833	$760,668	$1,959,367
Direct Utility Costs	$259,995	$747,010	$762,135	$986,678	$2,755,818
Customer Incentives	$119,995	$625,010	$638,135	$860,678	$2,243,818
CSP Labor	$50,000	$51,000	$52,000	$53,000	$206,000
CSP Materials and Supplies	$50,000	$51,000	$52,000	$53,000	$206,000
Other (Marketing and Trade Ally)	$40,000	$20,000	$20,000	$20,000	$100,000

	TRC Test
NPV Benefits	$5,007,983
NPV Costs	$4,071,902
Net Benefits (NPV)	$936,081
Benefit-Cost Ratio	**1.23**

Compact Fluorescent Lighting Campaign 2010-2013
(Residential sector)

Objectives

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

- Provide a mechanism for customers to easily obtain discounted ENERGY STAR®-qualified CFLs.
- 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, as well as proper use of CFLs in various lighting applications.
- Promote consumer awareness and understanding of the ENERGY STAR label.
- Promote other PPL Electric energy-efficiency programs through CFL package inserts.
- Distribute no fewer than 7,125,000 CFLs through 2013, with a total reduction of 292,100 MWh and 45,630 kW.[33]

Target Market

This program will be available to all PPL Electric customers. For the purposes of the Plan, the program does not allocate budget or attribute savings or impacts to the Large Commercial and Industrial sector.[34]

Program Description

This program encourages customers to purchase new ENERGY STAR rated CFL blubs. The program has two components:

1. A retail upstream lighting incentive that will significantly reduce the customer cost of ENERGY STAR® CFL bulbs.

2. CFL giveaway events and activities.

Implementation Strategy

A CFL CSP will manage an upstream CFL Campaign, including negotiating bulk pricing, recruitment, and coordination with retail stores, marketing and outreach to retailers, and tracking and providing program reports. The selected CSP will be encouraged to 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 CSP may be selected to deliver a CFL giveaway program. PPL Electric's energy-efficiency staff will provide overall strategic direction and program management for the program and,

[33] Combined totals for all target customer segments.
[34] The Plan assumes that large commercial and industrial buildings predominantly use fluorescent tube or other commercial lighting fixtures. All customer sectors, however, may participate.

supported by other CSPs, promotional, marketing, trade alley support, evaluation, and other administrative functions, including:

- Customers may purchase discounted CFLs at a participating retailer. CFL discounts are applied at the register. Customers may become aware of the program through CFL CSP, PPL Electric, or retailer marketing and promotional activities.
- Retailer provides documentation of CFL sales results to CFL CSP.
- CFL CSP tracks results and reports monthly to PPL Electric.
- Additional CSP(s) may provide free 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 presents key market risks to an effective CFL Campaign, as well as the strategies the program will use to address each risk.

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. Provide customer education and outreach on the proper handling and disposal of CFLs and mercury content.
CFL performance.	
Proper disposal of CFLs containing mercury.	Provide locations for customers to dispose of mercury CFLs, which will be required as part of the CSP contract.

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).

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 led by the CFL CSP(s) with support from PPL Electric's Advertising CSP and internal Customer Strategy division. The marketing strategy 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.
- In-store advertising.
- Brand marketing material with the ENERGY STAR® and PPL Electric logos.
- Present program information at seminars, conferences, and community events.
- Coordinate advertising opportunities with trade allies.
- Publish and distribute program brochure.
- Cross-promote through other PPL Electric programs.

Eligible Measures and Incentive Strategy

The CFL CSP(s) will negotiate bulk pricing and manage the delivery of upstream incentives to participating CFL manufacturers, which are expected to cover approximately 50% of the retail cost of CFLs and 100% of the cost of giveaway bulbs.

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.

Schedule	Milestones
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.[35]

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 Electric's annual report.

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.

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.

- The Customer Programs Specialist will oversee all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The CFL CSP will track all program activities and report to PPL Electric.
- The Quality Assurance CSP will oversee quality assurance.

[35] Assumes Commission approval of Plan by 11/30/2009.

- The EM&V CSP will conduct evaluation, measurement, and verification activities.

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.

Table 24. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Purchased CFLs	239,100	1,594,030	1,594,030	1,594,030	5,021,190
CFL give-aways	26,570	177,110	177,110	177,110	557,900
Total	**265,670**	**1,771,140**	**1,771,140**	**1,771,140**	**5,579,090**

Program Budget, Costs, and Cost-effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 228,744 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 25. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	10,893	72,617	72,617	72,617	228,744
Capacity Savings (MW)	2	11	11	11	35
Total Resource Cost	$1,682,688	$7,773,360	$7,937,261	$8,104,351	$25,497,660
Direct Participant Costs	$531,344	$3,616,680	$3,692,630	$3,770,176	$11,610,830
Direct Utility Costs	$1,151,344	$4,156,680	$4,244,630	$4,334,176	$13,886,830
Customer Incentives	$531,344	$3,616,680	$3,692,630	$3,770,176	$11,610,830
CSP Labor	$220,000	$225,000	$230,000	$235,000	$910,000
CSP Materials and Supplies	$220,000	$225,000	$230,000	$235,000	$910,000
Other (Marketing and Trade Ally)	$180,000	$90,000	$92,000	$94,000	$456,000

	TRC Test
NPV Benefits	$106,563,358
NPV Costs	$22,118,661
Net Benefits (NPV)	$84,444,697
Benefit-Cost Ratio	**4.82**

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 69,600 appliances through 2013, with a total reduction of 114,760 MWh and 13,150 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 cubic feet in size. For the purposes of this Plan, the Appliance Recycling program allocates budget and attributes savings and impacts only to the residential sector.[36]

Table 26. Customer Eligibility Parameters

Customers type	All
Rate Class	All
Building Type	All
Building Vintage	All
Building ownership	Owner or tenant

Program Description

The Appliance Recycling Program offers:

- 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

[36] 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.

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 Appliance Recycling CSP will provide 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 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:

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

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.

Market Risks	Management Strategies
Need to fill out rebate forms.	Provide simple rebate forms. Appliance Recycling CSP helps customers fill out forms.
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.

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 CFP 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 Appliance Recycling CSP with support from PPL Electric's Advertising CSP and internal Customer Strategy divisions. The marketing strategy may include:

- Promote program in PPL Electric customer bill insert, "Connect."
- Communicate and provide access to program information on the Company's Web site, www.pplelectric.com.
- CSP to advertise using newspaper, radio, and other mass media.
- 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.
- Present program information at seminars, conferences, and community events.
- CSP to distribute program brochures to CBO's and community organizations, such as Chambers of Commerce.
- Distribute bill inserts to all customers that highlight the benefits of appliance recycling.
- Cross-promote through other PPL Electric programs.

Eligible Measures and Incentive Strategy

There are three distinct incentives associated with the program:

- Free pick-up and disposal of refrigerator or freezer.[37]
- Possible free drop-off events where customers can drop-off and dispose of inefficient room air conditioners.
- Appliance rebate.

There is a limit of two rebates for each type of appliance per customer address. Appliance eligibility parameters and rebates are shown in Table 28.

Table 28. Eligible Measures

Measure	Eligibility Rating	Incentive
Refrigerator	Working unit; ≥ 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.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance and EM&V CSPs.
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.

[37] Room air conditioners may be picked up along with larger appliances, but they may not be picked up as a stand-alone item.

Schedule	Milestones
12/01/2009	Launch program.[38]

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.

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:

- The Customer Programs Specialist will oversee 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 report monthly to PPL Electric.

[38] Assumes Commission approval of Plan by 11/30/2009.

- 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.

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.

Table 30. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Refrigerators and Freezers	5,100	20,400	20,400	20,400	66,300
Room Air Conditioners	255	1,020	1,020	1,020	3,315
Total	**5,355**	**21,420**	**21,420**	**21,420**	**69,615**

Program Budget, Costs, and Cost-effectiveness

Over the five-year planning horizon, the program is expected to achieve electricity consumption savings of 114,761 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 31. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	8,828	35,311	35,311	35,311	114,761
Capacity Savings (MW)	1	4	4	4	13
Total Resource Cost	$771,975	$3,087,900	$3,087,900	$3,087,900	$10,035,675
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$771,975	$3,087,900	$3,087,900	$3,087,900	$10,035,675
Customer Compensation	$184,875	$739,500	$739,500	$739,500	$2,403,375
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
Other (Marketing and Trade Ally)	$107,100	$428,400	$428,400	$428,400	$1,392,300

	TRC Test
NPV Benefits	$85,873,711
NPV Costs	$8,729,793
Net Benefits (NPV)	$77,143,918
Benefit-Cost Ratio	**9.84**

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.

Target Market

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

Table 32. Customer Eligibility Parameters

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

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®-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® 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.

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 program requirements	$2,000
Electric heating only customers		$1,000
Cooling only customers		$750

Measure	Eligibility Rating	Incentive
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	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for New Construction CSP.
01/01/2010	Issue RFP for New Construction CSP.
02/01/2010	Execute implementation contract with selected CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
05/01/2010	Develop marketing and outreach plan and materials.
03/01/2010 – 06/01/2010	Recruit and train participating trade allies.
02/01/2010- 06/01/2010	Coordinate with other utilities and stakeholders.
06/01/2010	Determine reporting data requirements for program evaluation.
06/01/2010	Launch program.[39]

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.

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.

[39] Assumes Commission approval of Plan by 11/30/2009.

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.

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
Participating Homes	180	350	700	700	1,930

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.

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

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
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	$538,000	$963,375	$1,896,272	$1,936,581	$5,334,228
Direct Participant Costs	$225,000	$446,688	$912,136	$931,291	$2,515,114
Direct Utility Costs	$313,000	$516,688	$984,136	$1,005,291	$2,819,114
Customer Incentives	$225,000	$446,688	$912,136	$931,291	$2,515,114
CSP Labor	$24,000	$25,000	$26,000	$27,000	$102,000
CSP Materials and Supplies	$24,000	$25,000	$26,000	$27,000	$102,000
Other (Marketing and Trade Ally)	$40,000	$20,000	$20,000	$20,000	$100,000

	TRC Test
NPV Benefits	$6,317,232
NPV Costs	$4,593,082
Net Benefits (NPV)	$1,724,150
Benefit-Cost Ratio	**1.38**

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 1,260 installed measures through 2013, with a total reduction of 18,500 MWh and 2,000 kW.[40]

Target Market

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 be tracked and reported separately. Table 38 outlines eligibility targets for residential customers.

Table 38. Customer Eligibility Parameters

Customers Type	Residential
Rate Class	RS, RTS, TOU after 1/1/2010
Building Type	Single-family homes
Building Vintage	Existing and new construction
Building ownership	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 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 data on replacement appliances and systems. This data will be included in PPL Electric's annual report.

[40] Combined totals for all target customer segments.

Implementation Strategy

PPL Electric's Administrative CSP will provide 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 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:

- Customers may be 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 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 39 presents key market risks to an effective Renewable Energy Program, as well as the strategies the program will use to address each risk.

Table 39. 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.	Robust marketing and outreach strategy.

Anticipated Costs to Participating Customers

The estimated, post-rebate installed cost of a residential PV system is $1.25/Watt.[41] 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. 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 and provide 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.
- Present program information at seminars, conferences, home shows, and community events.
- Outreach to and co-op advertising with trade allies (i.e., equipment dealers, distributors, and installers).
- Publish and distribute program brochure.
- Work closely with state agencies, environmental advocacy groups, and others to promote the program; identify and leverage potential renewable energy projects that

[41] Includes state incentive of up to $2.25/watt and Federal incentive of 30% of installed cost.

may be eligible for the program or are recipients of incentive funding from other sources.

- Cross-promotion 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 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.

Table 40. Eligible Equipment Measures

Measure	Incentive
PV array	$2/Watt
Ground-source Heat Pump	$217/ton

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.

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 41. Program Schedule and Milestones

Schedule	Milestones
Implementation schedule to be determined.	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.

Schedule	Milestones
	Develop customer education materials.
	Launch program.[42]

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.

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.

- The Customer Programs Specialist will oversee 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 handle customer calls, review and verify applications, process rebates, and track and report 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 conduct 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.

Table 42. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Photovoltaic systems	4	11	15	15	45
Ground Source Heat Pumps	75	225	300	300	900
Total	**79**	**236**	**315**	**315**	**945**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 3,679 MWh. The annual budget allocation, cumulative MWh and

[42] Assumes Commission approval of Plan by 11/30/2009.

coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 43. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 43. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
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	$311,400	$846,839	$1,144,763	$1,168,110	$3,471,113
Direct Participant Costs	$189,975	$578,371	$788,554	$805,114	$2,362,015
Direct Utility Costs	$121,425	$268,468	$356,209	$362,996	$1,109,098
Customer Incentives	$79,425	$235,468	$323,209	$329,996	$968,098
CSP Labor	$12,000	$12,000	$12,000	$12,000	$48,000
CSP Materials and Supplies	$12,000	$12,000	$12,000	$12,000	$48,000
Other (Marketing and Trade Ally)	$18,000	$9,000	$9,000	$9,000	$45,000

	TRC Test
NPV Benefits	$4,543,678
NPV Costs	$3,004,244
Net Benefits (NPV)	$1,539,434
Benefit-Cost Ratio	**1.51**

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 2010-2013
(Residential Sector)

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 45,000 customers through 2013, with a total reduction of 32 MW.[43]

Target Market

PPL Electric's Direct Load Control Program will be available to all customer sectors except the large commercial and industrial sector.[44] 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.

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 44. 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 weekdays between 12:00 PM and 7:00 PM during the peak summer season, from June 1st to September 30th. A control device, installed on a customer's central air conditioning/heat pump unit allows the unit to be cycled off for 15 minutes of every half hour during peak 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

[43] Combined total for all target customer segments.
[44] 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.

reducing load during the 100 hours of highest peak load. Customer incentives will be provided for program participation.

Implementation Strategy

A Demand Response CSP will provide 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; and
- Providing customer and transaction information to PPL Electric.

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.

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 those 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) exclusively.

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:

- CSP markets to, enrolls, and contracts with new participants.
- CSP determines the number of participants and the applicable load control hours needed to provide the specified firm load reductions to PPL Electric.
- CSP schedules customer visits to install DLC unit.
- CSP verifies customer and appliance eligibility.
- CSP provides customer educational materials about the program and ways to manage energy use and peak demand.
- CSP controls units during specified peak periods to provide firm load reductions.
- CSP tracks customer data, appliances and outcomes throughout process.

- CSP processes and delivers customer incentives.

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

Risks and Risk Management Strategy

Table 45 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.

Table 45. 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 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

PPL Electric's selected Demand Response CSP will work with the Advertising CSP and PPL Electric's internal Customer Strategy division to 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.
- Present program information at seminars, conferences, and community events.
- Coordinate advertising opportunities with trade allies.
- Cross-promote through other PPL Electric programs.

Eligible Measures and Incentive Strategy

A direct load control receiver (LCR) will be installed on control equipment by the 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 may be eligible for multiple incentives. Incentives for partial summer participation may be pro-rated.

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 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 46. Program Schedule and Milestones

Schedule	Milestones
07/15/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Demand Response CSP.
08/15/2009	Issue RFP for Demand Response CSP.
11/01/2009	Execute implementation contract with selected CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
12/01/2009	Develop marketing and outreach plan and materials.
01/01/2010	Determine reporting data requirements for program evaluation.
01/01/2010	Launch program.[45]

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.

[45] Assumes Commission approval of Plan by 11/30/2009.

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 and/or the Demand Response CSP(s) will provide external advertising, including television and print ads.
- The Demand Response CSP will handle customer calls; schedule and install DLC receivers; administer the program; review, verify and process applications; track program data; and report 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.

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.

Table 47. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Central AC	-	4,460	4,470	8,930	17,860
Heat Pumps	-	2,200	2,200	4,400	8,800
Total	**-**	**6,660**	**6,670**	**13,330**	**26,660**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve demand reductions of over 19 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 Table 48. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 48. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	5	10	19	19
Total Resource Cost	$502,000	$1,536,248	$1,789,496	$3,102,992	$6,930,736
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$502,000	$1,536,248	$1,789,496	$3,102,992	$6,930,736
Customer Compensation	$0	$213,248	$426,496	$852,992	$1,492,736
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
Other (Marketing and Trade Ally)	$248,000	$248,000	$248,000	$56,000	$800,000

	TRC Test
NPV Benefits	$1,383,019
NPV Costs	$5,921,911
	-$4,538,892
Benefit-Cost Ratio	**0.23**

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.[46]

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.[47] 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

Customers Type	Residential
Rate Class	RS, RTS, RTD, TOU after 1/1/10
Building Type	All
Building Vintage	All
Building ownership	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 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

[46] Combined total for all eligible target customer segments.
[47] 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.

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 50. 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.

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

Schedule	Milestones
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.[48]

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.

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,

[48] Assumes Commission approval of EE&C Plan 11/1/2009.

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.

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
Participants	-	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.

Table 53. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	11	22	44	44
Total Resource Cost	$1,117,000	$1,193,000	$1,193,000	$535,000	$4,038,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$1,117,000	$1,193,000	$1,193,000	$535,000	$4,038,000
Customer Compensation	$0	$0	$0	$0	$0
CSP Labor	$87,000	$25,000	$25,000	$25,000	$162,000
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

	TRC Test
NPV Benefits	$13,297,809
NPV Costs	$3,669,135
Net Benefits (NPV)	$9,628,674
Benefit-Cost Ratio	**3.62**

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 that can significantly 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 100,000 customers through 2013, with a total reduction of 18,100 MWh 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.[49] Customer eligibility parameters for the residential sector are outlined below.

Table 54. Customer Eligibility Parameters

Customers Type	Residential
Rate Class	RS, RTS, RTD, TOU after 1/10/2010
Building Type	All
Building Vintage	All
Building ownership	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.
- Outreach emphasizing the importance of peak load reduction during the peak load season and ways to shift energy use to off-peak periods.

[49] 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.

- 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.

Risks and Risk Management Strategy

Table 55 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.

Table 55. 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 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.
- 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.

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.

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 56. Program Schedule and Milestones

Schedule	Milestones

Schedule	Milestones
To be determined	If needed, develop RFP - including scope of work, selection criteria and quality assurance protocols for program CSP(s).
	Issue RFP for program CSP(s).
	Execute program implementation contract(s) with selected program CSPs.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
01/01/2010	Conduct research on most viable education and outreach approaches, costs, expected savings, measure life, etc.
03/01/2010	Develop general awareness messaging and materials.
ongoing	Provide outreach to interested stakeholders.
03/15/2010	Post customer information Website.
04/01/2010	Develop quality assurance plan approved by PPL Electric.
04/01/2010	Determine reporting and data requirements for program evaluation.
04/01/2010	Launch program.[50]

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.

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.

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.

[50] Assumes Commission approval of Plan by 11/30/2009.

- The Quality Assurance CSP will oversee quality assurance.
- The EM&V CSP will conduct evaluation, measurement, and verification activities.

Estimated Participation

Estimated Participation levels for this program are shown below.

Table 57. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	25,000	25,000	25,000	25,000	100,000

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 18,100 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 58. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 58. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	4,525	4,525	4,525	4,525	18,100
Capacity Savings (MW)	1	1	1	1	2
Total Resource Cost	$625,000	$638,000	$651,000	$665,000	$2,579,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$625,000	$638,000	$651,000	$665,000	$2,579,000
Other (Marketing and Trade Ally)	$625,000	$638,000	$651,000	$665,000	$2,579,000

	TRC Test
NPV Benefits	$8,420,885
NPV Costs	$2,301,767
Net Benefits (NPV)	$6,119,119
Benefit-Cost Ratio	**3.66**

3.2.1. Low-income Programs

Low-income WRAP 2009-2013
(Low-Income Sector)

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 23,590 customers through 2013, with a total reduction of 18,695 MWh and 2,985 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 be 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 59. Customer Eligibility Parameters

Customers Type	Low-income qualified residential
Rate Class	RS, RTS, RTD, TOU after 1/1/2010
Building Type	Single-family, multifamily with 50% or more residents income qualified
Building Vintage	Existing buildings
Building ownership	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 60 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.

Table 60. 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.
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, "*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.

Low-Income Single-Family:

- Energy Audit
- Energy Education: customer in-home education on ways to save energy

- ENERGY STAR® CFLs and fixtures[51]
- 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[51]
- Faucet aerators[51]
- Water heater pipe insulation
- Safety measures

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.

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 61. 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.

[51] Program provides as many CFLs, lighting fixtures, low flow shower heads and faucet aerators as are needed in a given home.

Schedule	Milestones
10/01/2009	Confirm CBOs have ramped up staffing and capabilities to meet the program requirements.
11/01/2009	Launch program.[52]

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
- 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

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.

[52] Assumes Commission approval of Plan by 11/30/2009.

- PPL Electric's WRAP Program Manager will continue to manage 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 evaluation, measurement, and verification activities and coordinate 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.

Table 62. 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
Total	**4,690**	**5,480**	**6,150**	**7,270**	**23,590**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 18,695 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 63. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 63. Summary of Projected Benefits, Costs, and Cost-effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	3,943	4,423	4,829	5,500	18,695
Capacity Savings (MW)	1	1	1	1	3
Total Resource Cost	$6,114,840	$6,819,952	$7,508,635	$8,594,939	$29,038,367
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$6,114,840	$6,819,952	$7,508,635	$8,594,939	$29,038,367
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
Other (Marketing and Trade Ally)	$150,000	$75,000	$77,000	$79,000	$381,000

	TRC Test
NPV Benefits	$20,262,126
NPV Costs	$25,689,995
Net Benefits (NPV)	-$5,427,869
Benefit-Cost Ratio	**0.79**

E-Power Wise 2010-2013

(Low-Income Sector)

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 7,200 customers through 2013 with a total reduction of 1,080 MWh 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. In particular, the program aims to reach low-income senior citizens. Customer eligibility parameters for the residential sector are outlined below.

Table 64. Customer Eligibility Parameters

Customers Type	Low-income qualified residential
Rate Class	RS, RTS, RTD, TOU after 1/1/2010
Building Type	Single-family, multifamily with 50% or more residents income qualified
Building Vintage	Existing buildings
Building ownership	Owner or tenant

Program Description

The E-Power Wise Program, delivered via CBOs, non-profit organizations, and/or a CSP 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 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 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.

- 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 manage all aspects of the program including:

- Developing relationships with CBOs and non-profit organizations.
- Identifying 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.
- Recording and reporting program metrics.

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

Risk and Risk Management Strategy

Table 65 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.

Table 65. 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.
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.

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 existing WRAP program infrastructure. Marketing efforts will seek to increase the program's reach to low-income customers not aware of PPL Electric's low-income initiatives. Marketing will be directed to:

- CBO 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:

- 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.

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 be led by PPL Electric; other tasks will be led by the program CSP and/or by CBOs, with oversight from PPL Electric.

Table 66. 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-ongoing	Provide program delivery training to appropriate participants.
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.
10/15/2009-ongoing	Coordinate with other utilities and stakeholders.
01/15/2010	Launch program.[53]

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 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

[53] Assumes Commission approval of Plan by 11/30/2009.

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.

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:

- PPL Electric's Program Manager 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 E-Power Wise CSP will administer the program, coordinate workshop logistics, deliver training, supply efficiency kits, receive and analyze customer surveys, and report results.
- CBOs 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 conduct 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.

Table 67. E-Power Wise Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Energy-efficiency Kits	750	2,350	2,250	1,850	7,200

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 1,080 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 68. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 68. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	113	353	338	278	1,080
Capacity Savings (MW)	0.02	0.05	0.05	0.04	0.1
Total Resource Cost	$93,375	$156,771	$154,374	$137,621	$542,142
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$93,375	$156,771	$154,374	$137,621	$542,142
Customer Incentives	$33,375	$106,771	$104,374	$87,621	$332,142
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
Other (Marketing and Trade Ally)	$20,000	$10,000	$10,000	$10,000	$50,000

	TRC Test
NPV Benefits	$681,667
NPV Costs	$480,133
Net Benefits (NPV)	$201,535
Benefit-Cost Ratio	**1.42**

Compact Fluorescent Lighting Campaign 2010-2013
(Low-Income Sector)

Objectives
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Target Market
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Program Description
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Implementation Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Risk and Risk Management Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Anticipated Costs to Participating Customers
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Ramp-up Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Marketing Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Eligible Measures and Incentive Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Implementation Schedule and Milestones
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Evaluation, Measurement, and Verification (EM&V)
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Administrative Requirements
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Estimated Participation
Estimated Participation rates for this program for the low-income sector are expected to be proportional to PPL Electric's low-income customer totals. The resulting estimated number of CFLs purchased by and given to low-income customers is shown below.

Table 69. Projected Electric Measure Installations

	Year 1	Year 2	Year 3	Year 4	Total
Purchased CFLs	51,000	339,980	339,980	339,980	1,070,940
CFL give-aways	5,670	37,780	37,780	37,780	119,010
Total	56,670	377,760	377,760	377,760	1,189,950

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 48,787 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 70. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 70. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	2,323	15,488	15,488	15,488	48,787
Capacity Savings (MW)	0.4	2	2	2	8
Total Resource Cost	$365,652	$1,684,747	$1,720,145	$1,756,223	$5,526,767
Direct Participant Costs	$113,326	$771,374	$787,573	$804,112	$2,476,384
Direct Utility Costs	$252,326	$913,374	$932,573	$952,112	$3,050,384
Customer Incentives	$113,326	$771,374	$787,573	$804,112	$2,476,384
CSP Labor	$50,000	$51,000	$52,000	$53,000	$206,000
CSP Materials and Supplies	$50,000	$51,000	$52,000	$53,000	$206,000
Other (Marketing and Trade Ally)	$39,000	$40,000	$41,000	$42,000	$162,000

	TRC Test
NPV Benefits	$22,728,070
NPV Costs	$4,794,497
Net Benefits (NPV)	$17,933,573
Benefit-Cost Ratio	**4.74**

Direct Load Control Program 2010-2013
(Low-Income Sector)

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.

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 71. 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
Total	**-**	**1,340**	**1,330**	**2,670**	**5,340**

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 72. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 72. Summary of Projected Benefits, Costs and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	1	2	4	4
Total Resource Cost	$101,000	$307,752	$358,504	$622,008	$1,389,264
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$101,000	$307,752	$358,504	$622,008	$1,389,264
Customer Compensation	$0	$42,752	$85,504	$171,008	$299,264
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
Other (Marketing and Trade Ally)	$50,000	$50,000	$50,000	$11,000	$161,000

	TRC Test
NPV Benefits	$277,268
NPV Costs	$1,187,085
	-$909,817
Benefit-Cost Ratio	**0.23**

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.

Administrative Requirements
Please see Section 3.2, under Time of Use Rates.

Estimated Participation
Estimated low-income sector program participation is shown below.

Table 73. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	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 74. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 74. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	2	4	9	9
Total Resource Cost	$225,000	$240,000	$240,000	$108,000	$813,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$225,000	$240,000	$240,000	$108,000	$813,000
Customer Compensation	$0	$0	$0	$0	$0
CSP Labor	$18,000	$5,000	$5,000	$5,000	$33,000
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

	TRC Test
NPV Benefits	$2,665,961
NPV Costs	$738,717
Net Benefits (NPV)	$1,927,243
Benefit-Cost Ratio	**3.61**

3.3. Small Commercial and Industrial Sector Programs

Efficient Equipment Incentive Program 2010-2013
(Small Commercial and Industrial Sector)

Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

Target Market

As described 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.[54] However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across all market sectors. Table 75 outlines eligibility targets for the small commercial and industrial sector.

Table 75. Customer Eligibility Parameters

Customers Type	Commercial & industrial, small
Rate Class	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
Building Type	Small commercial, small industrial
Building Vintage	Existing and new construction
Building ownership	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.

Ramp-up Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

[54] 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.

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:

- 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 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.

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 be a fixed amount per device, paid by check to customers who complete a rebate application and submit documentation of the equipment purchase to PPL Electric's Administrative CSP. Customers interested in installing multiple measures and/or implementing a extensive, whole-facility efficiency solution will be directed to the Commercial and Industrial Custom Incentive Program.

Table 76 shows PPL Electric's proposed list of eligible equipment, incentive levels, and efficiency qualifications. While small commercial customers are eligible for all equipment under the Efficient Equipment Incentive Program, only equipment deemed appropriate for the commercial sector 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.

Table 76. Eligible Equipment Measures

Measure	Eligibility Rating	Incentive
Cooling Tower-Decrease Approach Temp.	Chiller tonnage > 100 tons	$8/ton
Cooling Tower-Two-Speed Fan Motor	Replace one speed fan motor	$1/ton
Pipe Insulation	≥ R-4	$1.60/linear foot
Water-Cooled Chiller, Screw Chiller	High-Efficiency kW/ton = 0.62	$7/ton
Water-Cooled Chiller, Screw Chiller	Premium Efficiency kW/ton = 0.574	$10/ton
(DX) Packaged Air Conditioner System	11.0 EER	$55/ton
	11.5 EER	$80/ton

Measure	Eligibility Rating	Incentive
	12.0 EER	$105/ton
Programmable Thermostat	ENERGY STAR[55]	$55/unit
Heat Pump - Air Source	EER=11.0, COP=3.5	$75/ton
Heat Pump - Air Source	EER=11.8, COP=3.8	$160/ton
Motors	Premium Efficiency	50% of incremental installed cost
HE Fixture/Design	15% LPD Reduction	50% of incremental installed cost up to $10,000
Improved Exterior Lighting Design	Full Cut Off Fixtures and Photometric Analysis	50% of incremental installed cost up to $10,000
Anti-Sweat Heater Controls	Variable Temperature Controls (Humidistat)	$34/case door
Commercial Reach-In Refrigerator	ENERGY STAR	$70/unit
Compressor VSD Retrofit	VSD Control	$70/HP
Demand Control Defrost - Hot Gas	Refrigerant Defrost w/ Hot Gas	$85/case door
Display Cases	High-Efficiency	$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
Ice Maker	High-Efficiency	$115/unit
Night Covers for Display Cases	N/A	$15/linear foot
Strip Curtains for Walk-Ins	N/A	$16/linear foot
Faucet Aerators	1.5 GPM	$0.50/unit
Water Heater Thermostat Setback	Set at 120 degrees	$45/water heater
Steam Cookers	ENERGY STAR	$40/unit
CFL	ENERGY STAR	$1.70
CFL Pin-Base Fixtures	ENERGY STAR	$30
Daylighting Controls	Dimming-Continuous, Fluorescent Fixtures	$35/controlled fixture
LED Exit Lighting	5 Watts	$15/unit
Occupancy Sensors	Wall or Ceiling-mounted Lighting Sensor	$45/sensor
Time Clocks and Timers	N/A	$100/unit
High-Pressure Sodium	70 W (Exterior)	$40
Pulse Start Metal Halide - Exterior	<320 Watt	$25
	>320 Watt	$50
Energy Star Office Equipment	ENERGY STAR	30% of incremental measure cost up to $50
De-lamp and Install Reflectors	Remove 1 or more lamps to equal 2-Lamp 4 ft. T8 + New Reflector	$50/fixture

[55] ENERGY STAR will discontinue rating programmable thermostats after 12/31/2009. PPL Electric will determine appropriate equipment qualification guidelines when this occurs.

Measure	Eligibility Rating	Incentive
Fluorescent High Bay Fixtures Lighting Package	High Bay Lighting - T5HO (4 Lamps, 240 W per fixture)	$18/lamp
	High Bay Lighting - T8HO (6 Lamps, [240 W] estimated per fixture)	$14/lamp
T8 Lighting Package	4 ft. T8 2-Lamp Fixture (lamp & ballast)	$14/fixture
	4 ft. T8 3-Lamp Fixture (lamp & ballast)	
	4 ft. T8 4-Lamp Fixture (lamp & ballast)	
	8 ft. T8 2-Lamp Fixture (lamp & ballast)	
Integrated Lighting, Classrooms And other buildings	50% LPD reduction	50% of incremental installed cost up to $50,000
ASD/VSD	VFDs with motor HP >5 and ≤200	$30/HP
Ceiling Insulation	Above code requirement	70% of installed cost
Wall Insulation	Above code requirement	70% of installed cost
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.

Implementation Schedule and Milestones

Please see Section 3.2, under Efficient Equipment Incentive Program.

Evaluation, Measurement, and Verification (EM&V)

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;
- 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.

Table 77. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower-Decrease Approach Temperature	-	8	8	15	31
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
Motors	46	230	321	413	1,010
HE Fixture/Design	-	1	1	2	4
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
Night Covers for Display Cases	1,385	6,931	9,708	12,485	30,509
Strip Curtains for Walk-Ins	8	23	31	38	100
Faucet Aerators	819	4,093	5,730	7,367	18,009

	Year 1	Year 2	Year 3	Year 4	Total
Water Heater Thermostat Setback	61	321	444	574	1,400
Steam Cookers	-	1	1	1	3
CFL	2,295	11,475	16,065	20,655	50,490
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
Total	141,133	705,695	987,919	1,270,188	3,101,960

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 484,070 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 78. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 78. Summary of Projected Benefits, Costs and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	21,961	109,870	154,112	198,127	484,070
Capacity Savings (MW)	4	20	28	36	87
Total Resource Cost	$7,838,420	$33,826,943	$48,057,582	$62,785,757	$152,508,702
Direct Participant Costs	$4,110,352	$21,047,370	$30,073,756	$39,439,958	$94,671,437
Direct Utility Costs	$3,728,068	$12,779,572	$17,983,826	$23,345,799	$57,837,265
Customer Incentives	$2,324,068	$11,837,572	$17,021,826	$22,363,799	$53,547,265
CSP Labor	$230,000	$235,000	$240,000	$245,000	$950,000
CSP Materials and Supplies	$230,000	$235,000	$240,000	$245,000	$950,000
Other (Marketing and Trade Ally)	$944,000	$472,000	$482,000	$492,000	$2,390,000

	TRC Test
NPV Benefits	$432,272,637
NPV Costs	$130,202,653
Net Benefits (NPV)	$302,069,985
Benefit-Cost Ratio	**3.32**

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.

Compact Fluorescent Lighting Campaign 2010-2013
(Small Commercial and Industrial Sector)

Objectives
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Target Market
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Program Description
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Implementation Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Risk and Risk Management Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Anticipated Costs to Participating Customers
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Ramp-up Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Marketing Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Eligible Measures and Incentive Strategy
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Implementation Schedule and Milestones
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Evaluation, Measurement, and Verification (EM&V)
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Administrative Requirements
Please see Section 3.2, under Compact Fluorescent Lighting Campaign.

Estimated Participation
In general, PPL Electric expects commercial and industrial sector customers will utilize lighting incentives offered through the Efficient Equipment Incentive Program. However, recognizing small business customers may participate in this program, PPL Electric has expected modest participation rates for small commercial and industrial customers. The Estimated quantity of CFLs purchased by and given away to small commercial customers is shown below.

Table 79. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Purchased CFLs	15,300	101,800	101,800	101,800	320,700
CFL give-aways	1,700	11,300	11,300	11,300	35,600
Total	17,000	113,100	113,100	113,100	356,300

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 14,607 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 80. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 80. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	696	4,637	4,637	4,637	14,607
Capacity Savings (MW)	0.1	1	1	1	3
Total Resource Cost	$85,860	$473,900	$483,600	$493,504	$1,536,865
Direct Participant Costs	$33,930	$230,950	$235,800	$240,752	$741,432
Direct Utility Costs	$51,930	$242,950	$247,800	$252,752	$795,432
Customer Incentives	$33,930	$230,950	$235,800	$240,752	$741,432
CSP Labor	$3,000	$3,000	$3,000	$3,000	$12,000
CSP Materials and Supplies	$3,000	$3,000	$3,000	$3,000	$12,000
Other (Marketing and Trade Ally)	$12,000	$6,000	$6,000	$6,000	$30,000

	TRC Test
NPV Benefits	$5,809,499
NPV Costs	$1,331,025
Net Benefits (NPV)	$4,478,473
Benefit-Cost Ratio	**4.36**

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 (EPAct) tax credits.
- Obtain participation by no less than 400 customers through 2013, with a total reduction of 140,460 MWh and 27 MW.[56]

Target Market

PPL Electric's C&I Custom Incentive Program targets all new and existing commercial and industrial facilities.[57] 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 a 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 and governmental/non-profit market sectors, with target customers, participation, budgets, savings and impacts 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 81 outlines eligibility parameters for the small commercial and industrial sector.

[56] Combined total for all target customer segments.
[57] This includes municipal, institutional and other buildings used by governmental/non-profit sector customers.

Table 81. Customer Eligibility Parameters

Customers Type	Commercial and industrial, small
Rate Class	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
Building Type	Small commercial, small industrial
Building Vintage	Existing and new construction
Building ownership	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 required to provide documentation that their proposed efficiency upgrades pass PPL Electric's cost-effectiveness threshold and technical criteria.

PPL Electric will provide 50% of the cost of a technical study, and may provide additional reimbursement following successful implementation of a cost-effective project. 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 subject to an annual cap for each project and for each participating customer.

New commercial construction projects that include extensive, advanced energy-efficiency specifications are eligible for incentives under this program. PPL Electric will encourage customers building new facilities to pursue advanced building performance certification such as LEED or ENERGY STAR Buildings.

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 data on replacement appliances and systems. This data 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 will handle customer intake and routing and will process 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 CSP will perform technical analyses of applications; confirm scope, cost, and potential energy savings of proposed projects; conduct field verification of completed projects; and adjust energy savings from installed projects, if appropriate.

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. 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 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 82 presents key market risks to an effective Custom Incentive Program, as well as the strategies the program will use to address each risk.

Table 82. 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.	
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 $1 million per parent company per year for customers with multiple facilities.

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 will work with its internal Customer Strategy division to 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.
- 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.
- 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

Table 83 shows PPL Electric's proposed incentive levels

Table 83. 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.
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.
Peak demand incentive	≥ 5% facility demand reduction during summer peak period	20% bonus, within the cost caps described above.

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 84. 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.

Schedule	Milestones
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.[58]

Evaluation, Measurement, and Verification (EM&V)

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.

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:

- The Customer Programs Specialist will oversee all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- Administrative CSP will handle customer calls, direct customers to the technical CSP for support, and process rebates.
- Trade Allies will engage manufacturers and engineers.
- Quality Assurance CSP will oversee quality assurance.
- EM&V CSP will conduct evaluation, measurement, and verification activities.

[58] Assumes Commission approval of Plan by 11/30/2009.

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.

Table 85. 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
Total	**85**	**352**	**588**	**762**	**1787**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 98,748 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 86. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 86. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	3,933	22,154	27,532	45,129	98,748
Capacity Savings (MW)	1	4	6	9	19
Total Resource Cost	$1,809,765	$6,981,881	$10,258,324	$14,683,864	$33,733,833
Direct Participant Costs	$794,859	$3,905,965	$5,800,155	$8,403,360	$18,904,338
Direct Utility Costs	$1,014,906	$3,075,916	$4,458,168	$6,280,504	$14,829,495
Customer Incentives	$564,906	$2,746,916	$4,122,168	$5,937,504	$13,371,495
CSP Labor	$100,000	$102,000	$104,000	$106,000	$412,000
CSP Materials and Supplies	$100,000	$102,000	$104,000	$106,000	$412,000
Other (Marketing and Trade Ally)	$250,000	$125,000	$128,000	$131,000	$634,000

	TRC Test
NPV Benefits	$86,491,140
NPV Costs	$28,725,853
Net Benefits (NPV)	$57,765,286
Benefit-Cost Ratio	**3.01**

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 2010-2013

(Small Commercial and Industrial Sector)

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 5,770 customers through 2013, with a total reduction of 22,180 MWh and 115 MW.[59]

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.[60] 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 87 outlines eligibility targets for the small commercial and industrial sector.

Table 87. Customer Eligibility Parameters

Customers Type	Commercial and industrial, small
Rate Class	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
Building Type	Small commercial
Building Vintage	Existing buildings
Building ownership	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
- Air distribution system
- Controls

[59] Combined total for all target customer segments.
[60] Eligible equipment measures are not applicable in the large commercial, residential, or low-income sectors.

Implementation Strategy

PPL Electric will competitively select an HVAC Tune-up CSP to manage and administer 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 overall strategic direction and program management for the program and, supported by other CSPs, marketing, and trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Trained 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.
- The CSP will provide 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 88 presents key market risks to an effective Small Commercial HVAC Program, as well as the strategies the program will use to address each risk.

Table 88. 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. Contractor marketing and training through Web seminars and outreach. Robust marketing plan encouraging contractor participation.
Limited number of qualified contractors.	
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 50% of the customer incremental cost. Estimated customer post-incentive costs by measure follow:

- Basic diagnostic testing (no economizer): $25
- Basic diagnostic testing (economizer is present): $50
- Refrigerant Charge/Airflow (single compressor): $125
- Refrigerant Charge/Airflow (multiple compressors): $150
- Thermostat Modification: $25
- Thermostat Replacement : $100
- Economizer Adjustment: $50
- Economizer Control Package: $200

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.
- 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 a fixed amount per measure, paid by check to HVAC contractors who complete an application and submit documentation to PPL Electric's HVAC Tune-up CSP. Table 89 shows PPL Electric's proposed incentive levels

Table 89. Eligible Equipment Measures

Measure	Incentive
Basic diagnostic testing (no economizer)	$25
Basic diagnostic testing (economizer is present)	$50
Refrigerant Charge/Airflow (single compressor)	$125
Refrigerant Charge/Airflow (multiple compressors)	$175
Thermostat Modification	$25
Thermostat Replacement	$100
Economizer Adjustment	$150
Economizer Control Package	$100

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 90. 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.

Schedule	Milestones
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.
02/01/2010	Launch program.[61]

Evaluation, Measurement, and Verification (EM&V)

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 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:

- The Customer Programs Specialist will oversee 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.

[61] Assumes Commission approval of Plan by 11/30/2009.

- Administrative CSP and/or the HVAC Tune-up CSP will handle customer calls, and direct customers to the program.
- The HVAC Tune-up CSP will administer the program, recruit, liaison with and train contractors, track project and customer data, review and verify program applications, and process rebates and report to PPL Electric.
- Trade Allies (HVAC installers) perform tune-up work.
- Quality Assurance CSP will oversee quality assurance.
- EM&V CSP will conduct 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.

Table 91. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Basic Package	242	1,218	1,711	2,195	5,366
Refrigerant/Airflow (Single Compressor)	56	298	418	539	1,311
Refrigerant/Airflow (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
Total	576	2,958	4,130	5,329	12,993

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 20,626 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 92. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 92. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	914	4,689	6,563	8,460	20,626
Capacity Savings (MW)	0.5	2	3	4	11
Total Resource Cost	$143,200	$465,103	$640,943	$830,144	$2,079,390
Direct Participant Costs	$38,600	$206,089	$293,265	$387,177	$925,131
Direct Utility Costs	$104,600	$259,014	$347,679	$442,967	$1,154,259
Customer Incentives	$39,600	$208,514	$296,679	$391,967	$936,759
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
Other (Marketing and Trade Ally)	$29,000	$14,500	$15,000	$15,000	$73,500

	TRC Test
NPV Benefits	$10,382,269
NPV Costs	$1,782,352
Net Benefits (NPV)	$8,599,918
Benefit-Cost Ratio	**5.83**

Direct Load Control Program 2010-2013

(Small Commercial and Industrial Sector)

Objectives

Please see Section 3.2, under Direct Load Control Program.

Target Market

As discussed in Section 3.2, this program will be available to all customer sectors except the large commercial and industrial sector.[62] 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 93. Customer Eligibility Parameters

Customers Type	Commercial and industrial, small
Rate Class	GS1, GS3, TOU after 1/1/10
Building Type	Small commercial & industrial structures with appropriate control equipment
Building Vintage	Existing buildings, new construction
Building ownership	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.

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.

[62] 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.

Marketing Strategy

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.

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.

Table 94. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	3,020	3,030	6,040	12,090

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand savings of 9 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 95. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 95. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	2	4	9	9
Total Resource Cost	$232,000	$697,736	$814,440	$1,414,880	$3,159,056
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$232,000	$697,736	$814,440	$1,414,880	$3,159,056
Customer Compensation	$0	$96,736	$193,440	$386,880	$677,056
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
Other (Marketing and Trade Ally)	$112,000	$112,000	$112,000	$25,000	$361,000

	TRC Test
NPV Benefits	$627,300
NPV Costs	$2,699,480
	-$2,072,180
Benefit-Cost Ratio	**0.23**

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[63]. 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 96. Customer Eligibility Parameters

Customers Type	Commercial and industrial, small
Rate Class	GS1, GS3
Building Type	Small commercial, small industrial
Building Vintage	All
Building ownership	Owner or individually metered tenant

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.

[63] 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.

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 97. 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 98. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 98. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	2	4	7	7
Total Resource Cost	$249,000	$199,000	$199,000	$103,000	$750,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$249,000	$199,000	$199,000	$103,000	$750,000
Customer Compensation	$0	$0	$0	$0	$0
CSP Labor	$98,000	$28,000	$28,000	$28,000	$182,000
CSP Materials and Supplies	$0	$20,000	$20,000	$41,000	$81,000
Other (Marketing and Trade Ally)	$151,000	$151,000	$151,000	$34,000	$487,000

	TRC Test
NPV Benefits	$2,197,772
NPV Costs	$685,634
Net Benefits (NPV)	$1,512,138
Benefit-Cost Ratio	**3.21**

3.4. Large Commercial and Industrial Sector Programs

Efficient Equipment Incentive Program 2010-2013
(Large Commercial and Industrial Sector)

Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

Target Market

Ass 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[64]. 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 99 outlines eligibility targets for the large commercial and industrial sector.

Table 99. Customer Eligibility Parameters

Customers Type	Commercial and industrial, large
Rate Class	LP4, LP5, LP6, ISP, IST, LPEP, ISA, PR1, PR2, TOU after 1/1/10
Building Type	Large commercial, large industrial
Building Vintage	Existing and new construction
Building ownership	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.

[64] 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

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 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, 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.

Table 100. Projected Electric Measure Installations

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower-Decrease Approach Temp.	-	1	1	1	3
Cooling Tower-Two-Speed Fan Motor	-	1	1	1	3
Pipe Insulation	1	2	3	3	9
(DX) Packaged Air Conditioner System	2	12	16	21	51
Thermostat - Programmable	12	64	89	114	279
Heat Pump - Air Source	-	1	3	4	8
Motors	4	21	29	37	91
Anti-Sweat Heater Controls	2	10	14	18	44
Commercial Reach-In Refrigerator	1	3	3	4	11
Compressor VSD Retrofit	-	1	1	1	3
Display Cases	3	16	23	30	72
Floating Head Pressure Control	-	1	1	1	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	-	1	1	1	3
Night Covers for Display Cases	124	620	868	1,117	2,729
Strip Curtains for Walk-Ins	1	2	3	3	9
Faucet Aerators	73	366	513	659	1,611
Water Heater Thermostat Setback	5	29	40	51	125
CFL	205	1,026	1,437	1,848	4,516
CFL Pin-Base Fixtures	51	257	359	462	1,129
Daylighting Controls	3	14	18	24	59
LED Exit Lighting	26	131	183	237	577
Occupancy Sensors	3	14	18	24	59
Time Clocks and Timers	11	53	75	96	235
High-Pressure Sodium	-	1	1	2	4
Pulse Start Metal Halide - Exterior	29	146	205	263	643
Energy Star Office Equipment	34	177	245	315	771
Delamping and Install Reflectors	1	3	5	6	15
Fluorescent High Bay Fixtures Package	96	479	671	862	2,108
T8 Lighting Package	11,825	59,123	82,772	106,421	260,141
ASD/VSD	120	470	830	1,070	2,490
Ceiling Insulation	1	1	3	3	8
Wall Insulation	1	1	3	3	8
Case Fans with ECM Motors	20	99	139	179	437
Total	**12,744**	**63,593**	**89,200**	**114,685**	**280,222**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 108,887 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 101. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 101. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	5,135	22,126	35,681	45,945	108,887
Capacity Savings (MW)	1	4	6	8	18
Total Resource Cost	$1,597,453	$6,573,204	$10,660,692	$14,011,775	$32,843,125
Direct Participant Costs	$823,965	$3,697,806	$5,931,072	$7,806,900	$18,259,743
Direct Utility Costs	$773,488	$2,875,398	$4,729,621	$6,204,875	$14,583,382
Customer Incentives	$647,488	$2,791,398	$4,644,621	$6,118,875	$14,202,382
CSP Labor	$21,000	$21,000	$21,000	$21,000	$84,000
CSP Materials and Supplies	$21,000	$21,000	$21,000	$21,000	$84,000
Other (Marketing and Trade Ally)	$84,000	$42,000	$43,000	$44,000	$213,000

	TRC Test
NPV Benefits	$83,393,087
NPV Costs	$27,946,578
Net Benefits (NPV)	$55,446,510
Benefit-Cost Ratio	**2.98**

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 102 outlines eligibility parameters for the large commercial and industrial sector.

Table 102. Customer Eligibility Parameters

Customers Type	Commercial & industrial, large
Rate Class	LP4, LP5, LP6, LPEP, IST, ISP, ISA, PR1, PR2
Building Type	Large commercial, large industrial
Building Vintage	Existing and new construction
Building ownership	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.

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 103. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Windows	0	1	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	1	1	3	5
Data Center - Cooling	1	3	4	5	13
Data Center - Lighting	1	3	4	5	13
Data Center - Plug Load	1	3	4	5	13
Industrial Process - Other Electric	0	1	1	3	5
Custom Motors	0	1	1	3	5
Industrial Compressed Air	0	1	1	3	5
Agriculture (Dairy Farms)	0	1	1	1	3
Permanent Operational Changes (Cooling DX)	2	7	12	15	36
Permanent Operational Changes (Cooling Chillers)	2	7	12	15	36
Permanent Operational Changes (Heat Pump)	2	7	12	15	36
Permanent Operational Changes (Heating)	2	7	12	15	36
Total	**18**	**69**	**112**	**150**	**349**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 18,249 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 104. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 104. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	534	3,705	4,695	9,495	18,429
Capacity Savings (MW)	0.1	1	1	2	3
Total Resource Cost	$413,011	$1,346,873	$1,928,878	$3,060,939	$6,749,700
Direct Participant Costs	$189,307	$752,277	$1,086,453	$1,756,451	$3,784,488
Direct Utility Costs	$223,704	$594,596	$842,424	$1,304,488	$2,965,212
Customer Incentives	$133,704	$529,596	$776,424	$1,237,488	$2,677,212
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
Other (Marketing and Trade Ally)	$50,000	$25,000	$26,000	$27,000	$128,000

	TRC Test
NPV Benefits	$12,760,128
NPV Costs	$5,743,689
Net Benefits (NPV)	$7,016,439
Benefit-Cost Ratio	**2.22**

Load Curtailment Program 2010-2013

(Large Commercial and Industrial Sector)

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 total reduction of 98 MW.[65]

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[66]. 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 105 outlines eligibility parameters for the large C&I sector.

Table 105. Customer Eligibility Parameters

Customers Type	Commercial and industrial, large
Rate Class	LP4, LP5, LP6, LPEP, IST, ISP, ISA, PR1, PR2
Building Type	Large commercial, large industrial
Building Vintage	Existing and new construction
Building ownership	Owner or tenant with owner approval

Program Description

The Load Curtailment Program operates during the peak summer season, from June 1 to September 30 during weekdays. The number of participants, the number of interruptible hours per participant, and the size of the participant's load reduction will be managed by PPL Electric's Demand Response 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

[65] Given the uncertainty associated with accurately predicting the top 100 peak load hours, PPL Electric anticipates that it will need approximately 180 MW of participants averaging 50 hours of interruption each summer to achieve the peak load reduction target.
[66] 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.

load or using back-up or distributed generation that meets environmental regulations. Customers will be paid an incentive by the Demand Response 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 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 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:

- Conduct facility audits and develop customized curtailment plans with participants.
- Prepare and execute customer contracts.
- Install Web-based metering technologies to facilitate information exchange with PPL Electric and customer sites.
- Help customers monitor and manage energy usage and control load reduction events.

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 those 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) 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.

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

Risk and Risk Management Strategy

Table 106 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.

Table 106. 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).
AMI infrastructure compatibility.	Ensure CSP fully understands AMI system.
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. Obtain more than double the target amount of firm interruptible load (MW) for 50 hours to provide a reasonable cushion that the target is achieved (average over 100 hours).

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 may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company Web site, 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.

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 107. Program Schedule and Milestones

Schedule	Milestones
07/15/09	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Demand Response CSP(s).
08/15/2009	Issue RFP for Demand Response CSP(s).
11/01/2009	Execute program implementation contract(s) with selected program CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
12/15/2009	Evaluate technology needs.
12/01/2009	Work with CSP to develop customer education and marketing materials.
12/01/2009	Develop event management protocols and administrative needs.
ongoing	Work with CSP, other utilities, and PJM to identify conflicts and areas for coordination.
12/01/2009	Develop participation forms and account management processes.
01/01/2010	Determine data requirements for program evaluation.

01/01/2010	Launch program.[67]

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.

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:

- The Customer Programs Specialist will oversee all program operations and program 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 CSP will manage and administer the program, including marketing, customer intake and service, processing applications and rebates, tracking program data, and reporting customer and transaction 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 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.

[67] Assumes Commission approval of Plan by 11/30/2009.

Table 108. Projected Participants

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	70	70	110	250

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand savings of 80 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 109. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 109. Summary of Projected Benefits, Costs, and Cost-effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	-	2,145	2,145	3,705	7,995
Capacity Savings (MW)	-	21	43	80	80
Total Resource Cost	$117,000	$1,797,000	$3,514,000	$6,473,000	$11,901,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$117,000	$1,797,000	$3,514,000	$6,473,000	$11,901,000
Customer Compensation	$0	$1,716,000	$3,432,000	$6,396,000	$11,544,000
CSP Labor	$98,000	$49,000	$49,000	$49,000	$245,000
CSP Materials and Supplies	$0	$13,000	$14,000	$24,000	$51,000
Other (Marketing and Trade Ally)	$19,000	$19,000	$19,000	$4,000	$61,000

	TRC Test
NPV Benefits	$6,705,306
NPV Costs	$9,932,054
	-$3,226,748
Benefit-Cost Ratio	**0.68**

3.5. Governmental and Non-Profit Sector Programs

Efficient Equipment Incentive Program (Government/Non-Profit Sector) 2010-2013

Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

Target Market

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[68]. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across all market sectors. Table 110 outlines eligibility targets for the governmental/non-profit sector.

Table 110. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	Existing and new construction
Building ownership	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.

Ramp-up Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

[68] 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.

Marketing Strategy

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.

- 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 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

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 111. Eligible Equipment Measures

Measure	Incentive
LED Traffic Signals 8" Red	$20
LED Traffic Signals 12" Red	$25
LED Traffic Signals 8" Green	$35
LED Traffic Signals 12" Green	$40
LED Traffic Signals 8" Yellow	$40
LED Traffic Signals Pedestrian 8 or 12"	$25
LED Traffic Signals Yellow Arrow	$40
LED Traffic Signals Green Arrow	$40

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, 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.

Table 112. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Cooling Tower-Decrease Approach Temp.	-	2	2	3	7
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
Night Covers for Display Cases	301	1,506	2,109	2,713	6,629
Strip Curtains for Walk-Ins	2	5	7	8	22
Faucet Aerators	178	889	1,245	1,601	3,913
Water Heater Thermostat Setback	13	70	96	125	304
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
Integrated Lighting, Classrooms & other buildings	-	10	10	20	40
Ceiling Insulation	2	3	7	8	20
Wall Insulation	2	3	7	8	20

	Year 1	Year 2	Year 3	Year 4	Total
Case Fans with ECM Motors	48	241	337	434	1,060
LED Traffic Signals 8" Red	5	8	10	20	43
LED Traffic Signals 12" Red	5	8	10	20	43
LED Traffic Signals 8" Green	5	8	10	20	43
LED Traffic Signals 12" Green	5	8	10	20	43
LED Traffic Signals 8” Yellow	5	8	10	20	43
LED Traffic Signals Pedestrian 8 or 12"	5	8	10	20	43
LED Traffic Signals Yellow Arrow	5	8	10	20	43
LED Traffic Signals Green Arrow	5	8	10	20	43
Total	**30,707**	**153,408**	**214,748**	**276,169**	**675,032**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 93,210 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 113. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 113. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	4,147	21,213	29,502	38,348	93,210
Capacity Savings (MW)	1	4	5	7	17
Total Resource Cost	$1,661,672	$7,318,748	$10,299,938	$13,667,782	$32,948,139
Direct Participant Costs	$866,615	$4,523,710	$6,421,778	$8,523,864	$20,335,967
Direct Utility Costs	$795,057	$2,795,038	$3,878,160	$5,143,918	$12,612,172
Customer Incentives	$490,057	$2,590,538	$3,669,160	$4,930,918	$11,680,672
CSP Labor	$50,000	$51,000	$52,000	$53,000	$206,000
CSP Materials and Supplies	$50,000	$51,000	$52,000	$53,000	$206,000
Other (Marketing and Trade Ally)	$205,000	$102,500	$105,000	$107,000	$519,500

	TRC Test
NPV Benefits	$83,209,895
NPV Costs	$28,118,752
Net Benefits (NPV)	$55,091,143
Benefit-Cost Ratio	**2.96**

Commercial and Industrial Custom Incentive Program 2010-2013
(Government/Non-Profit 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, 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 114 outlines eligibility parameters for the large commercial and industrial sector.

Table 114. Customer Eligibility Parameters

Customers Type	Government and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	Existing and new construction
Building ownership	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
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.

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 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 115. Projected Electric Measure Installations

	Year 1	Year 2	Year 3	Year 4	Total
Windows	1	2	3	5	11
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	1	3	5	7	16
Data Center - Lighting	1	3	5	7	16
Data Center - Plug Load	1	3	5	7	16
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	2	9	16	19	46

	Year 1	Year 2	Year 3	Year 4	Total
(Cooling DX)					
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
Total	**19**	**90**	**150**	**188**	**447**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 23,282 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 116. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 116. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	534	5,797	7,104	9,846	23,282
Capacity Savings (MW)	0.1	1	1	2	5
Total Resource Cost	$436,011	$1,654,946	$2,475,547	$3,241,146	$7,807,649
Direct Participant Costs	$189,010	$921,747	$1,397,163	$1,842,148	$4,350,068
Direct Utility Costs	$247,001	$733,199	$1,078,384	$1,398,998	$3,457,581
Customer Incentives	$134,001	$649,699	$992,384	$1,309,998	$3,086,081
CSP Labor	$25,000	$26,000	$27,000	$28,000	$106,000
CSP Materials and Supplies	$25,000	$26,000	$27,000	$28,000	$106,000
Other (Marketing and Trade Ally)	$63,000	$31,500	$32,000	$33,000	$159,500

	TRC Test
NPV Benefits	$20,495,052
NPV Costs	$6,663,676
Net Benefits (NPV)	$13,831,376
Benefit-Cost Ratio	**3.08**

HVAC Tune-Up Program 2010-2013
(Government/Non-Profit Sector)

Objectives
Please see Section 3.3, under HVAC Tune-Up Program.

Target Market
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.[69] Table 117 outlines eligibility targets for the government/non-profit sector.

Table 117. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3
Building Type	Commercial, institutional, municipal
Building Vintage	Existing buildings
Building ownership	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.

Ramp-up Strategy
Please see Section 3.3, under HVAC Tune-Up Program.

[69] Large commercial customers typically do not use rooftop HVAC systems for building conditioning.

Marketing Strategy

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.).

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 118. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Basic Package	18	92	129	165	**404**
Refrigerant/Airflow (Single Compressor)	4	22	32	41	**99**
Refrigerant/Airflow (Multiple Compressors)	-	1	1	2	**4**
Thermostat Modification	10	50	70	90	**220**
Economizer Adjustment	4	16	22	29	**71**
Thermostat Replacement	5	26	36	47	**114**
Economizer Control Package	3	15	20	27	**65**
Total	**44**	**222**	**310**	**401**	**977**

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 1,551 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 119. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 119. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	70	353	491	637	1,551
Capacity Savings (MW)	0.04	0.2	0.3	0.3	1
Total Resource Cost	$10,000	$34,064	$47,121	$61,751	$152,936
Direct Participant Costs	$2,950	$15,468	$21,943	$29,243	$69,604
Direct Utility Costs	$7,050	$18,596	$25,178	$32,509	$83,332
Customer Incentives	$3,050	$15,596	$22,178	$29,509	$70,332
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
Other (Marketing and Trade Ally)	$2,000	$1,000	$1,000	$1,000	$5,000

	TRC Test
NPV Benefits	$780,660
NPV Costs	$130,960
Net Benefits (NPV)	$649,701
Benefit-Cost Ratio	**5.96**

Renewable Energy Program 2010-2013
(Government/Non-Profit Sector)

Objectives
Please see Section 3.2, under Renewable Energy Program.

Target Market
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 120 outlines eligibility targets for the governmental/non-profit sector.

Table 120. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	Existing and new construction
Building ownership	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
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 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.

Table 121. Projected Participation

Year[27]	Year 1	Year 2	Year 3	Year 4	Total
Photovoltaic systems	1	4	5	5	15
Ground Source Heat Pumps	25	75	100	100	300
Total	26	79	105	105	315

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of 14,812 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 122. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 122. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
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	$1,371,575	$3,880,296	$5,236,227	$5,346,940	$15,835,038
Direct Participant Costs	$901,706	$2,772,494	$3,770,692	$3,849,876	$11,294,767
Direct Utility Costs	$469,869	$1,107,803	$1,465,535	$1,497,064	$4,540,271
Customer Incentives	$320,069	$1,003,803	$1,358,535	$1,387,064	$4,069,471
CSP Labor	$30,000	$31,000	$32,000	$33,000	$126,000
CSP Materials and Supplies	$25,000	$26,000	$27,000	$28,000	$106,000
Other (Marketing and Trade Ally)	$94,800	$47,000	$48,000	$49,000	$238,800

	TRC Test
NPV Benefits	$14,842,209
NPV Costs	$13,698,236
Net Benefits (NPV)	$1,143,973
Benefit-Cost Ratio	**1.08**

Direct Load Control Program 2010-2013
(Government/Non-Profit Sector)

Objectives
Please see Section 3.2, under Direct Load Control Program.

Target Market
As discussed in Section 3.2, this program will be available to all customer sectors except the large commercial and industrial sector,[70] 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 123. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	Existing buildings, new construction
Building ownership	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.

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.

[70] 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.

Marketing Strategy

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 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.

Table 124. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	230	230	450	910

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand savings 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 125. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 125. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Capacity Savings (MW)	-	0.2	0.3	1	1
Total Resource Cost	$18,000	$57,296	$61,560	$106,120	$242,976
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$18,000	$57,296	$61,560	$106,120	$242,976
Customer Compensation	$0	$7,296	$14,560	$29,120	$50,976
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
Other (Marketing and Trade Ally)	$9,000	$9,000	$9,000	$2,000	$29,000

	TRC Test
NPV Benefits	$47,237
NPV Costs	$208,071
	-$160,834
Benefit-Cost Ratio	**0.23**

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[71]. Customer eligibility parameters for the governmental/non-profit sector are outlined below.

Table 126. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	All
Building ownership	Owner or individually metered tenant

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

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.

[71] 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.

- 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 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 127. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	310	300	620	1,230

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 128. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 128. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
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
Customer Compensation	$0	$0	$0	$0	$0
CSP Labor	$7,000	$2,000	$2,000	$2,000	$13,000
CSP Materials and Supplies	$0	$2,000	$2,000	$3,000	$7,000
Other (Marketing and Trade Ally)	$11,000	$11,000	$11,000	$3,000	$36,000

	TRC Test
NPV Benefits	$165,444
NPV Costs	$51,100
Net Benefits (NPV)	$114,344
Benefit-Cost Ratio	**3.24**

Load Curtailment 2010-2013
(Government/Non-Profit Sector)

Objectives
Please see Section 3.4, under Load Curtailment Program.

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[72]. 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 129 outlines eligibility parameters for the governmental/non-profit sector.

Table 129. Customer Eligibility Parameters

Customers Type	Governmental and non-profit
Rate Class	GS1, GS3, SLAL
Building Type	Commercial, institutional, municipal
Building Vintage	All
Building ownership	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.

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.

[72] 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.

Marketing Strategy

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.

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.

Table 130. Projected Participation

	Year 1	Year 2	Year 3	Year 4	Total
Participants	-	10	10	30	50

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand reduction of 18 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 128. Key assumptions used in calculating measure-level savings are shown in Appendix E.

Table 131. Summary of Projected Benefits, Costs, and Cost-Effectiveness

	Plan Year				
Benefit/Cost Component	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Total**
Savings (MWh)	-	455	455	845	1,755
Capacity Savings (MW)	-	5	9	18	18
Total Resource Cost	$36,000	$382,000	$746,000	$1,421,000	$2,585,000
Direct Participant Costs	$0	$0	$0	$0	$0
Direct Utility Costs	$36,000	$382,000	$746,000	$1,421,000	$2,585,000
Customer Compensation	$0	$364,000	$728,000	$1,404,000	$2,496,000
CSP Labor	$32,000	$11,000	$11,000	$11,000	$65,000
CSP Materials and Supplies	$0	$3,000	$3,000	$5,000	$11,000
Other (Marketing and Trade Ally)	$4,000	$4,000	$4,000	$1,000	$13,000

	TRC Test
NPV Benefits	$1,537,137
NPV Costs	$2,157,314
	-$620,177
Benefit-Cost Ratio	**0.71**

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 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 savings. In addition, recognizing the expertise available through existing local labor and resources, as well as the importance of stimulating the local economy, 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. 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 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 provides a graphic representation of CSP functions and roles related to each of PPL Electric's proposed programs.

Figure 4. Program Implementation Strategy and Delivery Roles

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								CSP - 8	CSP-9	CSP-9	CBO	CSP-10/ CBO	PPL/CSP-2 other CSPs TBD
Customer Intake and Routing	CSP - 1				PPL/CSP-1	CSP-6	PPL	NA						
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									
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	PPL													
Internal														
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, 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).

Table 132. Potential Conservation Service Provider Program Delivery Roles

CSP #	CSP Role
1	**Administrative CSP:** will provide a call center with staff knowledgeable about PPL Electric's programs, customer enrollment, and routing to appropriate program contacts or actions, eligibility verification, application and rebate processing, and customer care.
2	**Advertising CSP:** is a third-party advertising and public relations firm, working in collaboration with PPL Electric's internal marketing and corporate communications departments. Their work would include the creative function, production, and media buys for television, radio, print, outdoor, and Internet. They would also consult with program CSPs and provide support for the development of brochures, bill inserts, and other promotional materials.
3	**Residential Energy Survey CSP**: will provide walk-through energy surveys for customers participating in the walk-through survey component of PPL Electric's Residential Energy Assessment & Weatherization Program.
4	**New Construction CSP:** 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.
5	**Quality Assurance/Technical Review CSP**: 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 merged into the scope of the EM&V CSP 11.
6	**HVAC Tune-up CSP**: is a dedicated HVAC Tune-up Program CSP that will administer and implement the HVAC Tune-up Program and train, support and interface with HVAC contractors.
7	**Compact Fluorescent Lighting CSP**: will develop and/or use existing relationships with manufacturers and retailers to develop, market and deliver PPL Electric's CFL 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.

8	**Appliance Recycling CSP**: will provide a turn key refrigerator, freezer and room air conditioning recycling program.
9	**Demand Response CSP**: may be one or two dedicated demand response contractor(s) that may administer and implement one or both of PPL Electric's Demand Response Programs: Direct Load Control and Load Curtailment on a turnkey basis and will be contracted to deliver firm load reductions to PPL Electric.
10	**E-Power Wise CSP:** will be 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	**EM&V CSP**: will provide evaluation, monitoring, and verification.
12	**Tracking CSP**: will develop, provide (or host) a program activity tracking, management, analysis, and reporting system.

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 133. Potential Trade Ally Program Delivery Roles

TA #	TA Roles
1	**HVAC and Appliance Dealers and Installers:** provide sales, equipment diagnostics, maintenance, and installation services for energy efficient equipment, such as HVAC systems 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.
2	**Comprehensive Audit Contractors:** 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	**Renewable Energy System Installers:** 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	**Residential and Commercial Builders**: are builders, developers, remodelers, contractors, architects, engineers or other market participants that design, develop and build residential and commercial buildings.
5	**Technical engineering and energy services firms:** 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, 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.

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 approximately 20 new internal staff to support delivery of the EE&C programs. The Company has developed a staffing plan that outlines 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 a Customer Programs Specialist 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 will evaluate work loads and staffing needs as its programs become operational. 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 tracking system, will provide the means for detecting early indications that programs are not meeting their performance targets. Customer participation will be 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 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, delivery method or the mix of measures. After the root causes have been identified, PPL Electric will take 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	5/1/2010	3/1/10-ongoing	3/1/10-6/1/2010	6/1/2010	6/1/2010		
Renewable Energy	Functional CSPs SEE BELOW			To Be Determined						
Direct Load Control	7/15/2009	8/15/2009	11/1/2009	12/1/2009	ongoing	NA	1/1/2010	1/1/2010		
Time of Use Rates	NA	NA	NA	11/1/2009***	NA	NA	1/1/2010***	1/1/2010		
Consumer Energy Use Education	TO BE DETERMINED			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		
Curtailment	7/15/2009	8/15/2009	11/1/2009	12/1/2009	ongoing	NA	1/1/2010	1/1/2010		
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							
Reporting Milestones										
Quarterly reporting**	10/15/2009	1/15/2009	4/15/2009	7/15/2009						
Annual Reporting	7/15/2010	7/15/2011	7/15/2012	7/15/2013						
Savings Reconciliation Report	3/1/2011	3/1/2010	3/1/2013	3/1/2014						
Review and adjust programs	Ongoing									

* limited notice to proceed subject to PUC approval of contract and EE&C Plan

** Assumes PUC approval of EE&C Plan by Nov. 1, 2009

*** Upon PUC approval of TOU Tariff Filing

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.

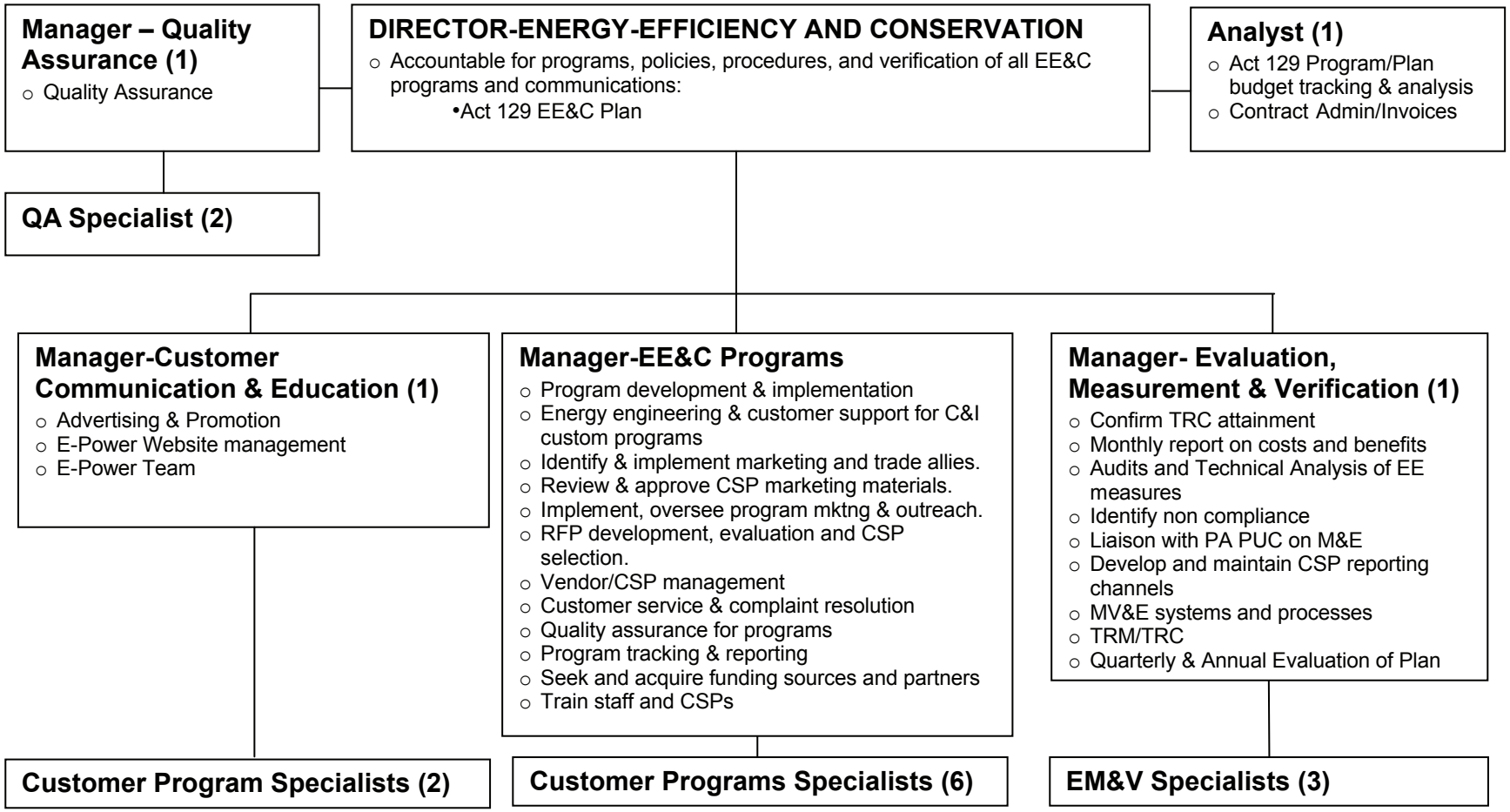
PPL Electric's Director of Energy-efficiency and Conservation Programs is responsible to manage the development and implementation of the Plan, including working with the Company's consultant to develop a portfolio strategy; plan and design programs; analyze, measure, track, and report cost-effectiveness, savings and demand reduction impacts; lead internal and external communications; 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 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 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 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 low-income programs.

Figure 6, below describes PPL Electric's anticipated EE&C management structure and staffing requirements.

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 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 will assign internal staff to oversee each of the programs offered through the EE&C Plan. Program staff will be responsible for overall program management, including the performance of relevant program CSP(s). PPL Electric staff will measure 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 intends to hire an EM&V CSP to provide independent evaluations of program impacts and additional evaluation services as needed. This CSP will conduct process evaluations of programs to identify gaps between program design and operations and will coordinate 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 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 approximately 25% of the total Plan budget, which is comparable to industry experience in other states. PPL Electric has defined "administrative costs" as all utility costs to develop, implement, and manage the Plan except payments to customers (rebates & incentives). These costs consist of all PPL Electric labor and material (approximately 5%), CSP labor and material (approximately 9%), marketing and trade-ally expenses (approximately 5%) and QA/QC

and EM&V (approximately 6%).[73] 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.

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).

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.

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.

[73] Administrative costs in the Plan do not include PPL Electric's share of the Commission's statewide EE&C Plan evaluation contractor. Those costs are outside of the act 129 cost cap.

The following table summarizes the procurement schedule for potential Conservation Service Providers.

Table 134. 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 132

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 quarterly, annual, and savings reconciliation reports to the Commission.

Quarterly Reports will be filed with the commission on the 15th 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.

Annual reports will be filed by July 15, 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 tabular and graphic formats.

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 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.

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 Energy Efficiency Management Information System (described in Section 5.2) will have up to date information and shall be available for audit, inspection and review by the Commission 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 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 anticipates that its system will be 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.).

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 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. The database will contain information on PPL Electric's customers and other CSP or utility data that may be considered 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.

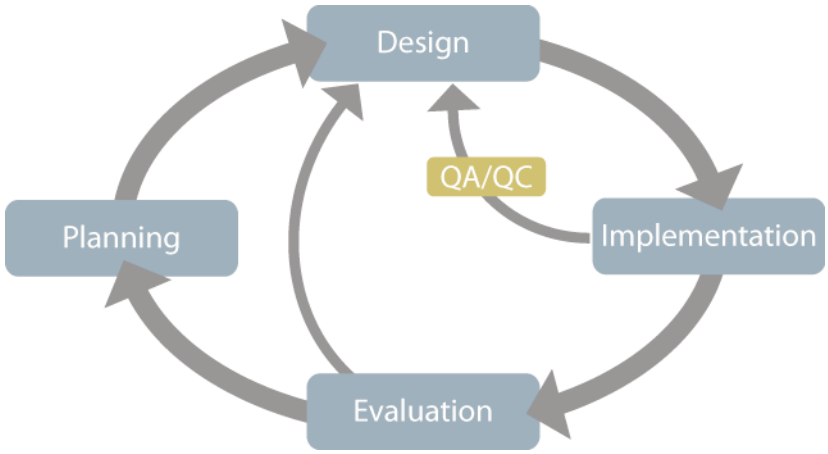
6. Quality Assurance and Evaluation, Measurement and Verification

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.

Figure 7. PPL Electric's Continuous Improvement Process



Quality assurance will be integral to the design and delivery of all programs in PPL Electric's EE&C Plan. Quality control measures will be employed at various stages of program design and implementation to ensure the highest 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 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 document and track all program and portfolio activity and calculate results. 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 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 trained in the use of the tracking system and 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 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.

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 CSP will develop a standard QA/QC manual customized for each program. 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 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.

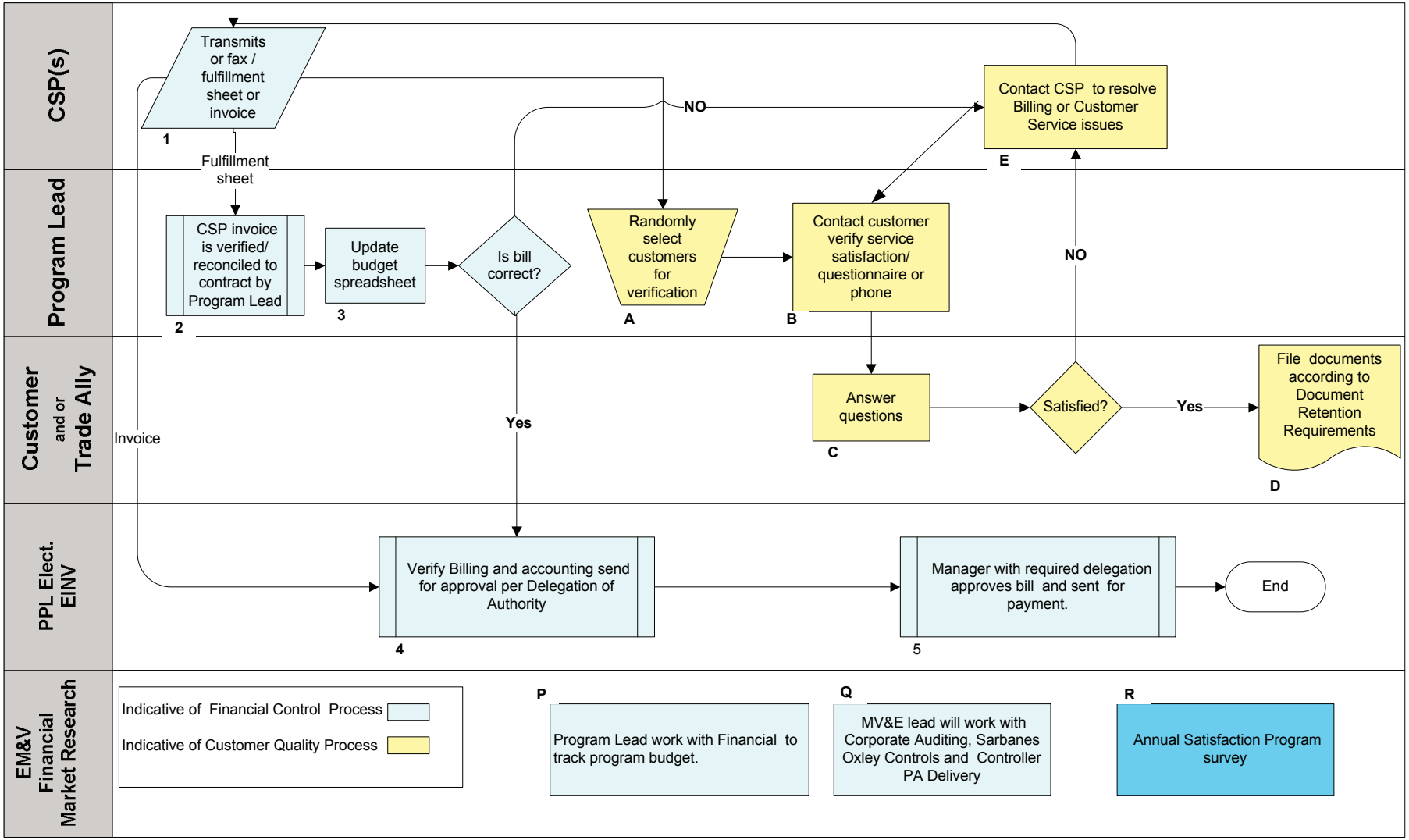
Process Characteristic:

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.

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.

Market and 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 evaluations will focus on assessing the effectiveness of programs in terms of market reach, measures adoption, and customer satisfaction. Market evaluations will 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 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 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). 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[74], the Model Energy-Efficiency Program Impact Evaluation Guide, 2007,[75] and the California Energy-efficiency Evaluation Protocols,[76] 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.

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.
- 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.

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[74] Efficiency Valuation Organization. IPMVP Public Library of Documents. http://www.evo-world.org/

[75] National Action Plan for Energy-efficiency (2007) Model Energy-efficiency Program Impact Evaluation Guide. http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf.

[76] State of California, Public Utilities Commission. California Evaluation Framework (June 2004). ftp://ftp.cpuc.ca.gov/Egy_Efficiency/CaliforniaEvaluationFrameworkSept2004.doc

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

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 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. 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.

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 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.

Table 135. Portfolio-Specific Assignment of EE&C Costs[77]

Residential Portfolio (excluding Low-Income)							
EE&C Program	**Cost Elements ($), excludes Common Costs**					**Totals (including Participant Costs)**	**Totals (excluding Participant Cost**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
Appliance Recycling Program	$3,120,000	$3,120,000	$1,392,300	$2,403,375	$0	$10,035,675	$10,035,675
Energy Efficiency Behavior & Education	$0	$0	$2,579,000	$0	$0	$2,579,000	$2,579,000
Residential Energy Assessment and Weatherization Program	$206,000	$206,000	$100,000	$2,243,818	$1,959,367	$4,715,185	$2,755,818
Direct Load Control Program	$359,000	$4,279,000	$800,000	$1,492,736	$0	$6,930,736	$6,930,736
Efficient Equipment Incentive Program	$122,000	$122,000	$296,500	$7,283,610	$6,885,205	$14,709,315	$7,824,110
Compact Fluorescent Lighting Campaign	$910,000	$910,000	$456,000	$11,610,830	$11,610,830	$25,497,660	$13,886,830
ENERGY STAR New Homes	$102,000	$102,000	$100,000	$2,515,114	$2,515,114	$5,334,228	$2,819,114
Time of Use Rates	$162,000	$553,000	$3,323,000	$0	$0	$4,038,000	$4,038,000
Renewable Energy Program	$48,000	$48,000	$45,000	$968,098	$2,362,015	$3,471,113	$1,109,098
Totals	$5,029,000	$9,340,000	$9,091,800	$28,517,582	$25,332,531	$77,310,913	$51,978,382
Common Costs						$6,579,540	$6,579,540
Total						$83,890,453	$58,557,922

[77] This is Table 6A in the Commission Template.

Residential Low-Income Portfolio							
EE&C Program	**Cost Elements ($), excludes Common Costs**					**Totals (including Participant Costs)**	**Totals (excluding Participant Costs)**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
E-Power Wise	$80,000	$80,000	$50,000	$332,142	$0	$542,142	$542,142
Direct Load Control Program	$72,000	$857,000	$161,000	$299,264	$0	$1,389,264	$1,389,264
Compact Fluorescent Lighting Campaign	$206,000	$206,000	$162,000	$2,476,384	$2,476,384	$5,526,767	$3,050,383
Time of Use Rates	$33,000	$112,000	$668,000	$0	$0	$813,000	$813,000
Low Income WRAP	$332,000	$332,000	$381,000	$27,993,367	$0	$29,038,367	$29,038,367
Totals	$723,000	$1,587,000	$1,422,000	$31,101,156	$2,476,384	$37,309,540	$34,833,156
Common Costs						$4,409,259	$4,409,259
Total						$41,718,799	$39,242,415

Commercial/Industrial Small Portfolio							
EE&C Program	**Cost Elements ($), excludes Common Costs**					**Totals (including Participant Costs)**	**Totals (excluding Participant Costs)**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
Commercial and Industrial Custom Incentive Program	$412,000	$412,000	$634,000	$13,371,495	$18,904,338	$33,733,833	$14,829,495
Direct Load Control Program	$168,000	$1,953,000	$361,000	$677,056	$0	$3,159,056	$3,159,056
Efficient Equipment Incentive Program	$950,000	$950,000	$2,390,000	$53,547,265	$94,671,437	$152,508,702	$57,837,265
Small Commercial HVAC Tune-up Program	$72,000	$72,000	$73,500	$936,759	$925,131	$2,079,390	$1,154,259
Time of Use Rates	$182,000	$81,000	$487,000	$0	$0	$750,000	$750,000
Compact Fluorescent Lighting Campaign	$12,000	$12,000	$30,000	$741,432	$741,432	$1,536,865	$795,433
Totals	$1,796,000	$3,480,000	$3,975,500	$69,274,008	$115,242,339	$193,767,847	$78,525,508
Common Costs						$9,939,934	$9,939,934
Total						$203,707,781	$88,465,442

Commercial/Industrial Large Portfolio							
EE&C Program	**Cost Elements ($), excludes Common Costs**					**Totals (including Participant Costs)**	**Totals (excluding Participant Costs)**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
Curtailment Program	$245,000	$51,000	$61,000	$11,544,000	$0	$11,901,000	$11,901,000
Commercial and Industrial Custom Incentive Program	$80,000	$80,000	$128,000	$2,677,212	$3,784,488	$6,749,700	$2,965,212
Efficient Equipment Incentive Program	$84,000	$84,000	$213,000	$14,202,382	$18,259,743	$32,843,125	$14,583,382
Totals	$409,000	$215,000	$402,000	$28,423,594	$22,044,231	$51,493,825	$29,449,594
Common Costs						$3,727,794	$3,727,794
Total						$55,221,619	$33,177,388

Governmental/Non-Profit Portfolio							
EE&C Program	**Cost Elements ($), excludes Common Costs**					**Totals (including Participant Costs)**	**Totals (excluding Participant Costs)**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
Commercial and Industrial Custom Incentive Program	$106,000	$106,000	$159,500	$3,086,081	$4,350,068	$7,807,649	$3,457,581
Direct Load Control Program	$12,000	$151,000	$29,000	$50,976	$0	$242,976	$242,976
Efficient Equipment Incentive Program	$206,000	$206,000	$519,500	$11,680,672	$20,335,967	$32,948,139	$12,612,172
HVAC Tune-Up Program	$4,000	$4,000	$5,000	$70,332	$69,604	$152,936	$83,332
Time of Use Rates	$13,000	$7,000	$36,000	$0	$0	$56,000	$56,000
Renewable Energy Program	$126,000	$106,000	$238,800	$4,069,471	$11,294,767	$15,835,038	$4,540,271
Curtailment Program	$65,000	$11,000	$13,000	$2,496,000	$0	$2,585,000	$2,585,000
Totals	$532,000	$591,000	$1,000,800	$21,453,533	$36,050,406	$59,627,738	$23,577,333
Common Costs						$2,984,473	$2,984,473
Total						$62,612,211	$26,561,806

Total- All Customer Sectors							
TOTAL- ALL SECTORS	**Cost Elements ($), excludes Common Costs**					**Totals (incl Participant Costs)**	**Totals (excl Participant Costs)**
	CSP Labor	*CSP Materials and Supplies*	*Other Marketing and Trade Ally*	*Utility Incentives / Customer Compensation*	*Participant Costs*		
Total	$8,489,000*	$15,213,000*	$15,892,000*	$178,769,873	$201,145,891	$419,509,863	$218,363,873
Common Costs						$27,641,000*	$27,641,000*
Total						**$447,150,863**	**$246,004,973**

* These are components of “Administrative Cost”.

Table 136. Allocation of Common Costs to Applicable Customer Sector[78]

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	$12,385,000	Proportional to direct costs for the sector	$2,948,071	$1,975,640	$4,453,749	$1,670,299	$1,337,241
EDC Materials and Supplies	$166,000	Proportional to direct costs for the sector	$39,513	$26,480	$59,696	$22,387	$17,924
Other Outside Services (Quality Assurance and EM&V)	$15,090,000	Proportional to direct costs for the sector	$3,591,956	$2,407,139	$5,426,489	$2,035,108	$1,629,308
Totals	$27,641,000		$6,579,540	$4,409,259	$9,939,934	$3,727,794	$2,984,473

[78] This is Table 6B in the Commission Template.

Table 137. Summary of Portfolio EE&C Costs[79]

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)	$51,978,382	$6,579,540	$58,557,922	$25,332,531	$83,890,453
Residential Low-Income	$34,833,156	$4,409,259	$39,242,415	$2,476,384	$41,718,799
Commercial/Industrial -- Small	$78,525,508	$9,939,934	$88,465,442	$115,242,339	$203,707,781
Commercial/Industrial -- Large	$29,449,594	$3,727,794	$33,177,388	$22,044,231	$55,221,619
Governmental/Non-profit	$23,577,333	$2,984,473	$26,561,806	$36,050,406	$62,612,211
Totals	$218,363,973	$27,641,000	$246,004,973	$201,145,890	$447,150,863

[79] This is Table 6C in the Commission Template.

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.[80] 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.[81] 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

[80] Implementation Order, at page 38
[81] 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.[82] 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.[83] Consistent with this provision of the Implementation Order, PPL Electric

[82] Ibid, p. 36
[83] 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 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[84] 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.:

$$\frac{Total\ Resource\ Benefits}{Total\ Resource\ Costs} \geq 1$$

where,

$$Total\ Resource\ Benefits = \text{NPV}\left(\sum_{year=1}^{measurelife}\left(\sum_{i}^{i=8760}(impact_i \times avoidedcost_i)\right)\right)$$

and,

Total Resource Cost = NPV (Incremental Measure Costs + 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[85]. 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. Bureau of Labor and Statistics (BLS) industry index for Electric Power Generation. Capacity costs were estimated using PJM base residual auction results through 2012.

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[84] See *California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects,* California Energy Commission, October 2001.

[85] Customer classes are defined as residential, small commercial and industrial, and large commercial and industrial.

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.

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. 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. 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, there are no net-to-gross adjustments except as stated in the TRM. Net-to-gross estimates will be included in evaluation efforts.

Program Cost Components

The cost component of the analysis considered 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) and ongoing operation and maintenance costs, where applicable. Utility costs include any customer payments and the expenses associated with program development, marketing, delivery, operation, and evaluation, monitoring and verification (EM&V), 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.

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).

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[86].

- Direct program costs associated with customer products and services (e.g., CFLs, direct installation measures, Home Energy-efficiency Kits, appliance recycling, etc.)

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.

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.

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).

8.2. Provide data tables

[86] 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.

Table 138. TRC Benefits Tables

Residential	TRC Benefits By Program Per Year ($000)													
					Program Benefits ($000)		Capacity ($000)		Energy ($000)		Load Reductions in kW		MWh Saved	
							Annual		Annual					
Program	TRC Ratio	Program Year	TRC	Program Costs ($000)	Annual	Lifetime (NPV)	Generation	Trans/Dist	Peak	Off Peak	Annual	Lifetime	Annual	Lifetime
Appliance Recycling Program	*9.84*	*2009*	$772	$772	$808	$6,652	$75		$392	$341	1,011	8,066	8,828	70,577
		2010	$3,088	$3,088	$4,444	$26,701	$349		$2,227	$1,869	4,046	32,264	35,311	282,309
		2011	$3,088	$3,088	$8,297	$26,607	$396		$4,281	$3,620	4,046	32,264	35,311	282,309
		2012	$3,088	$3,088	$12,649	$25,913	$620		$6,494	$5,534	4,046	32,264	35,311	282,309
Energy Efficiency Behavior & Education	*3.66*	*2009*	$625	$625	$414	$2,025	$38		$201	$175	515	2,575	4,525	22,625
		2010	$638	$638	$911	$2,093	$71		$456	$383	515	2,575	4,525	22,625
		2011	$651	$651	$1,417	$2,133	$67		$731	$619	515	2,575	4,525	22,625
		2012	$665	$665	$1,994	$2,171	$97		$1,024	$873	515	2,575	4,525	22,625
Residential Energy Assessment & Weatherization Program	*1.23*	*2009*	$364	$260	$31	$298	$3		$15	$14	34	325	342	3,560
		2010	$1,288	$747	$206	$1,471	$14		$100	$92	173	1,632	1,721	17,945
		2011	$1,315	$762	$392	$1,428	$17		$194	$181	173	1,614	1,721	17,825
		2012	$1,747	$987	$652	$1,810	$28		$321	$304	210	2,045	2,177	23,233
Direct Load Control Program	*0.23*	*2009*	$502	$502	$0	$0	$0		$0	$0	0	0	0	0
		2010	$1,536	$1,536	$331	$306	$331		$0	$0	4,798	4,798	0	0
		2011	$1,789	$1,789	$418	$358	$418		$0	$0	4,798	4,798	0	0
		2012	$3,103	$3,103	$906	$719	$906		$0	$0	9,596	9,596	0	0
Efficient Equipment Incentive Program	*2.61*	*2009*	$2,115	$1,077	$407	$5,281	$46		$182	$179	620	7,535	4,267	59,756
		2010	$3,650	$1,930	$1,238	$8,807	$131		$585	$522	1,282	15,678	7,574	101,439
		2011	$4,426	$2,383	$2,228	$9,924	$151		$1,102	$976	1,565	19,032	8,934	117,831
		2012	$4,519	$2,434	$3,353	$9,586	$237		$1,642	$1,474	1,565	19,032	8,934	117,831
Compact Fluorescent Lighting Campaign	*4.82*	*2009*	$1,683	$1,151	$1,036	$5,579	$126		$533	$378	1,687	9,133	10,893	58,979
		2010	$7,773	$4,157	$8,735	$35,569	$891		$4,663	$3,181	11,245	57,598	72,617	371,941
		2011	$7,937	$4,245	$16,787	$33,613	$1,052		$9,332	$6,403	11,245	54,307	72,617	350,687
		2012	$8,104	$4,334	$25,879	$31,803	$1,671		$14,282	$9,925	11,245	51,016	72,617	329,433
ENERGY STAR New Homes	*1.38*	*2009*	$538	$313	$44	$618	$4		$22	$19	55	830	486	7,290
		2010	$963	$517	$144	$1,175	$11		$72	$61	108	1,613	945	14,175
		2011	$1,896	$984	$347	$2,290	$16		$179	$151	215	3,226	1,890	28,350
		2012	$1,937	$1,005	$574	$2,234	$28		$295	$251	215	3,226	1,890	28,350
Time of Use Rates	*3.62*	*2009*	$1,117	$1,117	$0	$0	$0		$0	$0	0	0	0	0
		2010	$1,193	$1,193	$763	$4,061	$763		$0	$0	11,079	110,788	0	0
		2011	$1,193	$1,193	$964	$3,354	$964		$0	$0	11,079	110,792	0	0
		2012	$535	$535	$2,091	$5,882	$2,091		$0	$0	22,158	221,576	0	0
Renewable Energy Program	*1.51*	*2009*	$311	$121	$28	$396	$2		$12	$14	24	363	307	4,612
		2010	$847	$268	$120	$1,159	$7		$55	$59	72	1,078	919	13,782
		2011	$1,145	$356	$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	3.94		$77,311	$51,978	$99,260	$265,005	$11,644		$49,692	$37,924	120,643	829,669	406,164	2,711,814

Residential Low-Income	TRC Benefits By Program Per Year ($000)													
					Program Benefits ($000)		Capacity ($000)		Energy ($000)		Load Reductions in kW		MWh Saved	
							Annual		Annual					
Program	TRC Ratio	Program Year	TRC	Program Costs ($000)	Annual	Lifetime (NPV)	Generation	Trans/Dist	Peak	Off Peak	Annual	Lifetime	Annual	Lifetime
E-Power Wise	*1.42*	*2009*	$93	$93	$11	$75	$1		$5	$4	16	106	113	796
		2010	$157	$157	$48	$228	$4		$24	$19	49	323	353	2,437
		2011	$154	$154	$85	$211	$5		$45	$36	47	301	338	2,279
		2012	$138	$138	$121	$168	$7		$63	$51	38	241	278	1,830
Direct Load Control Program	*0.23*	*2009*	$101	$101	$0	$0	$0		$0	$0	-	0	0	0
		2010	$308	$308	$66	$61	$66		$0	$0	962	962	0	0
		2011	$359	$359	$84	$72	$84		$0	$0	962	962	0	0
		2012	$622	$622	$182	$144	$182		$0	$0	1,924	1,924	0	0
Compact Fluorescent Lighting Campaign	*4.74*	*2009*	$366	$252	$221	$1,190	$27		$114	$81	360	1,948	2,323	12,579
		2010	$1,685	$913	$1,863	$7,586	$190		$995	$678	2,398	12,285	15,488	79,328
		2011	$1,720	$933	$3,580	$7,169	$224		$1,990	$1,366	2,398	11,583	15,488	74,795
		2012	$1,756	$952	$5,520	$6,783	$356		$3,046	$2,117	2,398	10,881	15,488	70,262
Time of Use Rates	*3.61*	*2009*	$225	$225	$0	$0	$0		$0	$0	-	0	0	0
		2010	$240	$240	$153	$814	$153		$0	$0	2,221	22,212	0	0
		2011	$240	$240	$193	$673	$193		$0	$0	2,221	22,212	0	0
		2012	$108	$108	$419	$1,179	$419		$0	$0	4,442	44,420	0	0
Low Income WRAP	*0.79*	*2009*	$6,115	$6,115	$371	$4,638	$43		$180	$148	575	7,659	3,943	53,693
		2010	$6,820	$6,820	$867	$4,945	$87		$438	$343	686	8,867	4,423	58,229
		2011	$7,509	$7,509	$1,411	$5,140	$89		$742	$580	782	9,885	4,829	61,889
		2012	$8,595	$8,595	$2,107	$5,540	$141		$1,102	$865	941	11,561	5,500	67,943
Total	**1.42**		$37,310	$34,833	$17,302	$46,615	$2,272		$8,744	$6,286	23,421	168,330	68,562	486,060

Commercial / Industrial Small	TRC Benefits By Program Per Year ($000)													
					Program Benefits ($000)		Capacity ($000)		Energy ($000)		Load Reductions in kW		MWh Saved	
							Annual		Annual					
Program	TRC Ratio	Program Year	TRC	Program Costs ($000)	Annual	Lifetime (NPV)	Generation	Trans/Dist	Peak	Off Peak	Annual	Lifetime	Annual	Lifetime
Commercial and Industrial Custom Incentive Program	3.01	*2009*	$1,810	$1,015	$324	$3,624	$59		$149	$117	787	10,038	3,933	49,842
		2010	$6,982	$3,076	$2,373	$20,374	$348		$1,147	$877	4,268	56,063	22,154	291,584
		2011	$10,258	$4,458	$4,920	$23,722	$460		$2,539	$1,921	5,510	70,266	27,532	348,892
		2012	$14,684	$6,281	$9,380	$38,772	$908		$4,750	$3,722	8,686	114,083	45,129	593,482
Direct Load Control Program	0.23	*2009*	$232	$232	$0	$0	$0		$0	$0	-	0	0	0
		2010	$698	$698	$150	$139	$150		$0	$0	2,177	2,177	0	0
		2011	$814	$814	$189	$162	$189		$0	$0	2,176	2,176	0	0
		2012	$1,415	$1,415	$411	$326	$411		$0	$0	4,352	4,352	0	0
Efficient Equipment Incentive Program	3.32	*2009*	$7,838	$3,728	$1,791	$21,144	$294		$911	$586	3,946	50,828	21,961	282,516
		2010	$33,827	$12,780	$11,939	$102,237	$1,640		$6,382	$3,918	19,847	255,312	109,870	1,411,413
		2011	$48,058	$17,984	$26,155	$137,920	$2,244		$14,778	$9,133	27,775	357,213	154,112	1,979,492
		2012	$62,786	$23,346	$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	5.83	*2009*	$143	$105	$97	$505	$35		$42	$20	474	2,987	914	5,760
		2010	$465	$259	$654	$2,487	$200		$314	$140	2,432	15,580	4,689	30,042
		2011	$641	$348	$1,341	$3,272	$275		$741	$325	3,403	21,867	6,563	42,165
		2012	$830	$443	$2,233	$4,118	$488		$1,190	$555	4,387	28,166	8,460	54,312
Time of Use Rates	3.21	*2009*	$249	$249	$0	$0	$0		$0	$0	-	0	0	0
		2010	$199	$199	$126	$672	$126		$0	$0	1,833	18,329	0	0
		2011	$199	$199	$159	$554	$159		$0	$0	1,829	18,293	0	0
		2012	$103	$103	$346	$972	$346		$0	$0	3,662	36,617	0	0
Compact Fluorescent Lighting Campaign	4.36	*2009*	$86	$52	$57	$305	$9		$29	$18	126	684	696	3,766
		2010	$474	$243	$484	$1,944	$67		$261	$156	842	4,313	4,637	23,751
		2011	$484	$248	$914	$1,831	$79		$521	$314	842	4,067	4,637	22,394
		2012	$494	$253	$1,400	$1,730	$125		$792	$483	842	3,820	4,637	21,037
Total	**3.25**		$193,768	$78,526	$111,722	$537,781	$12,732		$60,454	$38,536	135,938	1,536,658	618,051	7,704,304

Commercial / Industrial Large	TRC Benefits By Program Per Year ($000)													
					Program Benefits ($000)		Capacity ($000)		Energy ($000)		Load Reductions in kW		MWh Saved	
							Annual		Annual					
Program	TRC Ratio	Program Year	TRC	Program Costs ($000)	Annual	Lifetime (NPV)	Generation	Trans/Dist	Peak	Off Peak	Annual	Lifetime	Annual	Lifetime
Load Curtailment Program	0.68	*2009*	$117	$117	$0	$0	$0		$0	$0	-	0	0	0
		2010	$1,797	$1,797	$1,594	$1,476	$1,421		$173	$0	21,450	21,450	2,145	2,145
		2011	$3,514	$3,514	$2,168	$1,859	$1,794		$374	$0	21,450	21,450	2,145	2,145
		2012	$6,473	$6,473	$4,246	$3,371	$3,626		$620	$0	37,050	79,950	3,705	3,705
Commercial and Industrial Custom Incentive Program	2.22	*2009*	$413	$224	$38	$331	$8		$17	$12	118	1,275	534	5,242
		2010	$1,347	$595	$324	$2,686	$54		$156	$115	693	8,874	3,705	46,989
		2011	$1,929	$842	$680	$3,201	$71		$351	$257	893	11,202	4,695	57,937
		2012	$3,061	$1,304	$1,441	$6,542	$155		$727	$558	1,724	22,769	9,495	124,967
Efficient Equipment Incentive Program	2.98	*2009*	$1,597	$773	$343	$4,300	$62		$161	$120	868	12,305	5,135	73,040
		2010	$6,573	$2,875	$2,051	$17,736	$307		$1,027	$717	3,768	52,905	22,126	311,687
		2011	$10,661	$4,730	$4,744	$27,465	$446		$2,519	$1,778	6,034	85,455	35,681	506,943
		2012	$14,012	$6,205	$8,471	$33,892	$836		$4,424	$3,210	7,770	110,045	45,945	652,808
Total	**2.36**		$51,494	$29,450	$26,099	$102,859	$8,781		$10,550	$6,768	101,818	427,681	135,311	1,787,607

Governmental / Non-Profit	TRC Benefits By Program Per Year ($000)													
					Program Benefits ($000)		Capacity ($000)		Energy ($000)		Load Reductions in kW		MWh Saved	
							Annual		Annual					
Program	TRC Ratio	Program Year	TRC	Program Costs ($000)	Annual	Lifetime (NPV)	Generation	Trans/Dist	Peak	Off Peak	Annual	Lifetime	Annual	Lifetime
Commercial and Industrial Custom Incentive Program	*3.08*	*2009*	$436	$247	$46	$406	$10		$21	$15	136	1,488	534	5,242
		2010	$1,655	$733	$575	$5,431	$84		$278	$213	1,084	14,534	5,797	78,091
		2011	$2,476	$1,078	$1,231	$6,204	$114		$634	$483	1,398	18,062	7,104	91,588
		2012	$3,241	$1,399	$2,210	$8,454	$213		$1,118	$879	1,892	24,848	9,846	129,383
Direct Load Control Program	*0.23*	*2009*	$18	$18	$0	$0	$0		$0	$0	-	0	0	0
		2010	$57	$57	$11	$10	$11		$0	$0	164	164	0	0
		2011	$62	$62	$14	$12	$14		$0	$0	163	163	0	0
		2012	$106	$106	$31	$25	$31		$0	$0	328	328	0	0
Efficient Equipment Incentive Program	*2.96*	*2009*	$1,662	$795	$338	$3,981	$56		$172	$111	745	9,572	4,147	53,189
		2010	$7,319	$2,795	$2,291	$19,734	$311		$1,221	$759	3,775	48,551	21,213	273,101
		2011	$10,300	$3,878	$5,010	$26,392	$426		$2,821	$1,763	5,263	67,648	29,502	379,338
		2012	$13,668	$5,144	$8,894	$33,104	$782		$4,960	$3,151	6,802	87,431	38,348	493,604
HVAC Tune-Up Program	*5.96*	*2009*	$10	$7	$7	$39	$3		$3	$2	36	229	70	442
		2010	$34	$19	$49	$188	$15		$24	$11	183	1,175	353	2,266
		2011	$47	$25	$101	$244	$21		$56	$24	255	1,631	491	3,146
		2012	$62	$33	$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	*1.08*	*2009*	$1,372	$470	$96	$1,309	$11		$42	$43	142	2,134	1,232	18,475
		2010	$3,880	$1,108	$418	$3,823	$39		$193	$185	429	6,438	3,706	55,583
		2011	$5,236	$1,466	$853	$4,930	$50		$408	$395	571	8,572	4,937	74,058
		2012	$5,347	$1,497	$1,339	$4,781	$81		$634	$624	571	8,572	4,937	74,058
Load Curtailment Program	*0.71*	*2009*	$36	$36	$0	$0	$0		$0	$0	-	0	0	0
		2010	$382	$382	$357	$330	$314		$43	$0	4,550	4,550	455	455
		2011	$746	$746	$489	$419	$396		$93	$0	4,550	4,550	455	455
		2012	$1,421	$1,421	$992	$788	$828		$164	$0	8,450	8,450	845	845
Total	**2.37**		$59,628	$23,577	$25,568	$121,078	$3,893		$12,974	$8,700	42,369	326,725	134,609	1,737,409

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 I5th Implementation Order, is outlined in Sections 1.2.2 – 1.2.1.3. Table 6 shows the fourteen proposed programs broken out by customer sector that comprise PPL Electric's EE&C Plan. As shown on that table, each customer class will have 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.

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 energy and peak load reductions to come from institutional customers. For PPL Electric, those targets are 134,609 MWh and 33 MW 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 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. The Company's EE&C Plan, as described herein, is designed to achieve energy savings by May 31, 2013 of more than 1.3 million MWh. Similarly, 66 Pa. C.S. § 2806.1(d) requires each EDC to achieve 4.5% 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 EE&C Plan meets that target by September 30, 2012.

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).

PPL Electric calculates that approximately 6% of its total load comes from low-income customers and, therefore, PPL Electric's EE&C Plan is designed to dedicate (make available) at least 6% 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 (6% 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. PPL Electric will participate in a Commission sponsored working group to identify the standardized data to be used in determining the proper proportion of low-income households for compliance with Section 2806.1(b)(i)(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 and will accrue energy and demand savings in that sector.

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). 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 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 focus on increasing governmental/non-profit sector participation, particularly among larger customers such as universities and hospitals. PPL Electric program management staff 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. 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 customer class will have an opportunity to choose among a range of programs such that no class of customers will have fewer than five program options. Thirteen of these 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. The focus of the coordination was to develop consistent programs and program design elements (such as the types and magnitude of customer incentives) where that consistency was 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. 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 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 PEDA 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 PEDA 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 dedicated staff to manage its customer communication and education efforts. 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 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 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 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 information to participants in specific programs, on corresponding, state and federal funding available. For example, participants in the Renewable Energy Program will be 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 site. 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 share customer success stories with customers and the public.