



17 North Second Street  
12th Floor  
Harrisburg, PA 17101-1601  
717-731-1970 Main  
717-731-1985 Main Fax  
www.postschell.com

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Andrew S. Tubbs

atubbs@postschell.com  
717-612-6057 Direct  
717-731-1985 Direct Fax  
File #: 140069

June 14, 2012

BY HAND

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2nd Floor North  
P.O. Box 3265  
Harrisburg, PA 17105-3265

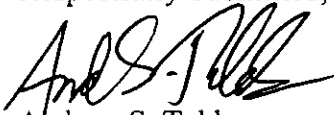
**RE: Petition of PPL Electric Utilities Corporation for Approval of its Energy Efficiency and Conservation Plan - Docket No. M-2009-2093216**

Dear Secretary Chiavetta:

Enclosed is PPL Electric Utilities Corporation's revised Energy Efficiency and Conservation Plan per Order dated May 25, 2012 in the above-reference proceeding.

Copies have been provided to the persons in the manner indicated on the certificate of service.

Respectfully Submitted,



Andrew S. Tubbs

AST/jl

Enclosures

cc: Honorable Elizabeth Barnes  
Certificate of Service

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Before the  
**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

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

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Docket No. M-2009-2093216

Compliance Filing to Reflect the Pa Public Utility Commission's  
Opinion and Order Entered May 25, 2012

Issued: May 29, 2012

(Redline compared to the Proposed EE&C Plan filed  
February 2, 2012)

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## Glossary of Terms and Abbreviations

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

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



## Summary of Modifications

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

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

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

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

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

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

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

## Section 1: Overview of Plan

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

34. **Clarify Rebates Caps** - PPL Electric proposes a general clarification for all programs and measures, except for the C&I Custom Incentive Program. Specifically, the Company clarifies that rebates paid cannot exceed the cost of the measure. This limitation was implied, but was not specifically mentioned in the EE&C Plan. In the C&I Custom Incentive Program, the rebate cap is unchanged and cannot exceed 50% of the project cost.
35. **Change Projected Participation for Heat Pump Water Heaters** - PPL Electric proposes to increase the projected number of rebates for heat pump water heaters from 230 to 2,200 in the Efficient Equipment Incentive Program. PPL Electric will add a pilot program for solar thermal domestic hot water heaters, for RTS customers only, a maximum of 50 units, with the same rebate as heat pump water heaters.
36. **Change Rebate for C&I Custom Incentive Program Technical Studies and Add Expiration Dates to Ensure Customers Can Implement the Project by May 2013** - PPL Electric proposes to change the rebate and eligibility requirements for C&I Custom Incentive Program technical studies. Rebates for technical studies will be calculated at the lesser of the following values:
  - If the study is a comprehensive audit of an entire facility, the reimbursement will be calculated as 10 cents per square foot;
  - For a feasibility study that addresses specific equipment or system, the reimbursement will be calculated as 0.5 cents per kWh/yr;
  - Studies will be capped at 25% of the potential custom incentive, 100% of the study cost, or \$50,000, whichever is less.
37. **Change Rebate for De-Lamping** - PPL Electric proposes to change the rebate structure in the Efficient Equipment Incentive Program for lighting retrofits that include de-lamping. Instead of one (1) de-lamping measure, the Company proposes five (5). This will better align rebates with the savings, *i.e.*, the specific number of lamps removed.
38. **Change Eligibility Requirements for Maximum Number of Air Conditioners in Appliance Recycling Program** - PPL Electric proposes to increase the maximum number of recycled air conditioners per customer from two (2) to four (4) in the Appliance Recycling Program. In select situations, such as multi-family housing units with master metering, the Company will allow more than 4 room air conditioners.
39. **Increase Projected Participation/Savings for Large C&I** - PPL Electric proposes to increase projected Large C&I savings by approximately 91,000 MWh/yr within the current budget.
40. **Increase Projected Participation and Savings for Compact Fluorescent Lighting Program; Reduce Projected Cost** - PPL Electric proposes to increase projected savings in the Compact Fluorescent Lighting Campaign program by approximately 100,000 MWh/yr within the current budget. PPL Electric proposes to decrease the projected cost of this program approximately \$2.5 million.

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

## Section 1: Overview of Plan

49. **Chiller Efficiency** - PPL Electric proposes to change the efficiency requirements for chillers in the C&I Custom Incentive Program to conform to revised Table 3-25 in the 2011 TRM.
50. **High Bay Lighting Eligibility Requirements** - The Company proposes to change eligibility requirements, in the Efficient Equipment Incentive Program, for T5 and T8 high bay fixtures. The modifications include changing ">125 watts" to ">100 watts," and deleting the requirement to install fixtures in an area with ceiling height greater than 15 ft.
51. **Clarify Eligibility Requirements for Commercial CFLs** - The Company proposes to delete the requirement that commercial CFLs must be purchased after July 1, 2010 to be eligible for a rebate in the Efficient Equipment Incentive Program. That requirement created customer confusion, since all other measures in that program are retroactive to July 1, 2009.
52. **Change Incentive for Pin-Based CFLs** - PPL Electric proposes to change the rebate for pin-based CFLs from \$30 per fixture to \$30 per fixture for commercial customers and \$5 per fixture for residential customers in the Efficient Equipment Incentive Program.
53. **Increase Estimated Participation for Air Source Heat Pumps, Dishwashers, and Clothes Washers. Increase Residential Lighting Retrofits. Adjust Rebates for Air Source Heat Pumps** - PPL Electric proposes to increase the estimated participation levels for these measures. Customers have shown more interest than estimated in PPL Electric's current EE&C Plan. Air source heat pumps increased from approximately 4,000 to approximately 16,500. Dishwashers increased from approximately 7,000 to approximately 25,000. Clothes washers increased from approximately 2,000 to approximately 44,000. The EE&C Plan assumed no residential lighting retrofits but some residential customers have replaced lighting such as T-12 linear fluorescent fixtures. PPL Electric has proposed discontinuing some of these measures as separate minor changes in this Petition. The Company proposes to reduce the rebate for SEER 15 ASHP from \$325 to \$100 and to reduce the rebate for SEER 16 ASHP from \$425 to \$200. The lower rebates should be sufficient to achieve the desired participation level and stay within budget.
54. **Reduce Estimated Participation for Central Air Conditioners, ENERGY STAR Light Fixtures, Programmable Thermostats, and High Efficiency Furnaces. Adjust rebates for Central Air Conditioners.** - PPL Electric proposes to decrease the estimated participation levels for these measures. Customers have shown less interest than estimated in PPL Electric's current EE&C Plan. Central air conditioners decreased from approximately 6,000 to approximately 5,000. ENERGY STAR light fixtures decreased from approximately 42,000 to approximately 700. Programmable thermostats decreased from approximately 10,000 to approximately 600. High efficiency furnaces for RTS customers decreased from approximately 500 to approximately 300. PPL Electric has proposed discontinuing some of the measures as separate minor changes in this Petition. The Company proposes to reduce the rebate for SEER 16 central air conditioners from \$300 to \$100. The lower rebate

should be sufficient to achieve the desired participation level and stay within budget.

55. **Add a Small C&I Direct Install Option to the Efficient Equipment Incentive Program** - PPL Electric proposes to add a direct install option for customers, called Direct Discount Services, which uses PPL Electric's network of authorized contractors to market, propose, and install lighting and refrigeration measures for Small C&I customers. Incentives are based on kWh/yr saved for each measure and are paid to the installation contractor, minimizing a customer's cash outlay. See Black-line EE&C Plan at Section 3.3. Also, the authorized contractor completes and processes all required paperwork including the complex PA Lighting Spreadsheet.
56. **Add Direct Mail Option for the E-PowerWise Kits** - PPL Electric proposes to add a direct mail option for E-PowerWise kits. See Black-line EE&C Plan at Section 3.2.1. The Company will mail, directly to qualified customers, energy conservation educational material and a card which the customer would return in order to receive an energy savings kit.

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

**1. Elimination of the TOU Program**

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

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

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

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

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

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

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

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

PPL Electric proposes to increase the projected cost of the Direct Load Control Program from approximately \$11 million to approximately \$12 million. In addition, there are



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changes to the projected participation levels between sectors including no allocation to the Low-income sector since PPL Electric will not income-qualify participants, a reduction to the Small C&I sector, and an increase to the Residential sector.

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

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

Overview of Plan

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

**1.1.1. Summary Description of Plan**

PPL Electric Utilities Corporation (PPL Electric or the Company) hereby submits its Revised Energy-efficiency and Conservation Plan (EE&C Plan or the Plan) in compliance with Section 2806.1 (b)(1)(i) of Act 129 (The Act). This filing is being made pursuant to the January 16, 2009 Implementation Order (Implementation Order) of the Pennsylvania Public Utility Commission (the Commission) at Docket M-2008-2069887 and the Commission's Opinion and Order entered on October 26, 2009 at Docket M-2009-2093216. The 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. Residential Lighting Program (formally called "CFL Program")
4. Appliance Recycling Program
5. Renewable Energy Program
6. Direct Load Control Program
7. Energy-efficiency Behavior & Education
8. Low-income WRAP
9. Low-income E-Power Wise
10. Commercial and Industrial Custom Incentive Program
11. HVAC Tune-Up Program
12. Load Curtailment Program

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

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

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

These programs are designed as a portfolio of options which 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 these programs together as an integrated portfolio designed to meet Act 129 energy-efficiency and conservation goals in PPL Electric's service territory.<sup>2</sup> Further revisions were approved by the Commission on February 17, 2010.<sup>3</sup> On September 15, 2010, PPL Electric filed a petition seeking approval to change certain aspects of the previously approved EE&C Plan. After reviewing comments and reply comments filed in response to the Company's compliance filing, the Commission approved PPL Electric's petition on May 6, 2011.<sup>4</sup>

### 1.1.2 Plan Objectives

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

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

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

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

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

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

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

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- Designates activities to achieve 10% of total Plan reductions from institutional facilities—local governments, school districts, colleges, and nonprofit organizations. Institutional customers are eligible for the same programs as their underlying rate class (typically small or large commercial and industrial) but marketing and other delivery details will be designed to address the specific needs of institutional customers.
- Designates activities to achieve the required proportion of reductions from low-income customers. In accordance with the Commission's Low-Income Working Group Report dated April 27, 2010, an EDC is compliant with the Act 129 low-income requirement if the number of measures available to low-income customers is consistent with the percentage of low-income household usage shown in the last column on Table 1 of the LIWG Report. For PPL Electric, that percentage is 8.64%. PPL Electric's EE&C Plan is designed to dedicate (make available) at least 8.64% of the total measures to low-income customers. Approximately 63% of the total unique measures in PPL Electric's EE&C Plan are available to low-income customers. This percentage of measures available to low-income customers significantly exceeds the proportion required by Act 129 (8.64% in PPL Electric's case). Those measures are expected to achieve approximately 2 % of the energy consumption and peak load reductions from the low-income customer sector. In addition, based on the program year 2 impact evaluation, it is likely that approximately 6% of the total energy savings will be from low-income customers including participation in non low-income programs. A list of measures is included in Appendix G.
- Offers at least one energy-efficiency and one demand response program to every customer class.
- Provides a reasonable mix of energy-efficiency and demand response programs for all customers.
- Is cost-effective, based on a Total Resource Cost Test (TRC) criterion, for the entire portfolio.
- Allocates the cost of measures to the customer class(es) that receive(s) the benefit of those measures.
- Defines the roles and responsibilities of Conservation Service Providers.
- Leverages economies of scale and other efficiencies by offering programs across multiple customer sectors, as appropriate.
- Includes procedures to measure, evaluate, and verify performance of the programs and the Plan as a whole. These procedures are described in PPL Electric's Evaluation Plans which are submitted separately and approved by the Commission's Statewide Evaluator.
- Outlines a process for annual, independent evaluation of the results and the cost-effectiveness of the Plan using the Standards for the Participation of Demand Side Management Resources—Technical Reference Manual at Docket No. M-00051865 (TRM), wherever applicable.

- Proposes a mechanism for recovery of all applicable costs.

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

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

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

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

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

PPL Electric does not dictate where the customer must obtain energy-efficiency products and services. Those decisions are the customer's.

- Reliance on CSPs, trade allies (TAs), and market partners to effectively promote and deploy programs. PPL Electric expects to utilize approximately 12 CSPs to deliver services in support of its EE&C programs, with some CSPs operating as turnkey program delivery contractors, and others providing specialized functions across multiple programs.
- Programs that are easy for the customers to understand, accept, enroll, and participate, while ensuring the Company collects the data and documentation required by the Audit Plan, TRM, SWE Guidance Memos, and other Commission requirements.
- Strategic delivery of programs across multiple customer classes where the program offering and delivery process is compatible with multiple customer and building types. For example, PPL Electric's Efficient Equipment Incentive Program is available to all customer classes. The program offers different equipment measures appropriate to each customer class and building type, but utilizes similar administrative and delivery mechanisms as well as similar quality assurance approaches to reduce customer confusion and leverage efficiencies associated with delivery of discreet program functions.
- For many programs, retroactive customer eligibility for customers who install or commit to install qualifying equipment and services between July 1, 2009 and Commission approval of the Plan. In addition to increasing PPL Electric's likelihood of meeting its targets, especially the 2011 energy reduction target and the peak load reduction target, this approach will allow some customers to take advantage of Federal stimulus funding through the American Recovery and Reinvestment act (ARRA), along with Act 129 funding, to install energy-efficiency projects.

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

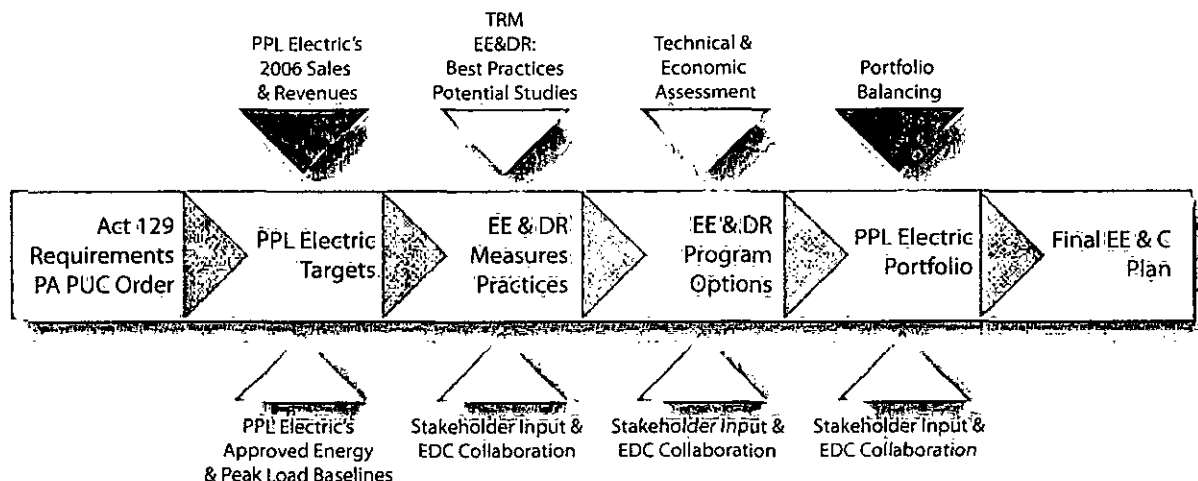
### **1.1.2 Plan Development Process**

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

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

December 31, 2006, was used to determine the 2% expenditure cap established by Act 129.

**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 all residential energy-efficiency and demand response programs to low-income customers as part of its Plan.



### 1.2.1.2. Assessment of Resource Potentials

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

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

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

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

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

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

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

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achieving savings in the area of 0.8% per year.” In contrast, Act 129 requires that EDCs achieve nearly 1% incremental savings each year assuming all EDCs start to fully implement their programs in May 2010. Additionally, Act 129 has established aggressive peak load reduction targets. Only a few other states, such as California and Oregon have established peak reduction goals.

- Achieving the goals while remaining under the spending cap of 2% of revenue will be challenging. Of states spending in excess of 2% of revenue, all are achieving incremental savings of less than 1.1%.
- Lighting accounts for between 63% and 92% of savings. Any plan must include significant savings from lighting.
- Energy savings can generally be achieved more cost-effectively in the nonresidential sector than in the residential sector.

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

### 1.2.1.3. Developing the Portfolio

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

*Step 1: Compile an extensive list of energy-efficiency and conservation measures and practices.* Only measures based on proven, commercialized technologies that are covered in the TRM or are viable custom measures whose savings can be substantiated with a site specific measurement and verification plan were considered. For each measure considered for the Plan, data on technical specifications and potential end-use energy and peak demand impacts and costs were compiled primarily from the TRM and from PPL Electric's experience in program years 1 and 2. Other technical sources, including the Database for Energy-Efficiency Resources (DEER), the Consortium for Energy-efficiency (CEE) and ENERGY STAR were also consulted. Peak load impacts for each measure were estimated from the Technical Reference Manual or hourly end-use load shapes. Hourly end-use load shapes were developed from engineering models for the Midwestern region of the U.S. which were then calibrated to long-term weather conditions in PPL Electric's service area.

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

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

	Residential	Small C&I	Large C&I
Energy*	\$46.02/MWh	\$46.02/MWh	\$46.02/MWh
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 <sup>8</sup>
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. For the original EE&C 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. For this revised EE&C Plan, projections for program years 3 and 4 were based primarily on PPL Electric's experience in programs years 1 and 2.*

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

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

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

*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 new programs where no prior local implementation experience or infrastructure exists, savings are expected to begin to accrue at lower levels (usually 25% of plan-level targets) and ramp up gradually over the course of the Plan. For this revised EE&C Plan, projections for program years 3 and 4 were based primarily on PPL Electric's experience in programs years 1 and 2.

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

#### 1.2.1.4. Considering the Role of Uncertainty

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

The Act requires cumulative energy savings of 3% by May 2013. Assuming utilities begin full implementation of their plans by May 2010, the established target translates into incremental yearly savings of about 1% of projected annual sales, on average. This is an aggressive target compared to recent energy-efficiency resource standards (EERS) adopted in other states and relative to that achieved by programs considered successful in other jurisdictions. A review of EERS proposed or adopted in other states indicates markedly lower targets in most cases.<sup>9</sup> Moreover, in states with EERS at the same level as those required by the Act or higher, targets are expected to be met through additional mechanisms such as codes and standards (e.g., California), transmission and distribution efficiency improvements (e.g., Washington), or both (e.g., Minnesota). A recent study by ACEEE further indicated in 2006, the latest year for which data were available, only three states – Rhode Island, Vermont and Connecticut – were able to achieve annual savings of 1 percent or greater.<sup>10</sup>

The Plan strives to exceed the reduction targets by approximately 10% to provide a reasonable margin for uncertainty, primarily realization rates (determined 6 months or more after the end of each program year) that are worse than projected. Depending on progress, budgets, and actual realization rates during years 3 and 4, PPL Electric may

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

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

decide to increase or reduce that margin. PPL Electric notes that there are several uncertainties associated with its ability to achieve these targets within the constraints of the Act's requirements. The major uncertainties fall into the following categories:

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

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

PPL Electric has also designed its programs to rely on existing market delivery mechanisms to identify and implement energy-efficiency products and services. This should streamline the process and allow customers to identify and implement projects as quickly as possible, assuming trained energy-efficiency and HVAC contractors are available. PPL Electric has also included a Custom Incentive Program to provide flexibility for commercial and industrial customers to implement measures that meet their specific needs.

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

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

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

The second major uncertainty is the technical challenge, cost, and logistics for obtaining peak load reductions. The Act requires a reduction of 4.5% of annual system peak demand in the 100 hours of highest demand (equivalent to 297 MW for PPL Electric) by May 31, 2013, as measured by the Company's weather normalized peak demand for June 1, 2007, through May 31, 2008. In its Implementation Order, the Commission held this determination should be limited to June, July, August, and September.<sup>11</sup> Accordingly, an EDC must demonstrate its EE&C Plan meets the requirement for the period June 1, 2012, through September 30, 2012.<sup>12</sup> Demand reductions from implementation of energy-efficiency measures in the Plan are expected to produce approximately 130 MW of peak coincident savings. In many cases, changes to the TRM have reduced the peak load savings of measures compared to the assumptions in PPL Electric's original and current EE&C Plans. The remaining peak load reductions will be obtained through demand response programs, including approximately 156 MW from commercial and industrial curtailment contracts and approximately 36 MW from direct load control (DLC) of residential and small C&I customers. These MW values are grossed-up to reflect transmission and distribution losses (see footnote on next page).

The proposed EE&C Plan has very little cushion in excess of the peak load reduction compliance target. In many cases, changes to the TRM have reduced the peak load savings from energy efficiency measures compared to the assumptions in PPL Electric's original and current EE&C Plans. Also, PPL Electric continually re-balances its mix of measures to achieve both the demand reduction and the energy reduction targets. At times, these reduction targets conflict with each other. For example, efficient heating equipment may contribute significant energy savings but no peak load reductions. Air conditioning equipment contributes peak load reductions but minimal energy savings.

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

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

*Additional peak load reductions from demand response measures (direct load control and load curtailment) are very costly and cannot be increased because of budget constraints.*

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

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 Load Curtailment CSP will “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 to meet the target (an average number of MW reductions over 100 hours). PPL Electric’s Load Curtailment Program includes 300 MW of curtailable load customers for 50 hours. This is equivalent to 150 MW over 100 hours.<sup>14</sup> Since it is unlikely that PPL Electric could perfectly predict that these 50 hours will be in the top 100 hours, PPL Electric may have to call more than 50 hours to account for hours that “drop out” (i.e. originally expected those events to be in the top 100 hours but they were superseded by higher loads later in the summer). This cost exposure is up to \$10 million for up to 10 additional hours) and is not included in this EE&C Plan because the likelihood is uncertain and because there is not enough money within the current portfolio cost forecast to accommodate this contingent funding. There is another uncertainty caused by the coordination of Act 129 load curtailment programs and PJM load curtailment programs. Currently, PJM rules do not account for Act 129 events in PJM’s customer baseline methods. Should an Act 129 event be called during the baseline or adjustment window preceding a PJM emergency or economic event, PJM baselines and customer performance calculations would be adversely affected. In essence, the customer’s participation in Act 129 load curtailment could significantly*

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

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

reduce the customer's revenue from PJM programs, effectively creating "competition" between PJM and Act 129 load curtailment programs. Since a customer's revenue and exposure to non-compliance penalties from PJM programs could be much greater than their revenue from Act 129 programs, customers may be reluctant to participate in Act 129 load curtailment. Another concern is that participation in Act 129 load curtailment could reduce a customer's PJM Peak Load Contribution, reducing the ability for that customer to achieve load reductions for PJM emergency programs in subsequent years. That would discourage customers from participating in Act 129 load curtailment or, if the customer participates in Act 129 curtailment, PJM will have fewer resources in the following year.

Because there is no firm commitment to continue demand response programs beyond the summer of 2012, PPL Electric is limited to demand response contracts that expire on 9/30/2012 (the compliance date for peak load reductions). Those short-term contracts are more costly than longer-term contracts that provide demand response beyond 2012 because the recovery of fixed CSP costs will be compressed into very few years. That is one of the reasons that cost-effectiveness is poor for demand response programs in this EE&C Plan.

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

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

#### 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-



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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. This collaborative process increased the likelihood of success in implementing the portfolio. This process also helps expedite approval of revisions to the EE&C Plan, thereby allowing more time to prepare for implementation and expanding opportunities for consumer savings. Further, PPL Electric solicited formal and informal input from stakeholders periodically throughout the Plan delivery period to improve programs. PPL meets formally 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. PPL Electric also meets frequently with its CSPs, trade allies (equipment installers, engineers, consultants, equipment dealers, retailers, etc. who provide products and services to customers), and potential CSPs (companies who would like to contract with PPL Electric to provide EE&C products and services) to review EE&C Plan progress, consider new products and services, and to identify opportunities to improve EE&C programs.

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

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

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Meeting	Invitees or Attendees	Topics Discussed
mail communication.		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.
April 28, 2010	Stakeholders	Review EE&C Plan results and proposed changes.
October 20, 2010	Stakeholders	Review EE&C Plan results and proposed changes.
May 2, 2011	Stakeholders	Review EE&C Plan results and proposed changes.
October 18, 2011	Stakeholders	Review EE&C Plan results and most of the proposed changes. Some proposed changes were identified after this meeting.

\* 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

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- Penn Future
- PPLICA
- PUC Staff
- PA Treasury Department

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

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

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

Table 3. Portfolio Summary of Lifetime Costs and Benefits <sup>15</sup>					
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%	\$122,505	\$360,690	\$238,186	2.94
Residential Low-Income	8%	\$31,321	\$28,964	-\$2,357	0.92
Commercial / Industrial Small	8%	\$133,558	\$152,929	\$19,370	1.15
Commercial / Industrial Large	8%	\$56,683	\$183,474	\$126,790	3.24
Governmental / Non-Profit	8%	\$88,065	\$123,303	\$35,238	1.40
<b>Total</b>		<b>\$432,132</b>	<b>\$849,360</b>	<b>\$417,228</b>	<b>2.0</b>

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

**Table 4. Summary of Portfolio Energy and Demand Savings<sup>16</sup>** [5/25/12 NOTE not part of the filing: there are inconsistencies between some data on this table and Tables 5a and 112. Use Tables 5a and 112. Will be corrected in a subsequent filing.]

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

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

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

	Direct Costs										Common Costs, All Years		All Costs, All Years	
	Program Year 2009		Program Year 2010		Program Year 2011		Program Year 2012		Total					
	Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget		Portfolio Budget	
	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%
Residential Portfolio Annual Budget	\$5,605	63%	\$19,058	39%	\$13,042	19%	\$17,093	23%	\$54,797	27%	\$11,715	27%	\$66,512	27%
Residential Low-Income Portfolio Annual Budget	\$3,054	34%	\$9,611	20%	\$9,364	14%	\$7,261	10%	\$29,290	15%	\$6,262	15%	\$35,552	15%
Commercial/Industrial Small Portfolio Annual Budget	\$170	2%	\$8,378	17%	\$24,086	35%	\$38,594	52%	\$71,228	35%	\$15,227	35%	\$86,456	35%
Commercial/Industrial Large Portfolio Annual Budget	\$75	1%	\$5,553	11%	\$15,047	22%	\$8,540	11%	\$29,216	14%	\$6,246	14%	\$35,461	14%
Governmental/Non-Profit Portfolio Annual Budget	\$11	0%	\$6,463	13%	\$7,483	11%	\$3,360	4%	\$17,317	9%	\$3,702	9%	\$21,019	9%
Total Portfolio Annual Budget	\$8,916	100%	\$49,063	100%	\$69,023	100%	\$74,848	100%	\$201,849	100%	\$43,151	100%	\$245,000	100%

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

Note: Total may not be exact due to rounding.

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

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

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

Notes for Table 5a:

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\* Gross verified energy savings for measures installed thru 5/31/13.

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

\*\*\* Composite for all sectors.

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



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

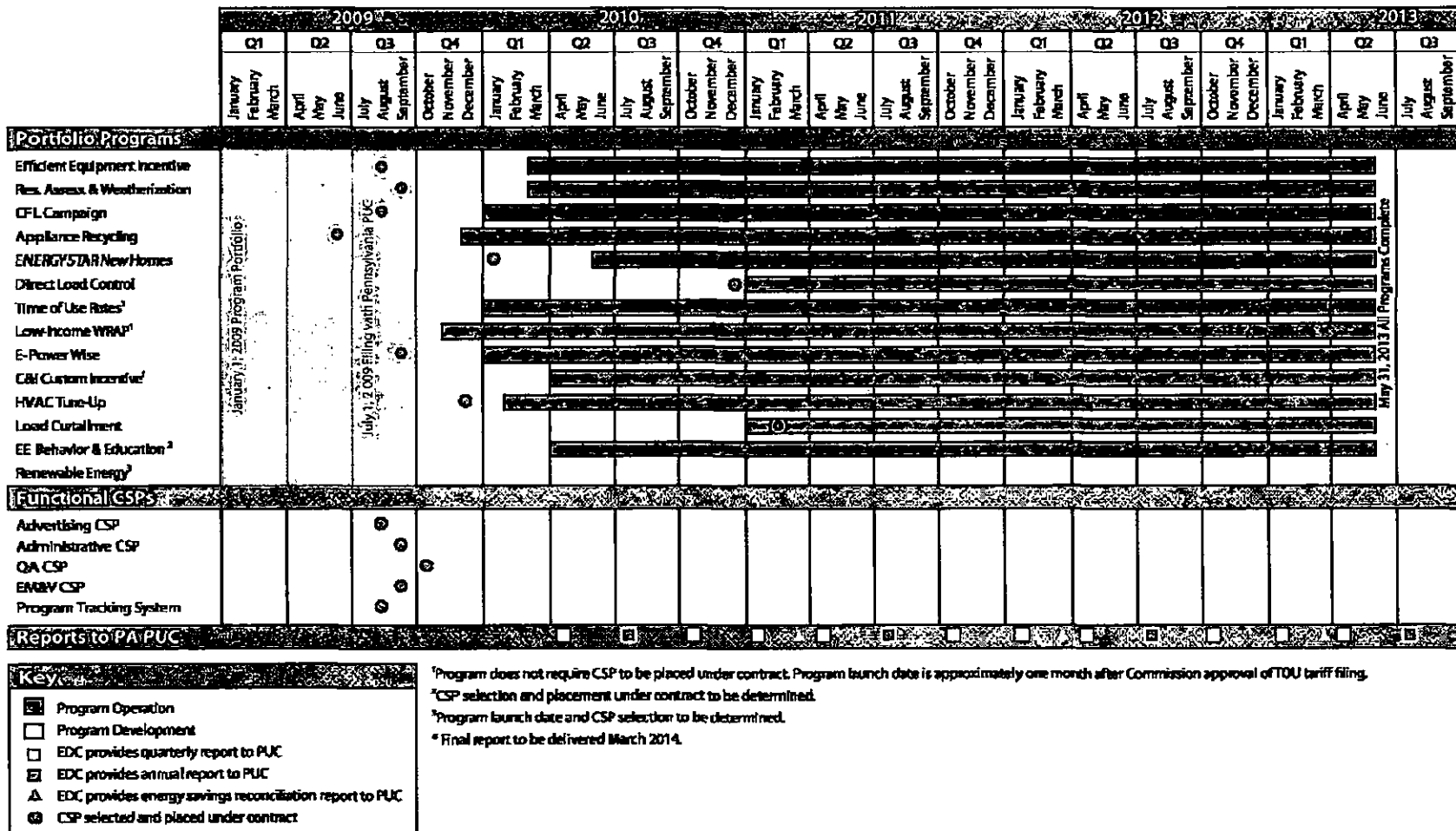
As described earlier, PPL Electric has started to develop the infrastructure (staff, systems, processes, CSPs, *trade allies*, *market partners*, etc.) that will be necessary to launch programs and ramp up quickly. PPL Electric has an aggressive schedule (see Section 4.1.5) for issuing Requests for Proposals (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.

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Figure 2. Program Implementation Schedule



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

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

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

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

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

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

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

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

The Company implemented an electronic program management, tracking, reporting, and analysis system, which will allow program activities to be tracked in near real-time. This system generates reports and queries to allow ongoing monitoring, management, analysis, and reporting of activities.

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

### 1.6.3. Quality Assurance

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

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

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

### 1.6.4. Evaluation Process

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

### 1.6.5. Updating the Plan

As discussed previously, developing a well-balanced plan within the confines of the Act was a complex process, which relied on a large number of technical, economic and market assumptions. Over the life of the Plan, PPL Electric expects that many of these assumptions will have to be revisited, refined, and, where necessary, revised to reflect updated market conditions, variations from the Plan's estimates, customer preferences, experience in Pennsylvania or other states, cost-effectiveness, new technologies and practices, new state or federal energy standards, results of the annual reviews, and for other factors. The extent to which such revisions may be called for and whether they will

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

### **1.7. Summary Description of Cost Recovery Mechanism**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Section 1: Overview of Plan

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
Commercial/ Industrial Large Portfolio Programs	<i>Appliance Recycling</i>	Working, residential refrigerators, freezers and room AC	Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.	2010-2012	210	0.0	0%	0.0%
	<i>Custom Incentive</i>	C&I; New and Existing Facilities	Incentives for whole-building efficiency, technical studies and installation of custom efficiency Efficient Equipment Incentive Program.	2010-2012	2,104,092	11.3	11%	18%
	<i>Efficient Equipment Incentive</i>	All customers	Prescriptive rebate for the purchase of energy efficient electric equipment.	2010-2012	1,321,932	9.0	7%	11%
	<i>HVAC Tune-up</i>	Large C&I with packaged HVAC systems	Incentives for inspection, tune up and retrofits of packaged HVAC equipment.	2010-2012	4,411	0.0	0%	0%
	<i>Load Curtailment</i>	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	0	140.4	0%	0.0%
	Totals for C/I Large Sector				3,430,646	160.8	18%	29%

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

	Program Name	Program Market	Program Two Sentence Summary	Program Years Operated	Net Lifetime MWh/yr Savings	Net Peak Demand kW Savings	Percentage of Portfolio MWh/yr savings (%)	Percentage of Portfolio Total Lifetime MWh/yr savings (%)
Governmental/ Non-Profit Portfolio Programs	<i>Appliance Recycling</i>	Working, residential refrigerators, freezers and room AC	Free pick up, environmentally responsible recycling and disposal of appliances and participant rebate.	2010-2012	14	0.0	0%	0%
	<i>Custom Incentive</i>	Govt./NP; New and Existing Facilities	Incentives for whole-building efficiency, technical studies and installation of custom efficiency equipment.	2010-2012	663,847	0.5	3%	6%
	<i>Direct Load Control</i>	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.	2010-2012	0	0.0	0%	0%
	<i>Efficient Equipment Incentive</i>	All customers	Prescriptive rebate for the purchase of energy efficient electric equipment.	2010-2012	975,219	29.3	5%	8%
	<i>HVAC Tune-up</i>	Govt./NP facilities with packaged HVAC systems	Incentives for inspection, tune up and retrofits of packaged HVAC equipment.	2010-2012	145	0.0	0%	0.0%
	<i>Curtailment</i>	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	0	15.9	0.0%	0.00%
	<i>Renewable Energy</i>	Existing and new facilities	Prescriptive rebates for the installation of renewable energy equipment	2010-2012	148,085	3.8	1%	1%
	Totals for Gov't/NP Sectors				1,787,311	49.5	10%	15%
Total for Plan					11,699,133	372 <sup>25</sup> 322 <sup>26</sup>	100%	100%

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

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

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

- Table 3 provides a summary of estimated lifetime costs and benefits by program for PPL Electric's entire portfolio.
- Table 4 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 includes the overall estimated portfolio budget broken out by sector and program year.
- Table 5a includes a summary of estimated program costs and savings by customer sector and by program.
- Table 6 provides a summary of estimated net lifetime energy savings and peak demand savings for each program in PPL Electric's portfolio, segregated by customer sector.
- Table 8 summarizes the estimated cost-effectiveness of programs by sector.

## 2.3. Budget and Parity Analysis

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

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

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

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

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

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

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

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

Please see Section 9.1.1 for additional information.

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

### 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.

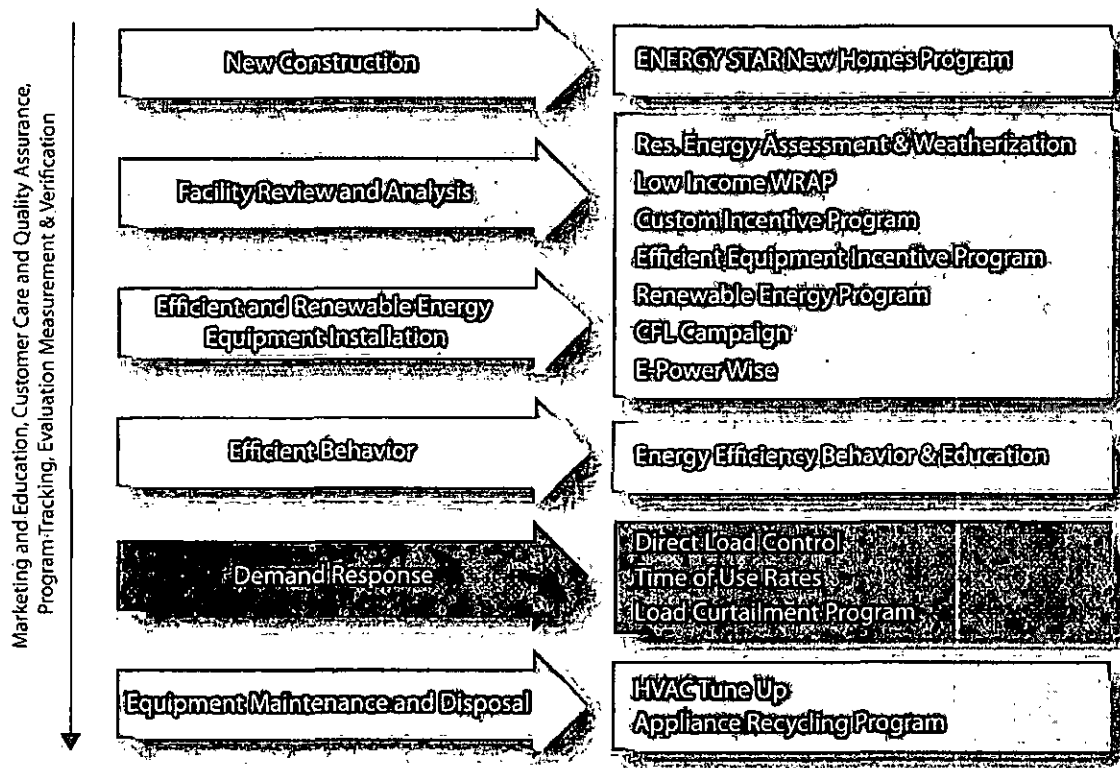
PPL Electric's programs are designed to provide a cohesive structure intended to support residential, low-income, C&I, and government and non-profit sector customers through a logical continuum of energy-efficiency actions, starting with facility review and analysis and ending with implementation, verification,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



### Section 3: Program Descriptions

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,

### Section 3: Program Descriptions

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

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

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

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

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

### Section 3: Program Descriptions

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 Eligibility by Program**

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

Primary Customer Target

Eligible Customers

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

### Section 3: Program Descriptions

Ramp rates were assigned to each programs' participation estimates that account for a gradual build-up of customer outreach and acceptance, leading to market adoption rates that would be realistic but sufficiently aggressive to support the Company's goals. For example, PPL Electric's Low-income WRAP program will rely on a program delivery infrastructure and process that is well established in its territory. Accordingly, these programs are able to ramp-up quickly, even allowing for time to conduct training to build the workforce needed to accelerate these programs. For new programs, estimated participation starts at a low level, accelerates during the second year, then levels off to participation rates that represent expected total saturation. These assumptions were guided by the ACEEE potential study and the market characteristics in PPL Electric's territory, and are reflected in the experience of other utilities operating similar, successful programs. In this revised EE&C Plan, program years 1 and 2 were adjusted to reflect actual values and program years 3 and 4 were forecasted based on current conditions and experience from years 1 and 2.

Savings estimates for most measures in the Plan are drawn from the Commission's TRM and from actual experience for program years 1 and 2. Incremental measure and labor costs were determined through online research and discussions with installation contractors, with cost-of-living adjustments for PPL Electric's service territory. Measure level costs and savings assumptions are provided in Appendix E. While technical interactions may slightly alter savings if multiple measures are installed together, PPL Electric's analysis treats measure savings as independent.<sup>31</sup>

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

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

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

In choosing which measures to include in its portfolio, PPL Electric wanted to ensure its customers are offered an extensive choice of program services and measures that allow them to increase their savings opportunities. PPL Electric was also required to balance

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

### Section 3: Program Descriptions

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 EPA 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.

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

#### Program Descriptions

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

### 3.2. Residential Sector Programs

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

2010-2013

##### Objectives

The objectives of the Efficient Equipment Incentive Program include:

- Provide customers with opportunities to reduce their energy costs and increase their energy-efficiency.
- Encourage customers to install high-efficiency HVAC, lighting equipment, and electric appliances.
- Encourage the use of high-efficiency/ENERGY STAR®-rated equipment.
- Promote strategies that encourage and support market transformation for high-efficiency appliances and equipment.
- Promote other PPL Electric EE&C programs.
- Achieve a total reduction of approximately 539,933 MWh/yr and 73 MW.<sup>32</sup>

##### Target Market

PPL Electric's Efficient Equipment Incentive Program is available to all customer sectors. The Plan divides the program into individual market sectors, with target customers and approximate participation, budgets, savings, eligible equipment, and other appropriate details broken out for each sector.<sup>33</sup>

Table 10 outlines eligibility parameters for the residential sector.

**Table 10. Customer Eligibility Parameters**

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

##### Program Description

The program promotes the purchase and installation of high-efficiency equipment, including technologies appropriate to specific building types and customer sectors. The Efficient Equipment Incentive Program provides customers with financial incentives to

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

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

### Section 3: Program Descriptions Residential Sector Programs

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

Key steps in program participation include:

- Directing customers 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.
- Working with the equipment/appliance retailer or installation contractor to fill out program applications and ensure the required documentation is submitted to the program CSPs for processing.
- Program CSPs review documentation to verify the applicant is a PPL Electric customer and the installed equipment meets eligibility requirements.
- Customers installing eligible high-efficiency equipment schedule the work directly with their equipment dealer or installation contractor.
- For program years 3 and 4, a direct install option for customers called Direct Discount Services which uses PPL Electric's network of authorized contractors to market, propose, and install lighting and refrigeration measures for small C&I customers. Incentives in this delivery channel are based on kWh/yr saved for each measure and are paid to the installation contractor.
- Processing rebate checks for qualified equipment.
- Verifying equipment/appliance installation for a sample of participants, which will be a part of measurement and verification.

#### 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 25 to 50% of the customer incremental cost. PPL Electric will adjust rebate amounts to ensure they are appropriate and to increase/decrease participation as required to meet program objectives. PPL Electric will seek Commission approval for changes.

#### Marketing Strategy

This program relies on both customer marketing and point-of-sale dealer and installer information for promotion. PPL Electric and its Advertising CSP and C&I CSP developed a marketing strategy for the program that may include:

- Promoting the program in PPL Electric's customer bill newsletter, "Connect."
- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertising through newspapers, radio, television, or other media or publications.
- Brand marketing material with ENERGY STAR®.
- Presenting program information at seminars, conferences, home shows, and community events.
- Coordinating advertising with trade allies (i.e., equipment dealers, distributors, and installers; home builders, remodelers, and residential sector contractors).
- Publishing a program brochure.



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- Cross-promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

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

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

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 16	\$100
Room AC	ENERGY STAR	\$25
Air-Source Heat Pump	SEER 15	\$100
Air-Source Heat Pump	SEER 16	\$200
Heat Pump Hot Water Heater	ENERGY STAR	\$300
Refrigerator	ENERGY STAR	\$25
High-Efficiency Gas, oil, or propane Furnace (fuel switching is for RTS customers only)	AFUE >= 92%	\$550
Ductless heat pump (mini-splits)	ENERGY STAR; SEER 15.0, HSPF 8.2	\$100 per 12000 Btu/hr
Ductless heat pump (mini-splits)	ENERGY STAR; SEER 17.0, HSPF 9.5	\$150 per 12000 Btu/hr
Ductless heat pump (mini-splits)	ENERGY STAR; SEER 19.0, HSPF 10.5	\$200 per 12000 Btu/hr
<u>Solar thermal domestic hot water heaters. Pilot program for evaluation as part of Phase 2.</u>	<u>RTS customers only.</u>	<u>Same as heat pump water heaters</u>

SEER = Seasonal Energy-efficiency Ratio

### Section 3: Program Descriptions Residential Sector Programs

PPL Electric tracks and reports if a customer switches to electric equipment from gas equipment. PPL Electric also reports data on replacement appliances and systems. This information is included in PPL Electric's annual reports starting in Program Year 2.

#### Implementation Schedule and Milestones

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

**Table 13. Program Schedule and Milestones**

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

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSPs, and works with trade allies, other Pennsylvania Utilities, and stakeholders.
- The Advertising CSP and C&I CSP will provide external advertising and marketing.

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- The Administrative CSP and C&I CSP will handle customer calls, review and verify applications, process rebates, and track and report customer and program information to PPL Electric. The C&I CSP also works with C&I trade allies.
- Trade allies (primarily equipment retailers and installers) will provide technical assessment, equipment sales, and installation.
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- The EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the Statewide Evaluator.

Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 14. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Central Air Conditioners	340	2,907	1,000	1,000	5,247
Room Air Conditioners	159	4,515	1,000	1,200	6,874
Programmable Thermostats			600	-	600
Air-Source Heat Pumps	1,978	6,559	4,000	4,000	16,537
Heat Pump Hot Water Heater	206	1,543	772	772	3,293
Dishwasher	4,031	17,623	2,863	-	24,517
Clothes Washers	8,945	31,413	4,115	-	44,473
Energy Star Refrigerator	6,047	30,031	8,000	8,000	52,078
Energy Star Dehumidifier	644	3,674	952	-	5,270
High-efficiency Gas/Oil/Propane Furnace (RTS fuel switching)	28	98	98	98	322
ENERGY STAR® Light Fixtures	206	529	-	-	735
Ductless heat pumps	-	-	100	100	200

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Office Equipment	-	284	-	-	284
Solar thermal domestic hot water heaters. Pilot program for evaluation as part of Phase 2. Maximum of 50 units. RTS customers only.				50	

Program Budget, Costs and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 60,848 MWh/yr and peak load reductions of approximately 6.8 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 15. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

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

Other Information

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

## Energy Assessment & Weatherization Program (Residential Sector)

2010-2013

### Objectives

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

- Provide customers with the opportunity to participate in a walk-through survey or comprehensive energy audit.
- Provide customers with opportunities to reduce their energy costs and increase their energy-efficiency.
- Encourage customers to weatherize their homes by providing rebates.
- Install low-cost energy saving measures as part of both the survey and the audit, which may result in immediate savings.
- Promote other PPL Electric energy-efficiency programs.
- Obtain participation by approximately 4,300 customers through 2013, with a total reduction of approximately 2,607 MWh/yr and 145 kW. Please note that recommendations of the audit/survey are usually implemented in other programs (such as Efficient Equipment, Residential Lighting, and Appliance Recycling) and, therefore, the savings are reported in those programs.

### Target Market

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

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:

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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 is delivered by a Residential Energy Survey CSP, which conducts 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 provides customers with an electronically-generated energy survey report that includes recommendations for appropriate follow-up activities.

The comprehensive energy audit is delivered through PPL Electric's existing network of Building Performance Institute (BPI) trained and certified energy auditor trade allies. This structure encourages PPL Electric's existing trade allies to market its program, while helping create a more robust, qualified audit contractor base in PPL Electric's service territory and supporting the local economy. To participate, the auditors must meet specific qualification criteria<sup>34</sup> and perform specific minimum diagnostic tests.<sup>35</sup> Home Performance with ENERGY STAR® audits will be eligible for comprehensive audit rebates.

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

- 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;
- Are eligible for incentives to install weatherization measures, including attic, wall, and foundation insulation, and duct sealing; and
- Are directed to other PPL Electric programs as appropriate for additional incentives on equipment upgrades or participation in demand response programs.

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

### Implementation Strategy

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

The Administrative CSP manages customer intake and routing to the appropriate track, processes applications and rebates, tracks and verifies program data, and provides customer and transaction information to PPL Electric. The Administrative CSP I refers customers interested in a comprehensive energy audit to independent, BPI certified trade allies who have participated in PPL Electric's BPI training program. PPL Electric's energy-efficiency staff provide overall strategic direction and program management for

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<sup>34</sup> BPI certified or equivalent whole-house assessment training.

<sup>35</sup> Blower door and duct blaster testing required. Infrared cameras may be used as alternative to blower door testing.

### Section 3: Program Descriptions Residential Sector Programs

the program and (supported by other CSPs) marketing, trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

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

### 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**

<b>Risks</b>	<b>Management Strategies</b>
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. Follow local codes and requirements for insulation and ventilation levels.
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 is \$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 comprehensive audits cost \$450 to \$600. Customers receive \$250 if they have electric heating and central air conditioning, \$150 if they have only main source electric heating or central air conditioning. Additionally, customers have an opportunity to get up to \$400 in bonus rebates if they implement more than one of the measures recommended by the auditor or surveyor. The cost of weatherization measures will vary depending on the type, location, and amount of insulation, air sealing and/or duct sealing performed. PPL Electric will adjust rebate amounts to ensure they are appropriate and to increase/decrease participation as required to meet program objectives.

#### Marketing Strategy

This program relies on PPL Electric's marketing and promotion by the Residential Energy Survey CSP and free market auditors. PPL Electric and its Advertising CSP developed a marketing strategy for the program that may include:

- Promoting the program in PPL Electric's customer bill newsletter "Connect."
- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertising through newspapers, radio, television, or other media or publications.
- Brand marketing material with ENERGY STAR®.



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- Presenting program information at seminars, conferences, and community events.
- Coordinating advertising opportunities with trade allies.
- Publishing and distributing a program brochure.
- Cross-promoting the program through other PPL Electric programs.

#### Eligible Measures and Incentive Strategy

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

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

- Direct installation of up to six CFLs, one smart strip, one faucet aerator, water heater set-back, and water heater pipe insulation<sup>36</sup> 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 \$150 or \$250 depending on heating and cooling systems;
- Direct installation of up to six CFLs, one smart strip, one faucet aerator, water heater set back, and water heater pipe insulation<sup>37</sup> by the BPI certified energy auditor during the audit.
- Detailed recommendations about efficiency upgrades a customer can make to reduce energy consumption, including estimated measure costs and resulting energy savings based on diagnostic testing, thorough home performance evaluation and engineering-based modeling of results.
- Information on rebates for installation of equipment measures available to residential customers.

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

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<sup>36</sup> Customer must have electric water heat to receive hot water measures.

<sup>37</sup> Customer must have electric water heat to receive hot water measures.

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Residential Sector Programs

**Table 18. Eligible Measures**

Measure	Eligibility Rating	Incentive
Direct Installation of up to 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	Central Air conditioning <i>and</i> main source electric heat	\$250 incentive
	Central Air conditioning <i>or</i> main source electric heat	\$150 incentive
Walk-through Survey	Central Air conditioning and/or main source electric heat	\$50 customer cost
Ceiling insulation	Audit recommendation; Existing & New Structures-Current ASHRAE Standards + R11. See rebate application for details for new construction and for existing construction	
Wall insulation		
Duct sealing	Audit recommendation	\$100
Bonus rebate	> 1 recommended measure installed	\$50/installed measure >1 up to \$100)

**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.

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Schedule	Milestones
12/31/2009 - ongoing	Conduct outreach to trade allies, vendors and other local market participants.
12/31/2009 – 03/01/2010	Program training.
02/01/2010	Final marketing and customer education materials and program applications.
02/01/2010	Purchase direct installation measures.
03/01/2010	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff will oversee program operations and program CSPs, and works with trade allies, other Pennsylvania utilities, and stakeholders.
- The Administrative CSP tracks all program activities, pays rebates, provides customer service, and provides reports to PPL Electric.
- The EM&V CSP will conduct evaluation, measurement, and verification activities and coordinate with the Statewide Evaluator.

### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 20. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Surveys	-	902	1,100	1,150	3,152
Audits	-	389	336	400	1,125
<b>Total</b>	-	<b>1,291</b>	<b>1,436</b>	<b>1,550</b>	<b>4,277</b>

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Program Budget, Costs, and Cost-Effectiveness

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

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**

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

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

## Residential Lighting Program (Residential sector)

2010-2013

### Objectives

The objectives of the Residential Lighting Program include:

- Provide a mechanism for customers to easily obtain discounted ENERGY STAR®-qualified CFLs and other energy efficient lighting such as LEDs.
- Develop and execute strategies aimed at transforming the market for ENERGY STAR®-qualified CFLs with the goal of increasing the number of qualified products purchased and installed in PPL Electric's service territory.
- Increase consumer awareness and understanding of the energy-efficiency of CFLs and other energy efficient lighting such as LEDs, as well as proper use of CFLs in various lighting applications.
- Promote consumer awareness and understanding of the ENERGY STAR label and the changes associated with the Energy Independence and Security Act (EISA) standards such as new product labeling.
- Distribute approximately 8,743,000 CFLs through 2013, with a total energy reduction of approximately 392,137 MWh/yr and a peak load reduction of approximately 18.7 MW.<sup>38</sup>

### Target Market

This program is available to all PPL Electric customers.<sup>39</sup> For the purposes of the Plan, the program allocates all savings and costs to the residential customer sector.

### Program Description

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

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

### Implementation Strategy

The Residential Lighting CSP manages an upstream residential lighting campaign, including negotiating bulk pricing, recruitment, and coordination with retail stores, marketing and outreach to retailers, and tracking and providing program reports. The Residential Lighting CSP utilizes a broad range of retailers, including big box and chain

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<sup>38</sup> Combined totals for all target customer segments.

<sup>39</sup> The Plan assumes that large commercial and industrial buildings predominantly use fluorescent tube or other commercial lighting fixtures. All customer sectors, however, may participate.

### Section 3: Program Descriptions Residential Sector Programs

stores as well as smaller local and independent stores throughout PPL Electric's territory. The Residential Lighting CSP also delivers the CFL giveaway component. PPL Electric's energy-efficiency staff provides overall strategic direction and program management for the program and, supported by other CSPs, promotional, marketing, trade alley support, evaluation, and other administrative functions, including:

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

### 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.
CFL performance.	Provide customer education and outreach on the proper handling and disposal of CFLs and mercury content.
Proper disposal of CFLs containing mercury.	Identify locations for customers to dispose of CFLs. Educate customers about proper disposal of CFLs.

### Anticipated Costs to Participating Customers

The average upstream incentive amounts and final prices paid by customers vary for each bulb/package of bulbs. PPL Electric's program CSP continually adjusts upstream incentives and bulb prices to ensure they are appropriate and to control sales levels and savings to meet program objectives.

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### Marketing Strategy

Marketing for this program is led by the Residential Lighting CSP with support from PPL Electric's Advertising CSP and PPL Electric staff. The marketing strategy may include:

- Promoting the program in PPL Electric's customer bill newsletter, "Connect."
- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertising through newspapers, radio, television, or other media or publications.
- In-store advertising.
- Branding marketing material with the ENERGY STAR® and PPL Electric logos.
- Presenting program information at seminars, conferences, and community events.
- Coordinating advertising opportunities with trade allies.
- Publishing a program brochure.
- Cross-promoting the program through other PPL Electric programs.

### Eligible Measures and Incentive Strategy

The CFL Residential Lighting CSP negotiates bulk pricing and manages the delivery of upstream incentives to participating CFL and LED manufacturers. This encourages the market and customers to increase socket saturation of CFLs, and to increase familiarity with LEDs and other emerging technology. The measures eligibility requirements, number of participants/bulbs, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details.

### 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.

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Schedule	Milestones
11/30/2009	Select and execute contract with manufacturers.
12/01/2009	Finalize marketing and customer education materials.
01/01/2010	Develop tracking and allocation procedures.
01/01/2010	Determine reporting data requirements for program evaluation.
01/01/2010	Launch program.

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

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

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSPs, and works with trade allies, other Pennsylvania utilities, and stakeholders.
- The Residential Lighting CSP tracks all program activities and reports to PPL Electric.
- 
- The EM&V CSP conducts evaluation, measurement, and verification activities and coordinates with the Statewide Evaluator.

#### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 24. Projected Participation**

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

All customer sectors are eligible to purchase discounted lighting but all of the savings will be allocated to the residential sector as approved by the Commission on May 5, 2011 because participants are not specifically identified in this type of upstream discount program.

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 392,137 MWh/yr and peak load reductions of



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approximately 18.7 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 25. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

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

## 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 approximately 57,500 appliances through 2013, with a total reduction of approximately 74,537 MWh/yr and 9,591 kW.

### Target Market

The program primarily targets residential customers, but it is available to all PPL Electric customers with a working, residential grade refrigerator, freezer, or room air conditioner unit. Refrigerators must be between 10 and 30 cubic feet. The estimates in this Plan assume all appliances are for the residential sector. However, actual units (savings and costs) are allocated to the appropriate customer sector<sup>40</sup>. Very few non-residential units are expected.

**Table 26. Customer Eligibility Parameters**

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

### Program Description

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

All units are disposed of in an environmentally responsible manner. This involves removing hazardous materials such as chlorinated fluorocarbons from the refrigerant

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<sup>40</sup> The Plan does not income-qualify customers so it will not allocate actual residential units (savings and costs) to the low-income sector.

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and foam insulation, preparing refrigerant for reclamation, and recycling other materials such as metal and plastic.

#### Implementation Strategy

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

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

PPL Electric's staff provides overall strategic direction and program management for the program.

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.

#### 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.
Lack of program awareness among customers.	Robust marketing strategy, leveraging ENERGY STAR® brand. Consumer education and outreach.

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Market Risks	Management Strategies
Customers do not see benefit of harvesting qualified appliance(s).	<p>CSP will work with retailers to display information about the benefits to harvesting.</p> <p>Customers receive an incentive for purchasing a new energy efficient room air conditioner or refrigerator.</p> <p>Customized educational materials that highlight the cost to operate an old refrigerator or freezer and explain environmental benefits of eliminating inefficient appliances.</p> <p>CSP's advertising will communicate the benefits of appliance recycling.</p>

#### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

#### Marketing Strategy

Marketing for this program is the responsibility of the Appliance Recycling CSP. The marketing strategy may include:

- Promoting the program in PPL Electric customer bill newsletter, "Connect", and other inserts.
- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertising through newspapers, radio, television, or other media or publications.
- Presenting program information at seminars, conferences, and community events.
- Distributing program brochures to CBOs, municipal governments offices, schools, and community organizations.
- Cross-promoting through other PPL Electric programs.
- Promoting "buy new and recycle" with participating retailers.

#### Eligible Measures and Incentive Strategy

There are two incentives associated with the program:

- Free pick-up and disposal of refrigerator or freezer.<sup>41</sup>
- Appliance recycling incentive.

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

<sup>41</sup> Room air conditioners may be picked up along with larger appliances, but they may not be picked up as a stand-alone item.

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The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. Table 28. Eligible Measures

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

#### 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.
11/01/2009	Develop customer and marketing materials.
11/01/2009	Develop customer information Web site.
12/01/2009	Develop quality assurance plan approved by PPL Electric.
12/01/2009	Determine reporting data requirements for program evaluation.
10/01/2009	Coordinate with other utilities and stakeholders.
12/01/2009	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.  
**Administrative Requirements**

Summary of administrative requirements:

### Section 3: Program Descriptions

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- PPL Electric's staff oversees all program operations and program CSPs, and works with trade allies, other Pennsylvania utilities, and stakeholders.
- The Appliance recycling CSP tracks all program activities and reports monthly to PPL Electric.
- The EM&V CSP conducts evaluation, measurement, and verification activities and coordinates with the Statewide Evaluator.

#### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 30. Projected Participation**

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

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

Over the five-year planning horizon, the program is expected to achieve electricity consumption savings of 73,842 MWh/hr and peak load reductions of approximately 9.4 MW. The annual budget allocation, cumulative MWh/hr 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.

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

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

## 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 approximately 1,600 installed measures through 2013, with a total reduction of approximately 18,875 MWh/yr and 5 MW.<sup>42</sup>

### Target Market

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

**Table 32. Customer Eligibility Parameters**

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

### Program Description

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

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<sup>42</sup> Combined totals for all target customer segments.



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#### Implementation Strategy

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

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

#### Risks and Risk Management Strategy

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

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

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

#### Anticipated Costs to Participating Customers

The estimated, post-rebate installed cost of a residential PV system is \$1.25/Watt.<sup>43</sup> The estimated post-rebate installed cost of a geothermal system is \$2000/ton.

#### Marketing Strategy

This program relies on both customer marketing and PV system and ground source heat pump installers and dealers for promotion. The marketing strategy may include:

- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Presenting program information at seminars, conferences, home shows, and community events.
- Conducting outreach to and co-op advertising with trade allies (i.e., equipment dealers, distributors, and installers).
- Publishing and distributing a program brochure.
- Working closely with state agencies, environmental advocacy groups, and others to promote the program; identify and leverage potential renewable energy projects that may be eligible for the program or are recipients of incentive funding from other sources.
- Cross-promoting with other PPL Electric programs.

#### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Incentives for the Renewable Energy Program are for solar PV systems and ground-source heat pumps. Customers must complete a rebate application and submit documentation of the equipment purchase to PPL Electric's Administrative CSP. Eligible measures are shown in the table below. The measures, eligibility requirements, number of participants, and

<sup>43</sup> Includes state incentive of up to \$2.25/watt and Federal incentive of 30% of installed cost.

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incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

**Table 34. Eligible Equipment Measures**

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

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

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

#### Implementation Schedule and Milestones

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

**Table 35. Program Schedule and Milestones**

Schedule	Milestones
January 2010	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

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Schedule	Milestones
	and internal staff.
	Develop customer education materials.
February 2010	Launched GSHP portion of program
March 2010	Launched PV portion of program
May 2010	Closed PV portion of program
January 2011	Closed GSHP portion of program for residential
December 2011	Closed GSHP portion of program for Institutional. Entire program funding is fully subscribed.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

*Summary of administrative requirements:*

- PPL Electric staff oversees all program operations and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The Administrative CSP handles customer calls, reviews and verifies applications, processes rebates, and tracks and reports customer and program information to PPL Electric.
- Trade allies (primarily renewable energy system installers) provide technical assessment and installation.
- The EM&V CSP conducts evaluation, measurement, and verification activities.

#### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 36. Projected Participation**

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

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Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 8,807 MWh/yr. No meaningful peak load reductions are expected. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 37. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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

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

Other Information

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

## Direct Load Control Program (Residential Sector)

2010-2013

### Objectives

The objectives of the Direct Load Control program include:

- Provide incentives to customers willing to reduce their energy consumption during summer peak hours.
- Educate customers about energy-efficiency and peak periods.
- Obtain participation by approximately 50,000 customers in the summer of 2012, with a total reduction of 35 MW.<sup>44</sup>

### Target Market

PPL Electric's Direct Load Control Program is available to all customer sectors except the large commercial and industrial sector.<sup>45</sup> The Plan divides the program into individual market sectors, with target customers, participation, budgets, savings and other appropriate details broken out for each sector. However, PPL Electric is using 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. Customer equipment must be in good working order and compatible with the PPL Electric control technology. Customer eligibility parameters for the residential sector are outlined below.

**Table 38. Customer Eligibility Parameters**

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

### Program Description

The Direct Load Control program operates weekdays, generally between noon and 8:00 PM during the peak summer season, from June 1st to September 30<sup>th</sup>. A control device, installed on a customer's central air conditioning/heat pump unit allows the unit to be cycled on and off during peak periods. Customer incentives will be provided for program participation.

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<sup>44</sup> Combined total for all target customer segments.

<sup>45</sup> The Plan does not allocate budget or attribute capacity savings for this program to the large commercial and industrial sector; rather it assumes few large C&I facilities include eligible controllable equipment. These customers are more likely to be eligible for, and participate in the commercial and industrial Curtailment Program.

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### Implementation Strategy

The Direct Load Control CSP provides turnkey services to manage and administer the program, including:

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

PPL Electric is responsible for services such as:

- Overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions.
- Responsible for load forecasting and determining when to initiate load curtailments (i.e. the 50 or more hours of highest demand). The Load Curtailment CSP can declare additional hours if desired.

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'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 CSPs exclusively.

### Risks and Risk Management Strategy

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

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

Market Risks	Management Strategies
Customers do not understand the program.	Robust Marketing Strategy. General customer education and awareness.
Ability to maintain comfort levels with air	Use proven technologies that prevent large

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conditioning cycling.	temperature swings.
AMI Infrastructure compatibility.	Ensure CSP fully understands AMI system.
Customers override control device.	Limit customer access to controls.

#### Anticipated Costs to Participating Customers

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

#### Marketing Strategy

The Direct Load Control CSP I works with PPL Electric's staff to create a marketing strategy for this program, which may include:

- Promoting the program in PPL Electric's customer bill newsletter, "Connect."
- Communicating and providing access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertising through newspapers, radio, television, or other media or publications.
- Presenting program information at seminars, conferences, and community events.
- Coordinating advertising opportunities with trade allies.
- Cross-promoting the program through other PPL Electric programs.

#### Eligible Measures and Incentive Strategy

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

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

#### Implementation Schedule and Milestones

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



**Table 40. Program Schedule and Milestones**

Schedule	Milestones
Sept 2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Demand Response CSP (load curtailment and direct load control).
Nov 2009	Issue RFP for Demand Response CSP.
Jan 2011	Execute implementation contract with Direct Load Control CSP. Note: this was delayed pending finalization of demand response protocols (method to determine savings in PA)
on-going after Jan 2011	Develop marketing and outreach plan and materials.
March 2011	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSPs, and works with trade allies, other Pennsylvania utilities, and stakeholders.
- The Direct Load Control CSP will provide external advertising, including television and print ads.
- The Direct Load Control CSP handles customer calls; schedules, installs and maintains control devices; administers the program; reviews, verifies and processes applications; tracks program data; processes customer incentives; and reports program information to PPL Electric.
- The EM&V CSP conducts evaluation, measurement and verification activities and coordinates with the statewide evaluator.

#### Estimated Participation

Estimated participation levels are shown for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.

**Table 41. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Total Digital Cycling Units	-	-		45,693	45,693

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Program Budget, Costs, and Cost-Effectiveness

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

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

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

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

Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in year 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4 (- Summer of 2012).

## 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 behavior changes that may reduce energy consumption or demand.
- Educate customers about PPL Electric's online resources and energy-efficiency and conservation programs.
- Encourage customers to adopt more energy efficient behaviors and to install energy-efficiency measures in their homes by becoming more aware of how their behavior and practices impact their energy usage, by comparing their electric usage with a controlled group of customers who have a similar usage pattern in the same geographical area.
- Obtain participation by approximately 100,000 customers through 2013, with a total reduction of approximately 23,000 MWh/yr.

### Target Market

This program targets all residential customers. Customer eligibility parameters for the residential sector are outlined below.

**Table 43. 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.

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- 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."

#### Implementation Strategy

PPL Electric contracted with the Behavior and Education CSP to provide its Home Energy Reporting system. That system uses behavioral science and data analytics to drive reductions in residential energy consumption. That system generates measurable energy savings across the country.

The approach is organized around two concepts -- motivating behavior change and providing relevant, targeted information to the motivated consumer. Relying on data supplied by PPL Electric, the program translates individual usage patterns into meaningful insights coupled with targeted action steps.

The Home Energy Reports provide recipients with a context for understanding their energy use. This is done by dynamically creating a 100-home comparison group for each house that only compares homes of similar square footage. Home comparison groups are defined by a number of customizable variable including proximity (e.g. within 0.25 miles) and census and climate data. Years of behavioral science research have demonstrated that peer-based comparisons are a highly motivating way to present information.

Customers also receive individually targeted savings tips based on their energy usage patterns, housing characteristics, and demographics. Instead of presenting customers with a thick booklet of ideas on how to save energy, the program presents customer with several of the most relevant and immediately actionable suggestions on how to save.

#### Risks and Risk Management Strategy

Table 44 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 44. Market Risks and Management Strategies

Market Risks	Management Strategies
Lack of awareness by customers of educational opportunities.	Outreach through traditional and nontraditional mechanisms. Implement a comprehensive marketing strategy.
Lack of time and resources to participate.	Flexible event scheduling. Streamline programs to ensure efficient use of participant's time.

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### Anticipated Costs to Participating Customers

There are no costs incurred by customers for this program.

### Marketing Strategy

The program does not require specific marketing.

### Eligible Measures and Incentive Strategy

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.

### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the Energy Efficiency Behavior & Education Program follow. Some tasks will be led by PPL Electric; other tasks will be led by CSPs, with oversight from PPL Electric.

**Table 45. Program Schedule and Milestones**

Schedule	Milestones
04/01/2010	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and the program CSP.
- The program CSP has turnkey responsibility for implementing the program.
- The EM&V CSP conducts evaluation, measurement, and verification activities.

### Estimated Participation

Estimated Participation levels are shown for general guidance only.

**Table 46. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	1	49,789	104,000	104,000	257,790

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Residential Sector Programs

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 23,000 MWh/yr. Please note that the expected measure life is 1 year. Therefore, savings are not cumulative over multiple program years unless the results of the impact evaluation determine the measure life exceeds 1 year or savings persist beyond 1 year. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 47. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 47. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	13,207	23,504	23,504	23,504
Capacity Savings (MW)	-	-	5.4	5.4	5.4
Total Resource Cost	\$142,066	\$815,014	\$936,160	\$936,160	\$2,829,400
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$142,066	\$815,014	\$936,160	\$936,160	\$2,829,400
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$44,019	\$48,257	\$48,000	\$48,000	\$188,276
EDC Materials and Supplies	\$12,325	\$113,631	\$0	\$0	\$125,955
CSP Labor	\$85,723	\$653,126	\$888,160	\$888,160	\$2,515,169
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$5,466,317				
NPV Costs	\$2,442,469				
Net Benefits (NPV)	\$3,023,848				
<i>Benefit-Cost Ratio</i>	2.24				

### 3.2.1. Low-income Programs

#### Low-income WRAP (Low-Income Sector)

2009-2013

##### Objectives

The objectives of Low-income WRAP (Winter Relief Assistance Program) include:

- Assist more low-income customers to reduce their energy use and energy expenses.
- Maintain partnerships with social service agencies, Community Based Organizations (CBOs), and local contractors to ensure maximum and timely assistance.
- Provide a referral stream to low-income programs, including PPL Electric OnTrack, Operation HELP, E-Power Wise (Act 129 program), and LIHEAP.
- Obtain participation by approximately 13,500 customers through 2013, with a total reduction approximately 21,151 MWh/yr and 1,498 kW.

##### Target Market

The program targets PPL Electric customers at or below 150% of the federal poverty level. The program is available to customers in existing single-family housing and in existing multifamily housing, where 50% or more tenants are low-income qualified. Further, the program aims to reach PPL Electric customers that received WRAP assistance in the past and may be in need of further WRAP services as well as customers that may not have been eligible for low-income assistance due to eligibility rules requiring more than nine months residence in a dwelling. Customer eligibility parameters are outlined below.

**Table 48. Customer Eligibility Parameters**

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

##### Program Description

WRAP is an existing PPL Electric program designed to reduce electric consumption and improve comfort for low-income customers. The program provides free energy audits, energy-efficiency measures, and energy education to income-qualified participants.

PPL Electric will increase the funding (approximately 60 increase) for this program under its Act 129 program portfolio, which will support project delivery to more customers, will help fill the gaps to address housing falling outside PPL Electric's existing WRAP program eligibility (as discussed above), and increase the range of efficiency and safety measures that may be installed in each home.

Section 3: Program Descriptions  
Low-Income Sector Programs

### 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.

### Risk and Risk Management Strategy

Table 49 presents the key market risks to an effective Low-income WRAP Program, as well as the strategies the program will use to address each risk.

**Table 49. Market Risks and Management Strategies**

Market Risks	Management Strategies
Customers reluctant to ask for help.	Provide audits and measures free for income-qualified customers. Market to customers through CBOs and other community organizations. Provide discreet qualification process and customer confidentiality.
Lack of program awareness.	Market to customers through traditional (CBO) and non-traditional (hospital waiting rooms) organizations. Use grassroots marketing tactics and provide detailed information explaining the benefits of the program.
Need to verify customer eligibility. Customers reluctant to share income information.	Work with CBOs to verify customer eligibility. Deliver program through CBOs to retain customer confidentiality.
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.

### 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 newsletter, "*Connect*."
- Cross-market through other PPL Electric low-income programs.

### Eligible Measures and Incentive Strategy

All services and measures are provided to income-qualified customers at no cost. Installed measures must save energy provided by PPL Electric. CBOs will be encouraged to combine Act 129 funding with federal, state, or other human services funding to provide a whole-house energy-efficiency solution. Funded measures may include the following. A complete list of measures is provided in Appendix G. The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

#### Low-Income Single-Family:

- Energy Audit
- Energy Education: customer in-home education on ways to save energy
- ENERGY STAR® CFLs and fixtures<sup>46</sup>
- ENERGY STAR® refrigerator

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<sup>46</sup> Program provides as many CFLs, lighting fixtures, low flow shower heads and faucet aerators as are needed in a given home.

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- Electric heat or central air conditioning:
  - Seal drafts and air leaks around windows and doors
  - Insulate walls and ceilings
- Electric water heat:
  - Replace water heater or install electric heat pump water heater
  - Water heater tank wrap
- Low-flow showerheads<sup>46</sup>
- Faucet aerators<sup>46</sup>
- Water heater pipe insulation
- Safety measures

Low-Income Multifamily:

- All services/measures listed above for Low-Income Single-Family
- Combined Heat and Power Systems

Implementation Schedule and Milestones

Planning and implementation tasks and schedule for Low-income WRAP follow. Some tasks will be led by PPL Electric; other tasks will be led by CBOs, with oversight from PPL Electric.

**Table 50. Program Schedule and Milestones**

Schedule	Milestones
09/01/2009	Develop participation standards and delivery guidelines for Act 129-funded WRAP program (where they differ from existing program) with state low-income departments and community-based organizations.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
09/01/2009	Develop marketing plan and materials.
11/01/2009	Determine reporting and data requirements for program evaluation.
11/01/2009	Develop tracking and allocation procedures.
ongoing	Coordinate with other utilities and stakeholders.
10/01/2009	Confirm CBOs have ramped up staffing and capabilities to meet the program requirements.
11/01/2009	Launch program.

Section 3: Program Descriptions  
Low-Income Sector Programs

Evaluation, Measurement, and Verification (EM&V)

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

Administrative Requirements

Summary of administrative requirements:

- PPL Electric's WRAP Program Manager manages all aspects of this program, including reporting activities and results directly associated with Act 129 funding.
- CBOs will track program activities and report to PPL Electric.
- The EM&V CSP conducts evaluation, measurement, and verification activities and coordinates with the statewide EE&C Plan evaluator.

Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 51. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	649	4,455	4,800	3,596	13,500

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 21,151 MWh/yr and peak load reductions of approximately 1.5 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the residential customer sector are shown in Table 52. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 52. Summary of Projected Benefits, Costs, and Cost-effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	1,200	5,425	8,305	6,222	21,151
Capacity Savings (MW)	0.1	0.7	0.7	0.5	1.5
Total Resource Cost	\$3,021,946	\$9,417,118	\$9,150,969	\$7,082,674	\$28,672,707
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$3,021,946	\$9,417,118	\$9,150,969	\$7,082,674	\$28,672,707
Customer Incentives	\$2,710,269	\$8,671,212	\$0	\$0	\$11,381,481
EDC Labor	\$303,731	\$731,445	\$753,388	\$775,990	\$2,564,554
EDC Materials and Supplies	\$7,946	\$14,461	\$35,181	\$36,836	\$94,424
CSP Labor	\$0	\$0	\$8,342,400	\$6,249,848	\$14,592,248
Other (Marketing and Trade Ally)	\$0	\$0	\$20,000	\$20,000	\$40,000
<b>TRC Test</b>					
NPV Benefits	\$26,489,139				
NPV Costs	\$25,209,436				
Net Benefits (NPV)	\$1,279,703				
<i>Benefit-Cost Ratio</i>	1.05				

## E-Power Wise (Low-Income Sector)

2010-2013

### Objectives

The objectives of the E-Power Wise Program include:

- Provide quality energy conservation and efficiency education to low-income customers; so they can make informed choices about their energy use.
- Provide information about low-cost/no-cost energy-efficiency strategies low-income customers can use in their homes.
- Provide low-income customers with energy-efficiency measures in free take-home energy-efficiency kits.
- Obtain participation by approximately 9,050 customers through 2013 with a total reduction of approximately 4,268 MWh/yr.

### 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 each unit is metered (not master-metered). Customer eligibility parameters for the residential sector are outlined below.

**Table 53. Customer Eligibility Parameters**

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

### Program Description

The E-Power Wise Program, delivered via CBOs, non-profit organizations, and direct mail will provide low-income customers with energy-efficiency education and low cost energy-efficiency measures for self installation. The E-Power Wise Program consists of the following 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. 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.

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- **Energy Kits.** During the workshop or other CBO interactions, customers may receive an Energy Efficiency Savings Kit. Each kit will include multiple energy-saving measures, such as compact fluorescent lamps, faucet aerators, and high-efficiency showerheads. Workshops and one-on-one interactions will include education about the measures in the kit, instructions for their proper installation, and energy-efficient behaviors.
- **Direct mail to qualified customers** will include energy conservation education and a card the customer returns to receive an energy savings kit.
- **Surveys and reporting.** All participants are asked to complete and return a survey that documents their actions and will be used to evaluate and report on program impacts.

#### Implementation Strategy

The E-Power Wise CSP manages all aspects of the program including:

- Relationships with CBOs and non-profit organizations.
- Hiring qualified trainers.
- Designing and implementing the train-the-trainer program.
- Designing and implementing the program curriculum.
- Production, delivery, distribution, and inventory of the energy kits.
- Recording and reporting program metrics.

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

#### Risk and Risk Management Strategy

Table 54 presents the key market risks to an effective E-Power Wise Program, as well as the strategies the program will use to address each risk.

**Table 54. Market Risks and Management Strategies**

Market Risks	Management Strategies
CBOs unaware of program.	Marketing directed at CBOs.
Customers unaware of program; reluctant to ask for help.	Highlight "free kit" incentive in marketing program. Market to customers through CBOs and other community organizations. Provide discreet qualification process and customer confidentiality.
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.

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Market Risks	Management Strategies
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.
Kit inventory management at CBOs	Closely monitor kit distribution, disbursement, and card return. Monthly inventory reports and field audits.

#### Anticipated Costs to Participating Customers

There are no costs incurred by customers in this program.

#### Marketing Strategy

The E-Power Wise CSP, utilizes PPL Electric's existing WRAP program infrastructure to initially market the program to CBOs. Marketing efforts seek to increase the program's reach to low-income customers who are not aware of PPL Electric's low-income initiatives. Marketing is directed to:

- CBOs.
- 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.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in

### Section 3: Program Descriptions Low-Income Sector Programs

market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

#### Implementation Schedule and Milestones

Planning and implementation tasks and schedule for the E-Power Wise program follow. Some tasks are led by PPL Electric; other tasks are led by the program CSP and/or by CBOs, with oversight from PPL Electric.

**Table 55. Program Schedule and Milestones**

Schedule	Milestones
07/06/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for program CSP.
07/17/2009	Issue RFP for program CSP.
09/15/2009	Execute program implementation contract with selected program CSP.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
10/15/2009	Work with state low-income departments and community-based organizations to develop a delivery process.
11/01/2009	Develop marketing materials.
11/01/2009	Design customer survey.
11/01/2009	Develop program delivery process and protocols.
11/01/2009-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.
01/15/2010	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The Advertising CSP provides external advertising including television and print ads.

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- The E-Power Wise CSP administers the program, coordinates workshop logistics, delivers training, supplies efficiency kits, receives and analyzes customer surveys, and reports results.
- The E-Power Wise CSP and the Administrative CSP handle customer calls direct customers on how to participate in the program.
- CBOs will verify customers' income eligibility.
- The EM&V CSP conducts evaluation, measurement, and verification activities.

Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 56. E-Power Wise Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Energy-efficiency Kits</b>	-	4,050	2,749	2,249	9,048

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 4,268 MWh/yr. No meaningful peak load reductions are expected. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the low-income customer sector are shown in

Table 57. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 57. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	-	2,119	1,182	967	4,268
Capacity Savings (MW)	-	0.3	0.2	0.2	0.6
Total Resource Cost	\$32,449	\$193,854	\$212,763	\$178,558	\$617,624
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$32,449	\$193,854	\$212,763	\$178,558	\$617,624
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$27,877	\$32,582	\$34,000	\$32,000	\$126,460
EDC Materials and Supplies	\$4,572	\$183	\$200	\$200	\$5,154
CSP Labor	\$0	\$161,089	\$178,563	\$146,358	\$486,010
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$2,474,791				
NPV Costs	\$536,099				
Net Benefits (NPV)	\$1,938,692				
<i>Benefit-Cost Ratio</i>	4.62				



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**Direct Load Control Program  
(Low-Income Sector)**

2010-2013

Low-income customers are eligible to participate in this program but PPL Electric has included all forecasts in the residential section of this EE&C Plan. PPL Electric will not income-qualify this program's participants.

### 3.3. Small Commercial and Industrial Sector Programs

#### Efficient Equipment Incentive Program (Small Commercial and Industrial Sector)

2010-2013

##### Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Target Market

Please see Section 3.2, under Efficient Equipment Incentive Program. Table 58 outlines eligibility targets for the small commercial and industrial sector.

**Table 58. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial & industrial, small
<b>Rate Class</b>	GS1, GS3, GH1, GH2, TOU after 1/1/10
<b>Building Type</b>	Small commercial, small industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### Program Description

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Implementation Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Risk and Risk Management Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Anticipated Costs to Participating Customers

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### 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 commercial and industrial customers (small C&I, large C&I, governmental, schools, and non-profits):

- Targeted marketing to business trade associations, building owner/manager associations, economic development organizations, customer advocacy groups, and

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#### Small Commercial and Industrial Sector Programs

trade allies such as architects and engineers, real estate developers, energy services companies, HVAC companies, lighting contractors, and other equipment dealers and installers.

- Specific outreach to reach individual tenants as well as building owners and property managers in leased commercial buildings to encourage participation in the program.
- Outreach to facility managers and engineers to encourage installation of new energy-efficient technologies and adoption of best operating practices.
- Targeted marketing to specific sectors identified as having a high level of unrealized energy-efficiency potential, such as office buildings and data centers.
- Providing outreach and education to trade allies and C&I customers.
- Establishing an authorized trade ally process to engage them in this program.
- Targeted marketing for the direct install alternative that allows customers to implement lighting and refrigeration measures more easily and quickly.

#### Eligible Measures and Incentive Strategy

The program provides a financial incentive in the form of a prescriptive rebate on a per-unit basis to customers installing qualifying equipment and technologies. Rebates can be a fixed amount per device or based on savings (i.e. \$/kWh annual savings). Rebates can be paid by check or a prepaid debit card to customers or trade ally contractors who complete a rebate application and submit documentation of the equipment purchase to PPL Electric. Rebates cannot exceed the cost of the measure. Customers interested in installing multiple measures and/or implementing an extensive, whole-facility efficiency solution will be directed to the Commercial and Industrial Custom Incentive Program.

Table 59 shows PPL Electric's list of eligible equipment, incentive levels, and efficiency qualifications. While commercial & industrial customers are generally eligible for all equipment under the Efficient Equipment Incentive Program, only equipment deemed appropriate for the commercial & industrial sector (small C&I and large C&I) is shown in the table below. Additional equipment measures included in the program may be found in the Efficient Equipment Incentive Program descriptions associated with the residential (Section 3.2), governmental/non-profit (Section 3.5) sectors identified in this Plan.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector.

**Table 59. Eligible Equipment Measures**

Measure	Eligibility Rating	Incentive
Water-Cooled Chiller, electronically operated, positive displacement	See rebate form for eligibility	\$10/ton

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Small Commercial and Industrial Sector Programs

Measure	Eligibility Rating	Incentive
Water-Cooled Chiller, electronically operated, centrifugal	See rebate form for eligibility	\$10/ton
Air-cooled, electrically operated chiller	See rebate form for eligibility	\$7/ton
(DX) Packaged Air Conditioner System, >5.4 tons	11.5 EER	\$55/ton
	12.0 EER	\$80/ton
	12.5 EER	\$105/ton
(DX) Packaged Air-Source Heat Pump, >5.4 tons	11.5 EER, 3.5 COP	\$75/ton
	12.3 EER, 3.8 COP	\$160/ton
Central air conditioner (<5.4 tons)	SEER 16	\$100/unit
Heat Pump - Air Source, central ducted, <5.4 tons	SEER 15	\$100/unit
	SEER ≥16	\$200/unit
ENERGY STAR® Ductless mini-split heat pump	SEER 15.0, HSPF 8.2 SEER 17.0, HSPF 9.5 SEER 19.0, HSPF 10.5	\$100 per 12,000 Btu/hr \$150 per 12,000 Btu/hr \$200 per 12,000 Btu/hr
Room air conditioner	ENERGY STAR®	\$25/unit
Motors	Premium Efficiency	see rebate chart on E-power web site
Lighting Power Density Reduction (includes occupancy sensors, lighting, daylighting controls)	5% LPD Reduction from current ASHRAE standard for space type or for ASHRAE whole building approach	\$0.35/watt reduced up to 50% of equipment cost
PTAC/PTHP	PTAC based on cooling capacity and EER. PTHP based on EER and COP	See rebate chart on E-power web site
Electric heat pump water heaters	ENERGY STAR®	\$300/unit
Residential-sized refrigerator	ENERGY STAR®	\$25/unit
Anti-Sweat Heater Controls	Variable Temperature Controls (Humidistat)	\$34/case door
Commercial Reach-In Refrigerator	ENERGY STAR	\$70/unit
Refrigeration Compressor VSD Retrofit	VSD Control	\$70/HP
Display Cases	High-Efficiency, see incentive application for details	\$40/case
Floating Head Pressure Control	N/A	\$20/ton
High-Efficiency Case Fans	High-Efficiency Permanent Split Capacitor (PSC) Motor or ECM	\$20/fan
High-Efficiency Compressor	≥ 15% efficient (base = 40% Efficiency)	\$280/ton
High-Efficiency Evaporator Fans - Walk-ins	N/A	\$50/fan motor
Commercial Ice Maker	ENERGY STAR	\$115/unit
Steam Cookers	ENERGY STAR	\$40/unit

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Small Commercial and Industrial Sector Programs

Measure	Eligibility Rating	Incentive
CFL (screw-in bulbs for commercial use)	ENERGY STAR; non-residential rate classes only; up to 1000 ENERGY STAR bulbs; cannot be previously discounted by PPL CFL Program; not for inventory or new construction.	50% of the cost of the bulb up to \$1.50/bulb
CFL Pin-Base Fixtures	ENERGY STAR	\$30/fixture for commercial customers; \$5/fixture for residential customers
Daylighting Controls	On/off, stepped, or continuous dimming. Fluorescent fixtures with calibration and commissioning of system to ensure system performance	\$35/controlled fixture
LED Exit Lighting	5 Watts or less/face, must replace incandescent or CFL exit sign. Must replace fixture, not retrofit kit	\$15/unit
Occupancy Sensors	Wall, fixture, or Ceiling-mounted Lighting Sensor. Passive infrared or ultrasonic.	Up to \$45/sensor
Occupancy sensors used with daylighting controls	Wall, fixture, or ceiling-mounted lighting sensor. Passive infrared or ultrasonic. Used in conjunction with daylighting controls.	Up to \$25/sensor
High-Pressure Sodium	$\geq 65$ watts and $\leq 300$ watts, must replace mercury vapor lamps	\$40/lamp
Pulse Start Metal Halide/Ceramic Metal Halide	$\leq 320$ Watt	\$25/fixture
	$> 320$ Watt	\$50/fixture
De-lamp and Install Reflectors	Replace existing T12 fixture with T8 or T5 fixture with one or more lamps removed than the original number of lamps. Retrofitted fixture must include an electronic ballast and reflector. This measure does not require a new fixture to be installed. Removing lamps from a fixture that is not being retrofitted is not eligible.	Varies from \$10 - \$30 per lamp installed in new fixture or retrofit kit depending on length of lamps and number of lamps removed. See table on E-power web site.
Fluorescent High Bay Fixtures Lighting Package	High Bay Lighting - T5HO fixture, $> 100$ watts	\$16/lamp
	High Bay Lighting - T8r fixture, $> 100$ watts	\$12/lamp
T8 or T5 Light Fixtures	Replace fixture with T5 or T8 lamps and ballast	\$4/lamp
High performance T8 lamps	Replacing T12 lamp fixtures; must be listed on the CEE database	\$6/lamp
High performance T8 lamps	Replacing T8 fixtures; must be listed on the CEE database	\$1/lamp
LED Fixtures	ENERGY STAR; $\leq 15$ watts	\$15/fixture retrofit kit
Cold cathode lamps	$\geq 2$ watt and $\leq 8$ watt lamps	\$3/lamp
Direct Discount for lighting and refrigeration	Lighting and refrigeration	Various based on \$/kWh annual savings. Rebate capped at project cost

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Measure	Eligibility Rating	Incentive
ASD/VSD	VFDs with motor HP >5 and ≤200	\$30/HP
Ceiling Insulation & Wall Insulation	Existing & new structures- based on current ASHRAE Standards. See rebate application for details for new construction (R11 over code) and for existing construction (add minimum R11 to meet or exceed code)	\$0.30/sf up to 70% of installed cost

EER = Energy-efficiency Rating  
GPM = Gallons per minute  
LPD = Lighting Power Density

VFD = Variable Frequency Drive  
HP = Horse Power

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

#### Implementation Schedule and Milestones

Please see Section 3.2, under Efficient Equipment Incentive Program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.  
Administrative Requirements

Please see Section 3.2, under Efficient Equipment Incentive Program.

#### Estimated Participation

Estimated participation for each measure is shown below. Estimated participation levels are shown for general guidance only.

**Table 60. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Appliances	103	1,070	610	700	2,483
Commercial Reach-In Refrigerator	-	139	50	50	239
Controls	42	946	100	100	1,188
Direct Discount Projects	-	-	2,500	2,500	5,000
Energy Star Office Equipment	-	322	458	458	1,238
HVAC	24	256	310	289	879
Lighting Projects	10	1,368	731	748	2,857

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	Year 1	Year 2	Year 3	Year 4	Total
Motors	-	7	11	11	29
<b>Total</b>	179	4,108	4,770	4,856	13,913

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 321,847 MWh/yr and peak load reductions of approximately 38.4 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the small C&I customer sector are shown in Table 61. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 61. Summary of Projected Benefits, Costs and Cost-Effectiveness**

Benefit/Cost Component	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	85	84,988	117,892	118,881	321,847
Capacity Savings (MW)	0.0	18.4	20.0	20.2	38.4
Total Resource Cost	\$38,637	\$56,813,379	\$37,825,924	\$38,846,472	\$133,524,412
Direct Participant Costs	\$23,786	\$48,805,325	\$14,997,669	\$1,598,963	\$65,425,743
Direct Utility Costs	\$14,851	\$8,008,054	\$22,828,255	\$37,247,509	\$68,098,669
Customer Incentives	\$14,385	\$7,931,286	\$19,554,481	\$33,782,148	\$61,282,300
EDC Labor	\$415	\$62,330	\$97,233	\$124,006	\$283,984
EDC Materials and Supplies	\$50	\$1,955	\$122,600	\$167,832	\$292,438
CSP Labor	\$0	\$0	\$2,849,607	\$2,893,803	\$5,743,410
Other (Marketing and Trade Ally)	\$0	\$12,483	\$204,334	\$279,720	\$496,538
<b>TRC Test</b>					
NPV Benefits	\$139,202,882				
NPV Costs	\$115,910,833				
Net Benefits (NPV)	\$23,292,049				
Benefit-Cost Ratio	1.20				

Other Information

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

## Commercial and Industrial Custom Incentive Program      2010-2013 (Small Commercial and Industrial Sector)

### Objectives

The objectives of the Commercial and Industrial (C&I) Custom Incentive Program include:

- Encourage the installation of high-efficiency equipment not included in PPL Electric's Efficient Equipment Incentive Program by C&I customers in new and existing facilities.
- Encourage equipment repairs and optimization and operational or process changes that reduce electricity consumption and peak demand.
- Encourage a "whole facility" approach to energy-efficiency.
- Increase customer awareness of the features and benefits of electric energy efficient equipment.
- Increase the market penetration of high-efficiency equipment.
- Support emerging technologies and non-typical efficiency solutions in cost-effective applications.
- Encourage advanced energy-efficiency strategies required for certification by national market transformation programs such as Leadership in Energy and Environmental Design (LEED), Architecture 2030, ENERGY STAR Buildings, or Energy Policy Act of 2005 (EPA) tax credits.
- Obtain total reduction of approximately 196,707 MWh/yr and 13MW.<sup>47</sup>

### Target Market

PPL Electric's C&I Custom Incentive Program targets all new and existing commercial and industrial facilities.<sup>48</sup> The program will be available for any type of new or replacement energy efficient equipment not eligible for a prescriptive rebate through PPL Electric's Efficient Equipment Incentive Program or for an extensive package of energy-efficiency measures. The program will also cover retro-commissioning, repairs, optimization, and operational or process changes. All measures, packages of measures, and process changes must be cost-effective as substantiated through a technical analysis.

The Plan divides the program into small C&I, large C&I and governmental/non-profit market sectors, with target customers and approximate participation, budgets, savings and impacts broken out for each sector. However, PPL Electric expects to use a consistent implementation strategy, incentive mechanism, and administrative process to

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<sup>47</sup> Combined total for all target customer segments.

<sup>48</sup> This includes municipal, institutional and other buildings used by governmental/non-profit sector customers.



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deliver the program across all of these customer sectors. Table 62 outlines eligibility parameters for the small commercial and industrial sector.

**Table 62. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
<b>Building Type</b>	Small commercial, small industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

#### Program Description

The Commercial and Industrial Custom Incentive Program provides a delivery channel and financial incentives to customers installing individual equipment measures or systems not covered by the Efficient Equipment Incentive Program, extensive energy-efficiency projects, retro-commissioning, repairs, equipment optimization, and operational and process improvements that result in cost-effective energy-efficiency savings. To qualify for financial incentives, eligible customers are required to provide documentation that their proposed efficiency upgrades pass PPL Electric's cost-effectiveness threshold and technical criteria.

PPL Electric provides 50% of the cost of a technical study, and may provide additional reimbursement following successful implementation of a cost-effective project. Reimbursements may be reduced based on type or size. PPL Electric does not plan to offer technical study reimbursements during Program Year 4. The program offers performance-based incentives based on avoided or reduced kilowatt hours (kWh) and peak demand reduction resulting from the project. Incentives are subject to an annual cap for each project and for each participating customer. Incentives cannot exceed 50% of total project cost, less in-house labor.

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

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

#### Implementation Strategy

This program relies on both CSPs and trade allies for implementation. PPL Electric or the C&I CSP handles customer intake and routing and processes program applications. Trade allies, such as energy engineering and energy service firms, 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. The C&I CSP performs technical analyses of applications; confirms scope, cost, and potential energy savings of proposed projects; conducts field verification of completed projects; and helps to determine the reported

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energy and peak load savings from installed projects.. The EM&V CSP conducts independent evaluations to determine verified savings.

PPL Electric's staff provides overall strategic direction and program management for the program and, supported by other CSPs, marketing, trade ally support, evaluation, and other administrative functions. The project development process for the Custom Incentive Program is more fluid than other programs and may not follow a precise work path. The following workflow is an example of a typical scenario through which an equipment-based custom efficiency project may proceed:

- Customers may be directed to the program through marketing efforts, a trade ally or program contractor, a PPL Electric Key Account Manager, or other PPL Electric EE&C programs.
- A trade ally (e.g., energy services firms, engineering firms, providers of energy-efficiency products and services, etc.) works with the customer to evaluate their facility's energy-efficiency opportunities and develop potential project ideas.
- A professional engineering firm or other qualified contractor, under contract to the customer, performs a detailed technical study of potential projects and evaluates their cost-effectiveness.
- The C&I CSP evaluates the customer's technical study report to qualify projects. This involves confirming project incremental cost and potential energy and capacity savings data and evaluating cost-effectiveness.
- Customers will schedule installation of eligible high-efficiency equipment upgrades, operational or process changes, or other eligible measures directly with an installation contractor.
- Verifying equipment installation, operational, or process changes or other eligible work for all participants, which will be a part of the measurement and verification process.
- Processing rebates for qualified equipment or extensive building efficiency projects.

### Risk and Risk Management Strategy

Table 63 presents key market risks to an effective Custom Incentive Program, as well as the strategies the program will use to address each risk.

**Table 63. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Higher first cost of energy efficient equipment.	Offer customized incentives on equipment and technical study to offset higher cost.
Not a high priority; limited access to discretionary cash/credit.	
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
Low dealer, customer, and trade ally awareness.	

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Market Risks	Management Strategies
Procurement policies that specify low first-cost instead of life-cycle cost.	budget and operating concerns. Marketing to equipment dealers, distributors and installers and other trade allies.
Tenant/landlord issues.	

#### Anticipated Costs to Participating Customers

In general, measure rebates are designed to cover approximately 50% of the customer incremental cost of the project, up to a cap of \$500,000 per customer site per year, or \$2 million per parent company per year for customers with multiple facilities, not to exceed 50% of project cost (less in-house labor).

#### Marketing Strategy

This program relies on both customer marketing and trade ally promotion. PPL Electric, the Advertising CSP, and the C&I CSP developed a marketing strategy, which may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Advertise using newspaper, radio, and other mass media.
- Present program information at seminars, conferences, and industry events.
- Coordinate advertising opportunities with trade allies.
- Publish and distribute program brochure.
- Targeted marketing to high-potential market sectors.
- 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

Table 64 shows PPL Electric's proposed incentive levels

**Table 64. Eligible Equipment Measures**

Measure	Qualification	Incentive
Technical study	Performed by professional engineer or other qualified firm	50% of technical study cost. Another 50% of technical study cost may be rebated if customer proceeds with the project. Capped at \$100,000 total incentive per calendar year.
Equipment, project or process improvement Incentive	1.0 benefit-to-cost ratio	\$0.10/kWh saved (first year savings) based on technical study results, up to \$500,000 per customer site per year or \$2 MM per parent company per year for customers with multiple sites. Caps are per calendar year. Incentive cannot exceed 50% of the incremental cost.

The per customer site cap is defined as one building with one or more meters. Multiple sites and parent company cap will apply to a campus setting or multiple buildings (on the same property or in different locations) with a common owner.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

#### Implementation Schedule and Milestones

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

**Table 65. Program Schedule and Milestones**

Schedule	Milestones
08/01/2009	Develop work scope, evaluation criteria, and performance protocols.
08/14/2009	Issue RFP for Conservation Service Provider.
10/09/2009	CSP under contract.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
03/01/2010-04/01/2010	Train internal staff and trade allies.
03/01/2010-ongoing	Outreach to professional engineering firms, equipment dealers, trade allies, and other local market actors.
04/01/2010	Develop tracking and allocation procedures.
02/01/2010	Determine customer contractor qualification requirements.

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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.

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

PPL Electric's Evaluation Plan and Site Specific M&V Plans describe the EM&V requirements for this program and specific projects.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSPs, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The C&I CSP handles customer calls, technical support, and processes rebates.
- Trade Allies will engage manufacturers and engineers.
- EM&V CSP conducts evaluation, measurement, and verification activities.

#### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 66. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of projects	1	24	50	25	100

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 12,160 MWh/hr and peak reductions of approximately 4,039 kW.. The annual budget allocation, cumulative MWh/hr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the small C&I customer sector are shown in Table 67. Key assumptions used in calculating measure-level savings are shown in Appendix E.

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**Table 67. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	39	1,396	7,150	3,575	12,160
Capacity Savings (MW)	0.0	1.0	3.0	1.5	4.0
Total Resource Cost	\$116,756	\$460,415	\$1,178,891	\$599,673	\$2,355,735
Direct Participant Costs	\$15,913	\$322,085	\$185,917	\$92,959	\$616,875
Direct Utility Costs	\$100,843	\$138,330	\$992,973	\$506,714	\$1,738,861
Customer Incentives	\$1,805	\$103,155	\$700,000	\$350,000	\$1,154,960
EDC Labor	\$99,038	\$11,265	\$6,973	\$13,714	\$130,990
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$23,910	\$286,000	\$143,000	\$452,910
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$12,899,151				
NPV Costs	\$2,029,815				
Net Benefits (NPV)	\$10,869,336				
<i>Benefit-Cost Ratio</i>	6.35				

**Other Information**

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

## HVAC Tune-up Program (Small Commercial and Industrial Sector)

2010-2013

### Objectives

The objectives of the Small Commercial HVAC Tune-up Program include:

- Optimize HVAC unit performance.
- Assist commercial customers in lowering their energy bills and operating costs.
- Obtain participation by approximately 1,700 customers through 2013, with a total reduction of approximately 2,046MWh/yr and 531kW.<sup>49</sup>

### Target Market

PPL Electric's HVAC Tune-up Program targets existing buildings with packaged commercial HVAC systems. The program will be available for both small commercial and government/non-profit sector customers. Tenants in rental properties may participate with approval from the property owner.

The Plan divides the program into small C&I and government/non-profit market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector.<sup>50</sup> However, PPL Electric uses a consistent implementation strategy, incentive mechanism, and administrative process to deliver the program across the C&I market sectors. Table 68 outlines eligibility targets for the small commercial and industrial sector.

**Table 68. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, GH, IS1, SLAL, TOU after 1/1/10
<b>Building Type</b>	Small commercial
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

The HVAC Tune-Up Program is designed to increase the operating performance of electric HVAC systems in commercial buildings. The program offers financial incentives to HVAC contractors to diagnose performance inefficiencies and make energy-saving retrofits. The efficiency opportunities can be broken into three main areas:

- Refrigeration components
- Air distribution system

<sup>49</sup> Combined total for all target customer segments.

<sup>50</sup> Eligible equipment measures are not applicable in the large commercial, residential, or low-income sectors.

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Small Commercial and Industrial Sector Programs

- Controls

### Implementation Strategy

The HVAC Tune-up CSP manages and administers the program, including contractor recruitment, contractor training, providing ongoing contractor field support, marketing, processing applications and rebates, tracking program data, and reporting to PPL Electric. HVAC Contractors will provide technical assessments and install energy-efficiency improvements on customers' HVAC systems. PPL Electric staff provides overall strategic direction and program management for the program and, supported by other CSPs, marketing, rebates and trade ally support, evaluation, and other administrative functions. Key steps in program participation include:

- Trained HVAC contractors use diagnostic tools to assess HVAC unit performance, tune-up systems and install energy-efficiency equipment to improve performance.
- HVAC contractors provide completed job details to the HVAC Tune-up CSP.
- The HVAC Tune-up CSP uploads job details to PPL Electric's tracking system and to the Administrative CSP.
- The Administrative CSP processes the rebates.
- The HVAC Tune-up CSP provides reports to PPL Electric that outline program accomplishments, challenges, contractor and customer feedback, projected saving forecasts, and other program information.

### Risk and Risk Management Strategy

Table 69 presents key market risks to an effective Small Commercial HVAC Program, as well as the strategies the program will use to address each risk.

**Table 69. Risks and Risk Management Strategies**

Market Risks	Management Strategies
HVAC contractors have limited time and/or resources to implement program components.	Provide financial incentives to contractors to compensate their time and encourage participation.
Limited number of qualified contractors.	Contractor marketing and training through Web seminars and outreach. Robust marketing plan encouraging contractor participation.
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.	



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Market Risks	Management Strategies
Customer not aware of incentives to contractors.	

#### Anticipated Costs to Participating Customers

In general, measure rebates are designed to cover approximately 25 to 50% of the customer incremental cost.

#### Marketing Strategy

This program relies on customer marketing, CSP, and trade ally promotion. The HVAC Tune-up CSP works with PPL Electric's Advertising CSP and its internal Marketing and Customer Strategy division to create a marketing strategy for this program, which may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company's Web site, [www.pplelectric.com](http://www.pplelectric.com).
- 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.\*

\* Note: as of May 2012, the program will no longer be promoted to end-use customers. HVAC contractors may continue to provide measures to customers and receive rebates until program funding is exhausted.

#### 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 are a fixed amount per measure, paid to HVAC contractors (or to customers who self-perform the services) who complete an application and submit documentation to PPL Electric's HVAC Tune-up CSP.

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The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the small C&I sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans. Table 70 shows PPL Electric's proposed incentive levels.

**Table 70. Eligible Equipment Measures**

Measure	Incentive
diagnostic testing	\$25
economizer testing	\$ 15
cycle performance (single compressor)	\$125
cycle performance (multiple compressors)	\$175
Thermostat adjustment	\$25
Thermostat lockout	\$50
Thermostat Replacement	\$100
Economizer Adjustment	\$ 100

**Implementation Schedule and Milestones**

Planning and implementation tasks and schedule for the Small Commercial HVAC Tune-up Program follow. Some tasks will be led by PPL Electric; other tasks will be led by various program CSPs, with oversight from PPL Electric.

**Table 71. Program Schedule and Milestones**

Schedule	Milestones
08/15/2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for program Conservation Service Provider(s).
09/15/2009	Issue RFP for program Conservation Service Provider
11/01/2009	Execute program implementation contract(s) with selected program Conservation Service Providers.
08/21/2009 – 10/09/2010	Secure Advertising, Quality Assurance, and EM&V CSPs.
01/01/2010	Provide outreach to trade allies and other interested stakeholders.
01/01/2010	Train internal staff and trade allies.
01/15/2010	Develop customer education materials.

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Schedule	Milestones
01/15/2010	Develop program forms, tracking database, and incentive process.
02/01/2010	Develop tracking and allocation procedures.
02/01/2010	Establish communication and reporting schedule.
01/15/2010	Finalize marketing approach details.
02/01/2010	Determine data requirements for program evaluation.
04/15/2010	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

#### Administrative Requirements

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and program CSP, and will work with trade allies, other Pennsylvania utilities, and stakeholders.
- The Administrative CSP and/or the HVAC Tune-up CSP handle customer calls, pay rebates, and direct customers to the program.
- The HVAC Tune-up CSP administers the program, recruits customers and HVAC contractors, trains HVAC contractors about program requirements, tracks project and customer data, reviews and verifies program applications, calculates rebates and transmits them to the Administrative CSP, uploads program information to PPL Electric's tracking system, and provides report to PPL Electric.
- Trade Allies (HVAC installers) perform tune-up work.
- The Administrative CSP processes rebates.
- EM&V CSP conducts evaluation, measurement, and verification activities.

#### Estimated Participation

Estimated participation levels are shown for general guidance only.

**Table 72. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of jobs	1	686	18	20	725

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 525 MWh/yr and peak load reductions of

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approximately 521 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the small C&I customer sector are shown in Table 73. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 73. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	464	29	32	525
Capacity Savings (MW)	-	0.5	0.0	0.0	0.5
Total Resource Cost	\$37,325	\$112,090	\$5,535	\$6,203	\$161,154
Direct Participant Costs	\$0	\$1	\$0	\$0	\$1
Direct Utility Costs	\$37,325	\$112,090	\$5,535	\$6,203	\$161,153
Customer Incentives	\$0	\$30,050	\$1,872	\$2,080	\$34,002
EDC Labor	\$37,153	\$42,047	\$1,683	\$1,692	\$82,575
EDC Materials and Supplies	\$166	\$3,024	\$0	\$231	\$3,420
CSP Labor	\$7	\$21,608	\$1,980	\$2,200	\$25,795
Other (Marketing and Trade Ally)	\$0	\$15,360	\$0	\$0	\$15,360
<b>TRC Test</b>					
NPV Benefits	\$77,663				
NPV Costs	\$150,782				
Net Benefits (NPV)	-\$73,119				
<i>Benefit-Cost Ratio</i>	0.52				

## Direct Load Control Program (Small Commercial and Industrial Sector)

2010-2013

### Objectives

Please see Section 3.2, under Direct Load Control Program.

### Target Market

Please see Section 3.2, under Direct Load Control Program.

**Table 74. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, small
<b>Rate Class</b>	GS1, GS3, TOU after 1/1/10
<b>Building Type</b>	Small commercial & industrial structures with appropriate control equipment
<b>Building Vintage</b>	Existing buildings, new construction
<b>Building ownership</b>	Owner or tenant with owner's approval

### Program Description

Please see Section 3.2, under Direct Load Control Program.

### Implementation Strategy

Please see Section 3.2, under Direct Load Control Program.

### Risk and Risk Management Strategy

Please see Section 3.2, under Direct Load Control Program.

### 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.

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Implementation Schedule and Milestones

Please see Section 3.2, under Direct Load Control Program.

Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Direct Load Control Program.

Administrative Requirements

Please see Section 3.2, under Direct Load Control Program.

Estimated Participation

Estimated small commercial and industrial sector participation for this program is shown below for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.

**Table 75. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	0	0	5,027	5,027	10,054

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity demand savings of approximately 3.5 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the small C&I customer sector are shown in Table 76. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 76. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	3.5	3.5
Total Resource Cost	\$6,370	\$91,507	\$257,109	\$830,913	\$1,185,899
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$6,370	\$91,507	\$257,109	\$830,913	\$1,185,899
Customer Incentives	\$0	\$0	\$0	\$160,864	\$160,864
EDC Labor	\$5,499	\$8,185	\$6,930	\$6,930	\$27,545
EDC Materials and Supplies	\$0	\$130	\$198	\$198	\$526
CSP Labor	\$871	\$83,193	\$249,981	\$662,920	\$996,964
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$122,016				
NPV Costs	\$971,134				
Net Benefits (NPV)	-\$849,118				
<i>Benefit-Cost Ratio</i>	0.13				

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Note: Other than for testing or for advanced enrollments to prepare for Year 4, there will be few or no load reductions in years 2 and 3 and those reductions will not count toward the MW reduction target because DR reductions only count in Year 4- (summer 2012).

### 3.4. Large Commercial and Industrial Sector Programs

#### Efficient Equipment Incentive Program (Large Commercial and Industrial Sector)

2010-2013

##### Objectives

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Target Market

Please see Section 3.2, under Efficient Equipment Incentive Program. Table 77 outlines eligibility targets for the large commercial and industrial sector.

**Table 77. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, large
<b>Rate Class</b>	LP4, LP5, LP6, ISP, IST, LPEP, ISA, PR1, PR2, TOU after 1/1/10
<b>Building Type</b>	Large commercial, large industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### Program Description

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Implementation Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program. This program is expected to be fully subscribed for the Large C&I customer sector in 2011 except for institutional customers (schools, non-profits, and government) that are in large C&I rate classes). Please see PPL Electric's E-Power website for current status.

##### Risk and Risk Management Strategy

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Anticipated Costs to Participating Customers

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### Marketing Strategy

Please see Section 3.3, under Efficient Equipment Incentive Program.



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Large Commercial and Industrial Sector Programs

**Eligible Measures and Incentive Strategy**

Please see Section 3.3, under Efficient Equipment Incentive Program for PPL Electric's proposed list of eligible equipment, incentive levels and efficiency qualifications deemed appropriate for the commercial and industrial sector. Additional equipment measures included in the program may be found in Sections 3.2 and 3.5, under Efficient Equipment Incentive Program.

**Implementation Schedule and Milestones**

Please see Section 3.2, under Efficient Equipment Incentive Program.

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

Please see Section 3.2, under Efficient Equipment Incentive Program.

**Administrative Requirements**

Please see Section 3.2, under Efficient Equipment Incentive Program.

**Estimated Participation**

Estimated large commercial and industrial sector participation levels are shown below for general guidance only.

**Table 78. Projected Electric Measure Installations**

	Year 1	Year 2	Year 3	Year 4	Total
HVAC	-	26	-	-	26
Appliances	-	43	-	-	43
Lighting Projects	-	156	21	-	177
Motors	-	3	-	-	3
Energy Star Office Equipment	-	494	-	-	494
Commercial Reach-In Refrigerator	-	4	-	-	4
<b>Total</b>	<b>-</b>	<b>726</b>	<b>21</b>	<b>-</b>	<b>747</b>

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 89,638 MWh/yr and peak load reductions of approximately 9 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the large C&I customer sector are shown in Table 79. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 79. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

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Large Commercial and Industrial Sector Programs

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	56,775	32,863	-	89,638
Capacity Savings (MW)	-	8.0	1.0	-	9.0
Total Resource Cost	\$0	\$6,982,184	\$1,403,372	\$0	\$8,385,556
Direct Participant Costs	\$0	\$3,311,255	\$166,945	\$0	\$3,478,201
Direct Utility Costs	\$0	\$3,670,929	\$1,236,427	\$0	\$4,907,355
Customer Incentives	\$0	\$3,619,646	\$753,013	\$0	\$4,372,659
EDC Labor	\$0	\$41,638	\$27,110	\$0	\$68,748
EDC Materials and Supplies	\$0	\$1,306	\$34,183	\$0	\$35,489
CSP Labor	\$0	\$0	\$365,147	\$0	\$365,147
Other (Marketing and Trade Ally)	\$0	\$8,339	\$56,972	\$0	\$65,311
<b>TRC Test</b>					
NPV Benefits	\$70,936,407				
NPV Costs	\$7,668,151				
Net Benefits (NPV)	\$63,268,257				
<i>Benefit-Cost Ratio</i>	9.25				

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

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Table 80. Customer Eligibility Parameters**

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

### Program Description

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.  
This program is expected to be fully subscribed for the Large C&I customer sector in 2011 except for institutional customers (schools, non-profits, and government) that are in large C&I rate classes). Please see PPL Electric's E-Power website for current status.

### Risk and Risk Management Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Anticipated Costs to Participating Customers

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Ramp-up Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Marketing Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

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**Eligible Measures and Incentive Strategy**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Implementation Schedule and Milestones**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

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

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Administrative Requirements**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Estimated Participation**

Estimated large commercial and industrial sector participation levels are shown below.

**Table 81. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of Projects	-	16	82	25	123

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 140,273 MWh/yr and peak load reductions of approximately 8.9 MW. The annual budget allocation, cumulative MWh and coincident peak MW savings through 2013, and overall program cost-effectiveness for the large C&I customer sector are shown in Table 82. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 82. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

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<i>Benefit/Cost Component</i>	<b>Plan Year</b>				<b>Total</b>
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	
Savings (MWh)	-	11,873	98,400	30,000	140,273
Capacity Savings (MW)	-	1.0	7.9	2.4	8.9
Total Resource Cost	\$0	\$5,347,221	\$27,053,498	\$8,333,844	\$40,734,563
Direct Participant Costs	\$0	\$4,047,179	\$17,527,532	\$5,343,760	\$26,918,471
Direct Utility Costs	\$0	\$1,300,042	\$9,525,967	\$2,990,084	\$13,816,093
Customer Incentives	\$0	\$1,020,827	\$8,446,000	\$2,575,000	\$12,041,827
EDC Labor	\$0	\$95,806	\$95,967	\$115,084	\$306,857
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$183,409	\$984,000	\$300,000	\$1,467,409
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$107,404,310				
NPV Costs	\$34,760,819				
Net Benefits (NPV)	\$72,643,491				
<i>Benefit-Cost Ratio</i>	3.09				

## Load Curtailment Program (Large Commercial and Industrial Sector)

2010-2013

### Objectives

The objectives of the Load Curtailment Program include:

- Reduce peak demand by providing incentive for energy usage reduction during peak hours in summer period.
- Provide value to customers with energy management tools and cost savings.
- Obtain a peak load reduction of approximately 156 MW in the summer of 2012.<sup>51</sup>

### Target Market

PPL Electric's Load Curtailment Program targets Commercial and Industrial and governmental/non-profit customers<sup>52</sup>.

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. PPL Electric uses a consistent implementation strategy, incentive mechanism and administrative process to deliver the program across the C&I market sectors. Table 83 outlines eligibility parameters for the large C&I sector.

**Table 83. Customer Eligibility Parameters**

<b>Customers Type</b>	Commercial and industrial, large
<b>Rate Class</b>	GS3, LP4, LP5, LP6, LPEP, IST, ISP, ISA, PR1, PR2
<b>Building Type</b>	Large commercial, large industrial
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant

### Program Description

The Load Curtailment Program operates during the peak summer season, from June 1 to September 30, generally during weekdays. The number of participants, the number of interruptible hours per participant, and the size of each participant's load reduction will be managed by PPL Electric's Load Curtailment CSP. Customers are notified of peak-hour events and are requested to decrease load during that period by shifting or eliminating load or using back-up or distributed generation that meets environmental

<sup>51</sup> Given the uncertainty associated with accurately predicting the top 100 peak load hours, PPL Electric anticipates that it will need approximately 300 MW of participants averaging 50 hours of interruption to achieve the peak load reduction target. These MWs are at the retail meter level and will be grossed up to reflect transmission and distribution losses since compliance is determined at the system (generation) level.

<sup>52</sup> Due to the demand criteria, the Plan includes this program for only large commercial and industrial sector customers, however, any customer that meets the program eligibility requirements may participate and their cost will be accounted for in their applicable customer segment.

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regulations. Customers will be paid an incentive by the Load Curtailment CSP. Incentive levels will likely vary depending on the number of interruptions, the size of the load reductions, and other factors agreed upon between the customer and the Load Curtailment CSP.

#### Implementation Strategy

The Load Curtailment CSP provides turnkey services to manage and administer the program and delivers firm load reductions to PPL Electric. The Load Curtailment CSP is responsible for services such as:

- Markets the program, recruits participants, contracts with participants
- Customer intake and service
- Prepare and execute customer contracts.
- Implementing technologies to facilitate information exchange with PPL Electric and customer sites.
- Notify participants of load reduction events.
- Tracking program data and determining the peak load reductions for each participant and event
- Determining and paying incentives to participants
- Provide transactional information to PPL Electric

PPL Electric is responsible for services such as:

- Overall strategic direction and program management for the program and, supported by other CSPs, marketing, evaluation, and other administrative functions.
- Responsible for load forecasting and determining when to initiate load curtailments (i.e. the 50 or more hours of highest demand). The Load Curtailment CSP can declare additional hours if desired.

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'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 Load Curtailment CSP exclusively.

#### Risk and Risk Management Strategy

Table 84 presents key market risks to an effective Load Commercial and Industrial Curtailment program, as well as the strategies the program will use to address each risk.

**Table 84. Risks and Risk Management Strategies**

Market Risks	Management Strategies
Lack of program awareness among customers.	Robust marketing strategy.
Customer reluctance to change business practices or impact operations.	Provide adequate financial and non-financial benefits for participation (e.g., energy management support).
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. Test these tools in 2011. Obtain double the target amount of firm interruptible load (MW) for 50 hours to reduce load forecasting risk.

#### Anticipated Costs to Participating Customers

*There are no costs incurred by customers in this program.*

#### Marketing Strategy

The Load Curtailment CSP works with PPL Electric's staff to create a marketing strategy for this program that may include:

- Promote program on "ePowerlink," PPL Electric's C&I customer Web newsletter.
- Communicate and provide access to program information on the Company Web site, [www.pplelectric.com](http://www.pplelectric.com).
- Marketing collateral: bill inserts, brochures, Web page, etc.
- Promote program through contact with PPL Electric Key Account Managers.
- Cross-promote through other PPL Electric programs.

#### 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.

#### 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.



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**Table 85. Program Schedule and Milestones**

Schedule	Milestones
Sept 2009	Develop RFP, including scope of work, selection criteria, and quality assurance protocols for Demand Response CSP (load curtailment and direct load control)
Nov 2009	Issue RFP for Demand Response CSP(s).
May 2011	Execute program implementation contract with Load Curtailment CSP. Note: this was delayed pending finalization of demand response protocols (method to determine savings in PA)
Sept 2011	Launch program.

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

PPL Electric's Evaluation Plan describes the EM&V requirements for this program.

**Administrative Requirements**

Summary of administrative requirements:

- PPL Electric's staff oversees all program operations and the Load Curtailment CSP
- 
- The Load Curtailment CSP manages and administers the program, including marketing, customer intake and service, customer contracts, processing rebates, tracking program data, and reporting program information to PPL Electric.
- EM&V CSP conducts evaluation, measurement, and verification activities and coordinates with the statewide evaluator.

**Estimated Participation**

Estimated participation levels are shown for general guidance only. Since the measure life is one year, only the load curtailments in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, load curtailments in other years are zero.

**Table 86. Projected Participants**

	Year 1	Year 2	Year 3	Year 4	Total
Participants	1	1	0	180	182

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

Over the four-year planning horizon, the program is expected to achieve a peak load reduction of approximately 140 MW. The annual budget allocation, coincident peak MW

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Large Commercial and Industrial Sector Programs

savings through 2013, and overall program cost-effectiveness for the large C&I customer sector are shown in Table 87. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 87. Summary of Projected Benefits, Costs, and Cost-effectiveness**

<i>Benefit/Cost Component</i>	<i>Plan Year</i>				<i>Total</i>
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	140.4	140.4
Total Resource Cost	\$74,574	\$61,028	\$4,151,810	\$5,401,498	\$9,688,910
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$74,574	\$61,028	\$4,151,810	\$5,401,498	\$9,688,910
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$61,755	\$59,930	\$62,879	\$62,879	\$247,443
EDC Materials and Supplies	\$4,920	\$1,099	\$1,797	\$1,797	\$9,612
CSP Labor	\$7,899	\$0	\$4,087,135	\$5,336,822	\$9,431,856
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$4,854,574				
NPV Costs	\$7,978,473				
Net Benefits (NPV)	-\$3,123,899				
<i>Benefit-Cost Ratio</i>	<b>0.61</b>				

### **3.5. Governmental, Schools, and Non-Profit Sector Programs ("Institutional" or "GNI")**

#### **Efficient Equipment Incentive Program (Government/Non-Profit Sector)**

2010-2013

##### **Objectives**

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### **Target Market**

Please see Section 3.2, under Efficient Equipment Incentive Program. Table 88 outlines eligibility targets for the governmental/non-profit sector.

**Table 88. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, schools, and non-profit
<b>Rate Class</b>	Primarily GS1, GS3, SLAL, LP4, & LP5 but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

##### **Program Description**

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### **Implementation Strategy**

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### **Risk and Risk Management Strategy**

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### **Anticipated Costs to Participating Customers**

Please see Section 3.2, under Efficient Equipment Incentive Program.

##### **Marketing Strategy**

Please see Section 3.3, under Efficient Equipment Incentive Program.

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Governmental/Non-Profit Sector Programs

**Eligible Measures and Incentive Strategy**

Please see Section 3.3, under Efficient Equipment Incentive Program.

**Table 89. Eligible Equipment Measures**

In addition to the measures shown below, please see Section 3.3, under Efficient Equipment Incentive Program for PPL Electric's list of eligible equipment, incentive levels and efficiency qualifications deemed appropriate for the commercial and industrial sector.

The measures, eligibility requirements, number of participants, and incentives are approximate and could change to reflect progress, changes in the TRM, changes in market conditions, and other factors. For clarity, the measure description, eligibility rating, and incentive description may not include all details. For some measures, PPL Electric will likely offer higher or special incentives for limited times to promote participation by the Institutional sector. Eligible measures and incentives shown are only those that are effective with this revised EE&C Plan and exclude measures and incentives that have been discontinued or changed from previous EE&C Plans.

Measure	Incentive
LED Traffic Signals 8" Red and Green	\$25/unit
LED Traffic Signals 12" Red and Green	\$30/unit
LED Traffic Signals Pedestrian 8 or 12"	\$30/unit
LED Traffic Signals Green Arrow 8"	\$25/unit
LED Traffic Signals Green Arrow 12"	\$30/unit

**Implementation Schedule and Milestones**

Please see Section 3.2, under Efficient Equipment Incentive Program.

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

Please see Section 3.2, under Efficient Equipment Incentive Program.

**Administrative Requirements**

Please see Section 3.2, under Efficient Equipment Incentive Program.

**Estimated Participation**

Estimated governmental/non-profit participation levels are shown below for general guidance only.

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Governmental/Non-Profit Sector Programs

**Table 90. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
HVAC	11	469	189	189	858
Appliances	6	999	601	601	2,207
Lighting Projects	37	1,153	300	300	1,790
Motors	-	7	8	8	23
Energy Star Office Equipment	-	6,513	6,554	-	13,067
Commercial Reach-In Refrigerator	-	123	200	200	523
<b>Total</b>	<b>54</b>	<b>9,264</b>	<b>7,852</b>	<b>1,298</b>	<b>18,468</b>

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 67,601 MWh/yr and a peak load reduction of approximately 18.9 MW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in Table 91. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 91. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	15	35,319	16,568	15,699	67,601
Capacity Savings (MW)	0.0	8.4	10.6	10.4	18.9
Total Resource Cost	\$12,133	\$36,027,078	\$14,630,204	\$14,380,323	\$65,049,737
Direct Participant Costs	\$9,655	\$31,988,104	\$12,128,931	\$12,005,587	\$56,132,276
Direct Utility Costs	\$2,478	\$4,038,974	\$2,501,273	\$2,374,736	\$8,917,461
Customer Incentives	\$2,397	\$4,007,072	\$1,694,774	\$1,592,752	\$7,296,993
EDC Labor	\$73	\$25,902	\$13,667	\$16,376	\$56,019
EDC Materials and Supplies	\$9	\$812	\$17,233	\$22,164	\$40,218
CSP Labor	\$0	\$0	\$746,878	\$706,504	\$1,453,382
Other (Marketing and Trade Ally)	\$0	\$5,188	\$28,722	\$36,940	\$70,849
<b>TRC Test</b>					
NPV Benefits	\$70,383,067				
NPV Costs	\$57,329,144				
Net Benefits (NPV)	\$13,053,923				
<i>Benefit-Cost Ratio</i>	1.23				

Note: Table 109 was updated to reflect the change in classification of common and direct costs

## Commercial and Industrial Custom Incentive Program 2010-2013 (Government/Schools/Non-Profit Sector)

### Objectives

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Target Market

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

Table 92 outlines eligibility parameters for the large commercial and industrial sector.

**Table 92. Customer Eligibility Parameters**

<b>Customers Type</b>	Government, schools, and non-profit
<b>Rate Class</b>	Primarily GS1, GS3, SLAL, LP4, & LP5 but <i>could include other rate classes</i>
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Implementation Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Risk and Risk Management Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Anticipated Costs to Participating Customers

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

### Marketing Strategy

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

PPL Recognizes the importance of targeted promotion of its programs to governmental, school, and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

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Governmental/Non-Profit Sector Programs

**Eligible Measures and Incentive Strategy**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Implementation Schedule and Milestones**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

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

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Administrative Requirements**

Please see Section 3.3, under Commercial and Industrial Custom Incentive Program.

**Estimated Participation**

Estimated governmental/non-profit sector participation levels are shown below.

**Table 93. Projected Electric Measure Installations**

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of projects	-	13	10	10	33

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

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 44,256 MWh/yr and peak load reductions of approximately 330 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in Table 94. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 94. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

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<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	3,336	38,000	2,920	44,256
Capacity Savings (MW)	-	0.2	0.1	0.1	0.3
Total Resource Cost	\$0	\$1,841,510	\$2,869,105	\$1,440,046	\$6,150,661
Direct Participant Costs	\$0	\$1,493,759	-\$37,955	\$1,082,045	\$2,537,848
Direct Utility Costs	\$0	\$347,751	\$2,907,060	\$358,002	\$3,612,813
Customer Incentives	\$0	\$211,899	\$1,350,000	\$230,000	\$1,791,899
EDC Labor	\$0	\$26,923	\$37,060	\$11,202	\$75,185
EDC Materials and Supplies	\$0	\$0	\$0	\$0	\$0
CSP Labor	\$0	\$108,929	\$1,520,000	\$116,800	\$1,745,729
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$41,628,264				
NPV Costs	\$5,308,052				
Net Benefits (NPV)	\$36,320,212				
<i>Benefit-Cost Ratio</i>	7.84				



## HVAC Tune-Up Program (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

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

### Target Market

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

The Plan divides the program into small C&I and government/non-profit market sectors, with target customers, participation, budgets, savings, and other appropriate details broken out for each sector.<sup>53</sup> Table 95 outlines eligibility targets for the government/non-profit sector.

**Table 95. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, schools and non-profit
<b>Rate Class</b>	Primarily GS1, GS3 but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	Existing buildings
<b>Building ownership</b>	Owner or tenant with owner approval

### Program Description

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

### Implementation Strategy

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

### Risk and Risk Management Strategy

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

### Anticipated Costs to Participating Customers

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

### Marketing Strategy

Please see Section 3.3, under HVAC Tune-Up Program. PPL Recognizes the importance of targeted promotion of its programs to governmental and non-profit sector

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<sup>53</sup> Large commercial customers typically do not use rooftop HVAC systems for building conditioning.

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Governmental/Non-Profit Sector Programs

customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

Eligible Measures and Incentive Strategy

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

Implementation Schedule and Milestones

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

Evaluation, Measurement, and Verification (EM&V)

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

Administrative Requirements

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

Estimated Participation

Estimated governmental/non-profit sector participation is shown below.

**Table 96. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Estimated # of jobs	1	1	10	20	32

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 48 MWh/yr and peak load reductions of approximately 2 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in Table 97. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 97. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

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Governmental/Non-Profit Sector Programs

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	16	32	48
Capacity Savings (MW)	-	-	0.0002	0.0004	0.0002
Total Resource Cost	\$4	\$12,005	\$3,075	\$6,203	\$21,286
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$4	\$12,005	\$3,075	\$6,203	\$21,286
Customer Incentives	\$0	\$0	\$1,040	\$2,080	\$3,120
EDC Labor	\$0	\$0	\$935	\$1,692	\$2,627
EDC Materials and Supplies	\$0	\$0	\$0	\$231	\$231
CSP Labor	\$4	\$12,005	\$1,100	\$2,200	\$15,309
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$10,633				
NPV Costs	\$18,680				
Net Benefits (NPV)	-\$8,046				
<i>Benefit-Cost Ratio</i>	0.57				

## Renewable Energy Program (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

Please see Section 3.2, under Renewable Energy Program.

### Target Market

Please see Section 3.2, under Renewable Energy Program.

Table 98 outlines eligibility targets for the governmental/non-profit sector.

**Table 98. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, schools, and non-profit
<b>Rate Class</b>	Primarily GS1, GS3, SLAL, LP4, and LP5 but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	Existing and new construction
<b>Building ownership</b>	Owner

### Program Description

Please see Section 3.2, under Renewable Energy Program.

### Implementation Strategy

Please see Section 3.2, under Renewable Energy Program.

### Risk and Risk Management Strategy

Please see Section 3.2, under Renewable Energy Program.

### Anticipated Costs to Participating Customers

Please see Section 3.2, under Renewable Energy Program.

### Marketing Strategy

- Please see Section 3.2, under Renewable Energy Program.

PPL Electric recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

Eligible Measures and Incentive Strategy

Please see Section 3.2, under Renewable Energy Program.

Implementation Schedule and Milestones

Please see Section 3.2, under Renewable Energy Program.

Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Renewable Energy Program.

Administrative Requirements

Please see Section 3.2, under Renewable Energy Program.

Estimated Participation

Estimated governmental/non-profit sector participation is shown below for general guidance only.

**Table 99. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
Photovoltaic systems	-	6	2	-	8
Ground Source Heat Pumps (projects)	-	24	13	-	37
<b>Total</b>	-	30	15	-	45

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve electricity consumption savings of approximately 9,872 MWh/yr and peak load reductions of approximately 3,778 kW. The annual budget allocation, cumulative MWh/yr and coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in Table 100. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 100. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

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<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	5,670	4,202	-	9,872
Capacity Savings (MW)	-	1.4	2.4	-	3.8
Total Resource Cost	\$0	\$16,391,345	\$7,023,179	\$0	\$23,414,524
Direct Participant Costs	\$0	\$14,335,110	\$5,424,179	\$0	\$19,759,289
Direct Utility Costs	\$0	\$2,056,236	\$1,599,000	\$0	\$3,655,236
Customer Incentives	\$0	\$2,007,929	\$1,499,000	\$0	\$3,506,929
EDC Labor	\$0	\$48,102	\$100,000	\$0	\$148,102
EDC Materials and Supplies	\$0	\$204	\$0	\$0	\$204
CSP Labor	\$0	\$0	\$0	\$0	\$0
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$10,728,857				
NPV Costs	\$21,198,416				
Net Benefits (NPV)	-\$10,469,558				
<i>Benefit-Cost Ratio</i>	0.51				

## Direct Load Control Program (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

Please see Section 3.2, under Direct Load Control Program.

### Target Market

Please see Section 3.2, under Direct Load Control Program. Customer eligibility parameters for the governmental/non-profit sector are outlined below.

**Table 101. Customer Eligibility Parameters**

<b>Customers Type</b>	Governmental, schools, and non-profit
<b>Rate Class</b>	Primarily GS1, GS3, & SLAL but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	Existing buildings, new construction
<b>Building ownership</b>	Owner or tenant with owner's approval

### Program Description

Please see Section 3.2, under Direct Load Control Program.

### Implementation Strategy

Please see Section 3.2, under Direct Load Control Program.

### Risk and Risk Management Strategy

Please see Section 3.2, under Direct Load Control Program.

### Anticipated Costs to Participating Customers

Please see Section 3.2, under Direct Load Control Program.

### Marketing Strategy

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

PPL Electric recognizes the importance of targeted promotion of its programs to governmental and non-profit sector customers to reach its Plan goals for this sector, and may develop additional strategies to market to these customers over time.

### Eligible Measures and Incentive Strategy

Please see Section 3.2, under Direct Load Control Program.

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Governmental/Non-Profit Sector Programs

Implementation Schedule and Milestones

Please see Section 3.2, under Direct Load Control Program.

Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.2, under Direct Load Control Program.

Administrative Requirements

Please see Section 3.2, under Direct Load Control Program.

Estimated Participation

Estimated governmental/non-profit sector participation is shown below for general guidance only. Since the measure life is one year, only the units in Program Year 4 (summer 2012) count toward the demand response target because that is the only year the peak load reduction applies. Therefore, zero participants are shown in other years.

**Table 102. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	0	0	50	50	100

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve peak load reductions of approximately 40 kW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in Table 103. Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 103. Summary of Projected Benefits, Costs, and Cost-Effectiveness**



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Governmental/Non-Profit Sector Programs

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	0.0	0.0
Total Resource Cost	\$72	\$1,031	\$2,896	\$9,148	\$13,146
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$72	\$1,031	\$2,896	\$9,148	\$13,146
Customer Incentives	\$0	\$0	\$0	\$1,600	\$1,600
EDC Labor	\$62	\$92	\$78	\$78	\$310
EDC Materials and Supplies	\$0	\$1	\$2	\$2	\$6
CSP Labor	\$10	\$937	\$2,816	\$7,467	\$11,230
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<hr/>					
	TRC Test				
NPV Benefits	\$1,374				
NPV Costs	\$10,771				
Net Benefits (NPV)	-\$9,396				
<b>Benefit-Cost Ratio</b>	<b>0.13</b>				

## Load Curtailment (Government/Schools/Non-Profit Sector)

2010-2013

### Objectives

Please see Section 3.4, under Load Curtailment Program.

### Target Market

Please see Section 3.4, under Load Curtailment Program. Table 104 outlines eligibility parameters for the governmental/non-profit sector.

Table 104. Customer Eligibility Parameters

<b>Customers Type</b>	Governmental, schools, and non-profit
<b>Rate Class</b>	Primarily GS1, GS3, SLAL, LP4, and LP5 but could include other rate classes
<b>Building Type</b>	Commercial, institutional, municipal, residential
<b>Building Vintage</b>	All
<b>Building ownership</b>	Owner or individually metered tenant

### Program Description

Please see Section 3.4, under Load Curtailment Program.

### Implementation Strategy

Please see Section 3.4, under Load Curtailment Program.

### Risk and Risk Management Strategy

Please see Section 3.4, under Load Curtailment Program.

### Anticipated Costs to Participating Customers

Please see Section 3.4, under Load Curtailment Program.

### Ramp-up Strategy

Please see Section 3.4, under Load Curtailment Program.

### Marketing Strategy

Please see Section 3.4, under Load Curtailment Program.

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.

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

Eligible Measures and Incentive Strategy

Please see Section 3.4, under Load Curtailment Program.

Implementation Schedule and Milestones

Please see Section 3.4, under Load Curtailment Program.

Evaluation, Measurement, and Verification (EM&V)

Please see Section 3.4, under Load Curtailment Program.

Administrative Requirements

Please see Section 3.4, under Load Curtailment Program.

Estimated Participation

Estimated governmental/non-profit sector participation is shown below for general guidance only.

**Table 105. Projected Participation**

	Year 1	Year 2	Year 3	Year 4	Total
<b>Participants</b>	1	1	0	20	22

Program Budget, Costs, and Cost-Effectiveness

Over the four-year planning horizon, the program is expected to achieve a peak load reduction of approximately 15.9 MW. The annual budget allocation, coincident peak MW savings through 2013, and overall program cost-effectiveness for the institutional customer sector are shown in the table below. **Error! Reference source not found.** Key assumptions used in calculating measure-level savings are shown in Appendix E.

**Table 106. Summary of Projected Benefits, Costs, and Cost-Effectiveness**

Section 3: Program Descriptions  
Governmental/Non-Profit Sector Programs

<i>Benefit/Cost Component</i>	Plan Year				Total
	Year 1	Year 2	Year 3	Year 4	
Savings (MWh)	-	-	-	-	-
Capacity Savings (MW)	-	-	-	15.9	15.9
Total Resource Cost	\$8,445	\$6,911	\$470,184	\$611,708	\$1,097,248
Direct Participant Costs	\$0	\$0	\$0	\$0	\$0
Direct Utility Costs	\$8,445	\$6,911	\$470,184	\$611,708	\$1,097,248
Customer Incentives	\$0	\$0	\$0	\$0	\$0
EDC Labor	\$6,994	\$6,787	\$7,121	\$7,121	\$28,022
EDC Materials and Supplies	\$557	\$124	\$203	\$203	\$1,089
CSP Labor	\$895	\$0	\$462,859	\$604,384	\$1,068,138
Other (Marketing and Trade Ally)	\$0	\$0	\$0	\$0	\$0
<b>TRC Test</b>					
NPV Benefits	\$549,770				
NPV Costs	\$903,545				
Net Benefits (NPV)	-\$353,775				
<i>Benefit-Cost Ratio</i>	0.61				

## 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 relies on a broad range of Conservation Service Providers (CSPs), partners, trade allies, community-based organizations, and other entities engaged in energy-efficiency to promote, deliver, and support the effective deployment of programs. PPL Electric expects to utilize approximately 10 to 12 CSPs to deliver services in support of its EE&C programs, with some CSPs operating as turnkey program delivery contractors, and others providing specific functions across multiple programs.

In addition, many of PPL Electric's programs 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 peak load reductions. In addition, recognizing the expertise available through existing local labor and resources, as well as the importance of stimulating the local economy and providing choices to customers, PPL Electric's Plan seeks to utilize free market contractors and trade allies where appropriate.

In accordance with Act 129 requirements, PPL Electric issued a Request for Proposals (RFP) for CSPs to support one of its programs – the Appliance Recycling Program – on April 1, 2009 before submitting its initial EE&C Plan on July 1, 2009. Following a proposal review process, PPL Electric selected and executed a contract with a program CSP, effective June 30, 2009 (see Section 4.3 for a more detailed discussion).

PPL Electric had 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.

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 - Nonresidential	Efficient Equipment Incentive - Residential	Energy Assessment & Weatherization	Renewable Energy	Custom Incentives	HVAC Tune-Up	Residential Lighting	Appliance Recycling	Direct Load Control	Curtailment	Low Income WRAP	Low Income E-Power Wise	Energy Efficiency Behavior & Education	
Portfolio Planning/Program Design	PPL													
Research & Development														
Manufacturer Management	N/A	N/A					CSP-7	N/A						
Retailer Management	CSP-7													
Marketing & Advertising	PPL/CSP-2													
Customer Intake and Routing	CSP-1				PPL/CSP-1	CSP-6	N/A	CSP-8	CSP-9	CSP-13	CBO	CSP-10/ CBO	PPL/CSP-2 CSP-15	
Technical Assessment	TA-1	TA-1	CSP-3/ TA-2	TA-3	TA-5	TA-1								
Project Development														
Implementation/Installation														
Application Review and Approval	CSP-14	CSP-1			CSP-14	CSP-6								
Payment Processing	CSP-1				CSP-1									
Participant Relations Management	PPL/CSP-14	PPL/CSP-1						PPL/CSP8	PPL/CSP-9		PPL/CBO			
QA	PPL/QA-5													
Measurement & Verification	PPL/CSP-11													
PPL Program Tracking	CSP-12													
CSP Management and Coordination	PPL													
Internal PPL Coordination														
Legal and Regulatory Affairs														
Customer Service														
Corporate Communications														
Rates	PPL													
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 107. Potential Conservation Service Provider Program Delivery Roles**

CSP #	CSP Role
1	<b>Administrative CSP:</b> provides a call center with staff knowledgeable about PPL Electric's programs. Provides customer enrollment and routing to appropriate program contacts or actions, customer and measure eligibility verification, application and rebate processing, and customer care.
2	<b>Advertising CSP:</b> is a third-party advertising and public relations firm, working in collaboration with PPL Electric's internal marketing and corporate communications departments. Their work includes the creative function, production, and media buys for television, radio, print, outdoor, and Internet. They also consult with program CSPs and provide support for the development of brochures, bill inserts, and other promotional materials.
3	<b>Residential Energy Survey CSP:</b> provides walk-through energy surveys for customers participating in the walk-through survey component of PPL Electric's Residential Energy Assessment & Weatherization Program.
4	<b>New Construction CSP:</b> Deleted
5	<b>Quality Assurance/Technical Review CSP:</b> Deleted. Some functions merged into the scope of the EM&V CSP 11. Some functions merged into the scope of the C&I CSP 14.
6	<b>HVAC Tune-up CSP:</b> is a dedicated HVAC Tune-up Program CSP that administers and implements the HVAC Tune-up Program and trains, supports and interfaces with HVAC contractors.
7	<b>Residential Lighting/CFL CSP:</b> develops and/or uses existing relationships with manufacturers and retailers to develop, market and delivers the Residential Lighting Program
8	<b>Appliance Recycling CSP:</b> provides a turn key refrigerator, freezer and room air conditioning recycling program.

#### Section 4: Program Management and Implementation Strategies

9	<b>Direct Load Control CSP:</b> turnkey demand response contractor to deliver firm load reductions for the Direct Load Control Program.
10	<b>E-Power Wise CSP:</b> responsible for providing energy-efficiency kits to Community Based Organizations (CBOs), training CBO personnel or, in instances where CBO staff or other trainers are not available or interested, delivering workshops, distributing and analyzing feedback forms, and reporting on results.
11	<b>EM&amp;V CSP:</b> provides independent evaluation, measurement, and verification.
12	<b>Tracking CSP:</b> develop, provide (or host) a program activity tracking, management, analysis, and reporting system.
13	<b>Load Curtailment CSP:</b> turnkey demand response contractor to deliver firm load reductions for the Load Curtailment Program.
14	<b>C&amp;I CSP:</b> responsible to for recruiting and supporting C&I and GNI customers and trade allies, primarily in the Efficient Equipment Program and the Custom Program. Helps customers and trade allies to complete applications and determine incentives.
15	<b>Behavior &amp; Education CSP:</b> turnkey contractor responsible to deliver Behavior & Education Program.

#### Trade Allies (TA)

Trade allies provide products and services to customers in support of PPL Electric's programs, but are not under contract to PPL Electric. Trade allies typically provide products and services under contract to and directly for customers.

Table 108. Potential Trade Ally Program Delivery Roles

TA #	TA Roles
1	<b>HVAC, Appliance, Lighting and other Dealers and Installers:</b> provide sales, equipment diagnostics, maintenance, and installation services for energy efficient equipment, such as HVAC systems, lighting, 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. Some trade allies will also participate in the Direct Discount delivery mechanism.
2	<b>Comprehensive Audit Contractors:</b> a network of BPI-trained contractors in PPL Electric's service territory will support delivery of the comprehensive audit component of the Residential Energy Assessment & Weatherization Program.
3	<b>Renewable Energy System Installers:</b> provide technical site assessment and installation services for customers interested in installing solar photovoltaic or geothermal systems under the Renewable Energy Program. These trade allies will inform customers about PPL Electric's program as well as other financial incentives available through the state of Pennsylvania and Federal Tax credits.
4	<b>Residential and Commercial Builders:</b> are builders, developers, remodelers, contractors, architects, engineers or other market participants that design, develop and build residential and commercial buildings.



5

**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 (CBOs), which provide energy-efficiency services directly to income-qualified customers. PPL Electric will leverage its existing relationship with CBOs to expand and enhance its low-income programs.

In addition, PPL Electric has established less formal relationships with non-profit and community outreach organizations that provide complementary programs to customers in PPL Electric's service territory, including the Pennsylvania Housing Finance Authority (PHFA), which delivers a multifamily efficient equipment loan program directed primarily to low-income customers, and Keystone HELP, which offers Home Performance with ENERGY STAR® residential audits, incentives on some energy efficient technologies, and financing for energy-efficiency products and services. Additional market partners may include organizations, such as environmental advocacy groups whose missions are compatible with PPL Electric's EE&C programs, who will promote the Company's programs as part of their broader efforts to encourage the adoption of energy-efficiency, conservation and renewable energy technologies.

**4.1.2. Describe how the risk categories of performance, technology, market, and evaluation can affect the programs and any risk management strategies that will be employed to mitigate those risks.**

See Section 1.2.1.4 Considering the Role of Uncertainty.

**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 hired approximately 20 new internal staff to support delivery of the EE&C programs. The Company implemented a staffing plan that includes internal staffing resources needed during program planning, development, 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 has a Customer Programs Specialist to oversee each of its programs and will be supported by additional administrative and marketing staff. Individual Customer Programs Specialists may not be dedicated to a single program, however, particularly where turnkey CSPs will be utilized. PPL Electric frequently evaluates work loads and staffing needs as its programs progress. In all cases, one individual will be the lead for each program and will be directly accountable for program results.

PPL Electric uses competitive hiring procedures to identify qualified individuals with the appropriate skill sets to fill all of its staffing requirements. As explained, the Company plans to hire most of its new staff before November 2009 to ensure it is prepared to launch and implement most programs within a few months after Commission approval of the EE&C Plan. If, following program implementation, it is found that additional or fewer staff is needed to support program delivery, PPL will make the necessary adjustments. A description of PPL Electric's EE&C Plan management structure and an organizational chart are provided in Section 4.2.1, below.

**4.1.4. Describe "Early Warning Systems" that will be utilized to indicate progress toward the goals and whether they are likely to be met. Describe EDC's approach and process for shifting goals and funds, as needed, between programs and adding new measures/programs.**

Ongoing monitoring of program activity, enabled by the tracking system, management oversight, and the independent EM&V evaluator provide the means for detecting early indications that programs are not meeting their performance targets. Customer participation is a primary indicator of a program's progress toward its targets. This information, coupled with feedback from CSPs and the results of process evaluations and/or customer surveys are analyzed to determine the underlying reasons for a program's under performance. Such reasons may include program features such as marketing and outreach, incentive amounts, the general economy, customers' budgets and financial viability, or the program delivery method or the mix of measures. After the root causes have been identified, PPL Electric takes appropriate action to correct the problem. Depending on the nature of the problem and its cause(s), solutions could include minor adjustments of certain program features and procedures, eliminating or adding measures, or eliminating or adding programs. All of these changes will be submitted to the Commission for review.

**4.1.5. Provide Implementation Schedules with Milestones.**

The following implementation schedule identifies major tasks and milestones associated with delivery of specific programs and procurement of functional CSPs, including expected dates for accomplishing each element.

**Figure 5. Implementation Schedule and Milestones**

Program Milestones	Work scope, Standards & Final Processes	RFP Issued	CSP Under Contract*	Final marketing & educational & program applications	Trade Ally Outreach	Program Training	Ready to launch	Final EM&V methodology & procedures	EM&V	Program End
Efficient Equipment Incentive Program	Functional CSPs SEE BELOW			2/1/2010	12/31/09-ongoing	12/31/09-3/1/10	3/1/2010	3/1/2010	Ongoing	5/31/2013
Residential Audit & Weatherization	7/14/2009	7/28/2009	9/22/2009	2/1/2010	12/31/09-ongoing	12/31/09-3/1/10	3/1/2010	3/1/2010		
CFL Campaign	6/1/2009	6/5/2009	8/30/2009	12/1/2009	8/30/09-ongoing	NA	1/1/2010	1/1/2010		
Appliance Recycling Program	4/1/2009	4/20/2009	6/30/2009	11/1/2009	NA	10/1/09 - 12/1/09	12/1/2009	12/1/2009		
Renewable Energy	Functional CSPs SEE BELOW			1/1/10						
Direct Load Control	7/15/2009	8/15/2009	11/2010	on going after 12/2010	ongoing	NA	late 2010/ early 2011	early 2011		
Behavior & Education	3/2010 CSP Contract			3/1/2010	ongoing	ongoing	4/1/2010	4/1/2010		
Low-Income WRAP	NA	NA	NA	NA	NA	NA	11/1/2009	11/1/2009		
E-Power Wise	7/6/2009	7/17/2009	9/15/2009	11/1/2009	10/15/09-ongoing	11/1/09-ongoing	1/15/2010	2/1/2010		
C&I Custom Incentive Program	NA	NA	NA	3/1/2010	3/1/10-ongoing	3/1/10-4/1/10	4/1/2010	4/1/2010		
HVAC Tune-Up Program	8/15/2009	9/15/2009	12/1/2009	1/15/2010	1/1/2010	1/1/2010	2/1/2010	2/1/2010		
Load Curtailment	7/15/2009	8/15/2009	late 2010/ early 2011	ongoing after 1/2011	ongoing	NA	mid 2011	tbd		
Functional CSP Milestones:										
Advertising CSP	6/15/2009	6/26/2009	8/21/2009							
Administrative CSP	7/14/2009	7/28/2009	9/22/2009							
QA/QC CSP	8/1/2009	8/14/2009	10/9/2009							
EM&V CSP	6/22/2009	7/7/2009	9/1/2009							
Program Tracking System	6/15/2009	6/30/2009	8/25/2009							
C&I CSP										

## Section 4: Program Management and Implementation Strategies

Reporting Milestones										
Quarterly reporting	10/15	1/15/	4/15/	7/15						
Annual Reporting	7/15 (prelim)	11/15 (final)								
Review and adjust programs	Ongoing									

## 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.**

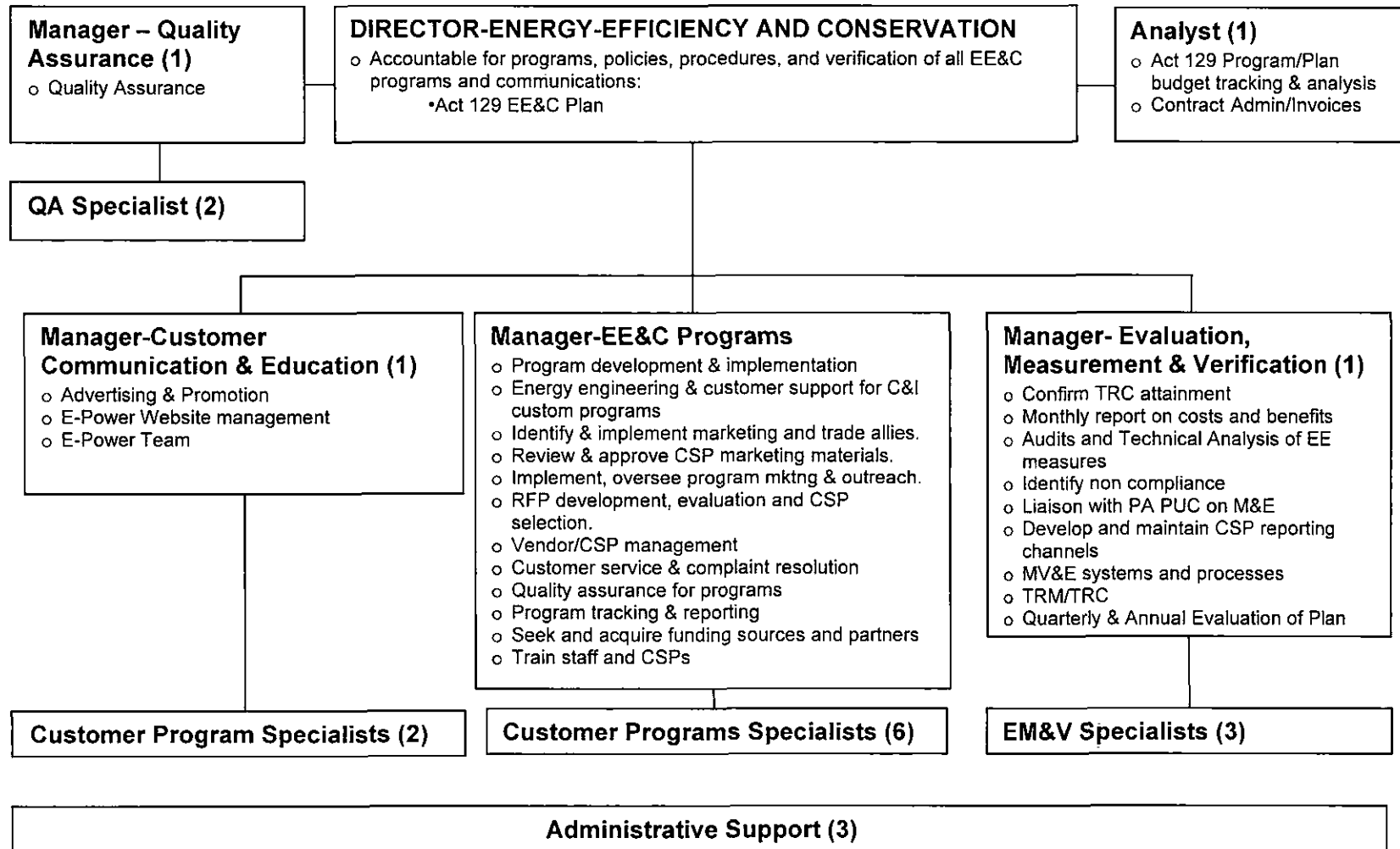
PPL Electric's Director of Energy-efficiency and Conservation Programs is responsible to manage the development and implementation of the Plan, including developing a portfolio strategy; planning and designing programs; tracking and analyzing performance; EM&V; reporting cost-effectiveness, savings and demand reduction impacts; internal and external communications; marketing; working with stakeholders; managing CSP procurement; and budgeting and financial management. The Company will use a combination of its existing staff and 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 is responsible to manage and oversee a staff of Customer Program Specialists that will have day-to-day responsibility to implement and deliver programs and track results.

The Company also utilizes existing and new Key Account Managers to 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 uses specialists in advertising; evaluation, measurement and verification; quality assurance and quality control; and data tracking systems to oversee these cross-program functional requirements, manage associated CSPs and provide ongoing support to Customer Program Specialists and the Manager of EE&C Programs. Additional staff also supports low-income programs.

Figure 6, below summarizes PPL Electric's EE&C management structure and staffing requirements. Staffing levels may change to match on-going workload.

**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 implemented a plan to oversee its CSPs to ensure that they meet the requirements of their contracts and to monitor and modify, as needed, marketing and delivery procedures to meet defined savings targets and optimize customer satisfaction. PPL Electric's oversight plan includes the following elements:

- ***Dedicated PPL Electric management staff assigned to each program.*** PPL Electric's staff oversees each of the programs offered through the EE&C Plan. Program staff are responsible for overall program management, including the performance of relevant program CSP(s). PPL Electric staff measures progress of goals and compliance with milestones and performance standards for each program.
- ***EM&V CSP.*** PPL Electric's EM&V CSP provides independent evaluations of program impacts and additional evaluation services as needed. This CSP conducts process evaluations of programs to identify gaps between program design and operations and coordinates 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 allow the EM&V CSP to evaluate implementation performance against this standard.
- ***Monitor and measure program performance.*** PPL Electric has 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 allows 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" are approximately 45% of the total Plan budget.<sup>54</sup> This is not directly comparable to industry experience in other states and between EDCs in Pennsylvania because the definitions of "administrative cost" and "incentives" are not consistent. PPL Electric has defined "administrative costs" as all utility costs to develop, implement, and manage the Plan except payments to customers/trade allies (rebates & incentives). Administrative costs consist of all PPL Electric labor and materials, CSP labor and material, marketing, QA/QC and EM&V, tracking systems, legal, and the statewide evaluator.<sup>55</sup> Some types of costs have been reclassified from "incentives" to "administrative" since the original EE&C Plan and that is the primary reason for the increased percentage of administrative costs. In particular, the cost of goods and

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<sup>54</sup> This increased compared to the original EE&C Plan because of the reclassification of many costs from "incentives" to "CSP Costs" (material and labor), such as all goods and services provided at no cost to low-income customers.

<sup>55</sup> PPL Electric's share of the Commission's statewide EE&C Plan evaluation contractor. Those costs, as well as EM&V costs for net-to-gross analysis, are not subject to the Act129 cost cap.

## Section 4: Program Management and Implementation Strategies

services provided to low-income customers at no cost was reclassified from "incentives" to "administrative".

### **4.3. Conservation Service Providers (CSPs):**

#### **4.3.1. List any selected CSPs, describe their qualifications and basis for selection (include contracts in Appendix C).**

See Section 4.1.1.



## **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 provides quarterly, annual, and ad hoc reports to the Commission and the Statewide Evaluator.

Quarterly Reports will be filed with the Commission on the 15<sup>th</sup> of January, April, July, and October of each Plan year. These reports will contain basic program data on participants, measures and the Company's budget expenditures and progress on savings and peak demand reduction goals as measured against the Plan.

Consistent with the Commission's directives, annual reports will be filed by July 15 (preliminary annual report that includes reported gross savings) and November 15 (final annual report that includes verified gross savings, net savings, and cost-effectiveness results) for each planning year. Annual reports will be a full reporting of PPL Electric's progress toward Plan goals and all program activity, including number of participants, measure installations, expenditures, estimated electricity savings based on the TRM and PPL Electric's analysis, and peak load impacts, on a program by program basis in the tabular and graphic formats specified by the Commission.

The company also may submit ad hoc reports responding to requests from the Statewide Evaluator or Commission, or to explain 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 Evaluator.

#### **5.1.2. Describe data that would be available (including format and time frame of availability) for Commission review and audit.**

PPL Electric's Energy Efficiency Management Information System (described in Section 5.2) has up to date information that is available for audit, inspection and review by the Commission and Statewide Evaluator in near real time. The mechanism for accessing this data is described in Section 5.2.3. PPL Electric intends to incorporate standardized queries and reports in the tracking system, which will generate user-friendly graphs, charts and status reports in electronic format.

### **5.2. Project Management Tracking Systems:**

#### **5.2.1. Provide brief overview of the data tracking system for managing and reporting measure, project, program and portfolio activities, status and performance as well as EDC and CSP performance and expenditures.**

PPL Electric's Energy Efficiency Management Information System, MicroStrategies (business intelligence software used primarily for reporting), and internal accounting

system provide the capability to record activities and transactions related to the implementation of the plan, analyze performance, monitor savings and expenditures, and report the results. These systems also provide the necessary information for audit by the statewide EE&C Plan evaluation contractor.

**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.**

PPL Electric's tracking systems are based on a commercially available database platform such as SQL. 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.
- Allows data extracts to be exported to external parties such as the EM&V CSP and the Statewide Evaluator.

Enrollment Functionality

- Allows CSPs to file program applications via a secure web link or via the administrative CSP's system.
- Provides data entry screens customized for each program and program component.
- Calculates reported gross savings

## Section 5: Reporting and Tracking Systems

### 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, direct links, or data extracts. The database will contain information on PPL Electric's customers and other CSP or utility data that may be considered confidential or proprietary. Therefore, PPL Electric will provide database access to entities other than the Commission and the statewide EE&C Plan Evaluator only upon execution of an appropriate non-disclosure agreement.

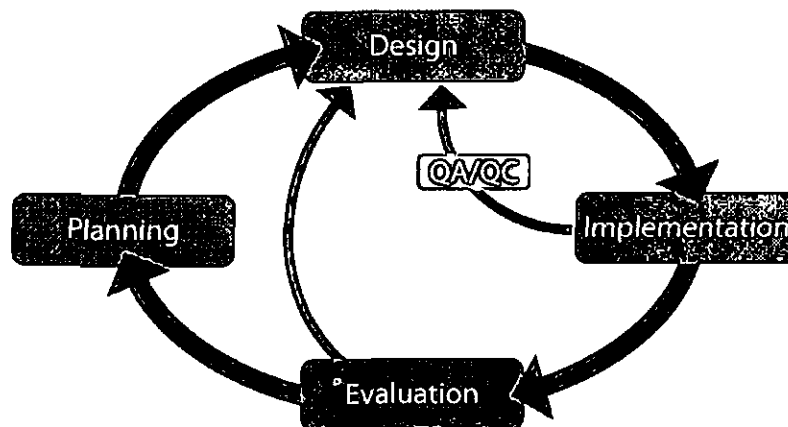
## 6. Quality Assurance and Evaluation, Measurement and Verification

### 6.1. Quality Assurance/Quality Control:

#### 6.1.1. Describe overall approach to quality assurance and quality control.

A continuous improvement process (CIP) is the basic framework for PPL Electric's management of its EE&C portfolio. The basic principle in CIP, illustrated in Figure 7, is the establishment of effective quality assurance (QA) and evaluation, measurement and verification (EM&V) procedures to track program activities, monitor performance and progress toward targets, and take corrective measures when warranted. The CIP will consist of three essential elements: 1) activity tracking, 2) quality control, and 3) process and impact evaluations. Each of these activities is discussed below.

Figure 7. PPL Electric's Continuous Improvement Process



Quality assurance is integral to the design and delivery of all programs in PPL Electric's EE&C Plan. Quality control measures are employed at various stages of program design and implementation to ensure high industry standards of operational efficiency, effectiveness and customer satisfaction. These measures include, but not necessarily be limited to the following:

- Ongoing tracking of program activities and costs through the systems described above.
- Applying rigorous screening and qualifying protocols in engaging CSPs and field staff who interact directly with customers.
- Conducting follow-up calls to participants to ensure their satisfaction with the rendered services; and to help them in their decision to adopt energy-efficiency and conservation measures.
- Conducting post-installation inspections of an appropriately-sized random sample of all participants to verify installation of measures and ensure proper installation.

**6.1.2. Describe procedures for measure and project installation verification, quality assurance and control, and savings documentation.**

PPL Electric's Energy Efficiency Activity Tracking System documents and tracks all program and portfolio activity and calculates results (reported gross savings). The tracking system is designed with input interfaces customized to individual programs and coordinated with EM&V personnel and the Statewide Evaluator to ensure that appropriate data are collected to feed into the evaluation process. Program CSPs are trained in the use of the tracking system and are expected to document every customer interaction, project and measure installation, complaints and remediation, project delivery timelines, and other metrics. In cases where turnkey CSPs deliver all aspects of a program, the CSPs will be expected to track all activity via secure Internet access or upload. PPL Electric's Administrative CSP and C&I CSP document measure installation, instances of customer complaints and remediation activities and other information associated with projects where rebate processing provides the primary means of tracking program activity.

The Evaluation Plan for each program contains additional information about EM&V.

**6.1.3. Describe process for collecting and addressing participating customer, contractor and trade ally feedback (e.g., suggestions and complaints).**

PPL Electric in conjunction with the EM&V CSP has implemented an Evaluation Plan for each program. PPL Electric conducts on-going customer satisfaction surveys. The EM&V CSP conducts customer and trade ally surveys as part of the impact evaluation and process evaluation.

## **6.2. Describe any planned market and process evaluations and how results will be used to improve programs.**

Baseline studies and market potential studies are the responsibility of the Commission and Statewide Evaluator. PPL Electric's EM&V CSP conducts process evaluations. The process evaluations are principal components of PPL Electric's continuous improvement process. The main objective in process evaluations is to monitor progress of individual programs and to provide timely feedback to program administrators. These evaluations 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 is to assess what program processes work and which ones do not, and how the process or activity may be improved. Process evaluations 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 also involves 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.

Results of the process and impact evaluations also help to assess the effectiveness of programs in terms of market reach, measures adoption, and customer satisfaction. These evaluations help to identify opportunities to improve market reach and identify barriers that may impede program participation and adoption of efficiency measures.

Reviews of program documentation, interviews with internal program staff, CSPs and key market actors, and surveys of participants and non-participants will be the main sources of data for the process evaluation. 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**

The Statewide Evaluator developed measurement and verification protocols and an Audit Plan, describing the metrics and data formats EDCs must use and provide to the contractor(s). PPL Electric and its EM&V CSP will follow those requirements or request approval for exceptions.

Impact evaluations 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 are described in each program's Evaluation Plan.

## **7. Cost-Recovery Mechanism**

### **7.1. Provide the amount of total annual revenues as of December 31, 2006, and provide a calculation of the total allowable EE&C costs based on 2% of that annual revenue amount.**

Section 2806.1(g) of Act 129 requires that the total cost of any EE&C Plan cannot exceed 2% of the EDC's total annual revenues as of December 31, 2006. PPL Electric's total annual revenues for calendar year 2006 were approximately \$3 billion (\$3,075,068,824). Accordingly, the 2% cost cap established by Act 129 is approximately \$61.5 million (\$61,501,376). In the Implementation Order entered on January 16, 2009, at Docket No. M-2008-2069887, the Commission concluded that this limitation on the "total cost of any plan" should be interpreted as an annual amount, rather than an amount for the full term of the Plan. In addition, the Commission has determined that certain implementation costs recoverable under Act 129 not subject to the 2% cost cap. Those costs include PPL Electric's share of the Statewide Evaluator and net-to-gross evaluations.

### **7.2. Description of plan in accordance with 66 Pa. C.S. §§ 1307 and 2806.1 to fund the energy-efficiency and conservation measures, to include administrative costs.**

PPL Electric will spend most of the \$246 million<sup>56</sup> to implement its EE&C Plan, including administrative costs. This total cost also includes the costs that PPL Electric incurs to develop and modify its EE&C Plan. In the Implementation Order, the Commission found that EDCs should be permitted to recover the incremental cost incurred to design, create, and obtain Commission approval of a plan. In addition, in an order entered on May 28, 2009 at Docket No. P-2009-2091818, the Commission granted PPL Electric's request to defer such plan development costs on its balance sheet as a regulatory asset. Accordingly, the Company proposes to amortize and recover those deferred costs ratably over the 41-month life of its initial EE&C Plan (i.e., January 1, 2010 through May 31, 2013). The amortization of those costs is included within the \$246 million spending cap.

### **7.3. Provide data tables (see Tables 6A, 6B, and 6C).**

The tables on the following pages provide cost data for each program/sector broken out by direct program costs, administrative costs, and total costs (per PUC tables 6A, 6B, and 6C).

Cost effectiveness calculations by program are in Section 8.

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<sup>56</sup> \$246 million is PPL Electric's Act 129 cost cap. In addition, PPL Electric expects to incur approximately \$5 million for activities that the Commission determined are not subject to the cost cap. These activities include PPL Electric's share of the Statewide Evaluator's costs and PPL Electric's cost to conduct a net-to-gross evaluations each year.

**Table 109. Portfolio-Specific Assignment of EE&C Costs<sup>57</sup>**

<b>Residential Portfolio (excluding Low-Income)</b>								
<b>EE&amp;C Program</b>	<b>Estimated Cost Elements (\$), excludes Common Costs</b>						<b>Totals (includes Participant costs)</b>	<b>Totals - Utility Costs (excludes Participant costs)</b>
	<i>EDC_Labor*</i>	<i>EDC_Materials_and_Supplies*</i>	<i>CSP Costs*</i>	<i>Direct Marketing (CSP)*</i>	<i>Utility Incentives / Customer Compensation</i>	<i>Participant Costs (After Incentives)</i>		
<i>Appliance Recycling</i>	\$120,217	\$60,422	\$4,760,992	\$416,574	\$1,911,680	\$0	\$7,269,884	\$7,269,884
<i>Residential Lighting Program</i>	\$413,610	\$79,414	\$3,576,156	\$145,960	\$10,991,838	\$20,355,583	\$35,562,561	\$15,206,979
<i>Custom Incentive</i>	\$147	\$0	\$0	\$0	\$1,763	\$7,603	\$9,513	\$1,910
<i>Energy Efficiency Behavior &amp; Education</i>	\$188,276	\$125,955	\$2,515,169	\$0	\$0	\$0	\$2,829,400	\$2,829,400
<i>Direct Load Control</i>	\$250,369	\$4,780	\$9,061,923	\$0	\$1,462,176	\$0	\$10,779,248	\$10,779,248
<i>Efficient Equipment Incentive</i>	\$86,762	\$34,197	\$0	\$50,992	\$14,259,545	\$29,304,632	\$43,736,128	\$14,431,496
<i>Renewable Energy</i>	\$114,628	\$1,019	\$989	\$0	\$1,795,236	\$20,412,749	\$22,324,620	\$1,911,871
<i>Energy Assessment &amp; Weatherization</i>	\$137,378	\$999	\$1,923,400	\$62,000	\$242,700	\$447,119	\$2,813,597	\$2,366,478
<b>Totals</b>	\$1,311,387	\$306,786	\$21,838,629	\$675,526	\$30,664,939	\$70,527,686	\$125,324,952	\$54,797,267

<sup>57</sup> This is Table 6A in the Commission Template.

\* These are components of "Administrative Costs"



Residential Low-Income Portfolio								
EE&C Program	Estimated Cost Elements (\$), excludes Common Costs						Totals (includes Participant costs)	Totals - Utility Costs (excludes Participant costs)
	<i>EDC_Labor *</i>	<i>EDC_Materials_and_Supplies *</i>	<i>CSP Costs*</i>	<i>Direct Marketing (CSP)*</i>	<i>Utility Incentives / Customer Compensation</i>	<i>Participant Costs (After Incentives)</i>		
<i>E-Power Wise</i>	\$126,460	\$5,154	\$486,010	\$0	\$0	\$0	\$617,624	\$617,624
<i>Low Income WRAP</i>	\$2,564,554	\$94,424	\$14,592,248	\$40,000	\$11,381,481	\$0	\$28,672,707	\$28,672,707
<b>Totals</b>	\$2,691,014	\$99,578	\$15,078,258	\$40,000	\$11,381,481	\$0	\$29,290,332	\$29,290,332

Commercial/Industrial Small Portfolio								
EE&C Program	Estimated Cost Elements (\$), excludes Common Costs						Totals (includes Participant costs)	Totals - Utility Costs (excludes Participant costs)
	EDC_Labor *	EDC_Materials_and_Supplies *	CSP Costs*	Direct Marketing (CSP)*	Utility Incentives / Customer Compensation	Participant Costs (After Incentives)		
<i>Appliance Recycling</i>	\$1,064	\$1,082	\$2,400	\$8,061	\$16,640	\$0	\$29,247	\$29,247
<i>Custom Incentive</i>	\$130,990	\$0	\$452,910	\$0	\$1,154,960	\$616,875	\$2,355,735	\$1,738,861
<i>Direct Load Control</i>	\$27,545	\$526	\$996,964	\$0	\$160,864	\$0	\$1,185,899	\$1,185,899
<i>Efficient Equipment Incentive</i>	\$283,984	\$292,438	\$5,743,410	\$496,538	\$61,282,069	\$65,425,975	\$133,524,412	\$68,098,438
<i>HVAC Tune-up</i>	\$82,575	\$3,420	\$25,795	\$15,360	\$34,002	\$1	\$161,154	\$161,153
<i>Renewable Energy</i>	\$4,126	\$50	\$61	\$0	\$10,317	\$922,014	\$936,569	\$14,554
<b>Totals</b>	<b>\$530,284</b>	<b>\$297,516</b>	<b>\$7,221,541</b>	<b>\$519,959</b>	<b>\$62,658,852</b>	<b>\$66,964,864</b>	<b>\$138,193,016</b>	<b>\$71,228,152</b>

\* These are components of "Administrative Costs"

Commercial/Industrial Large Portfolio								
EE&C Program	Estimated Cost Elements (\$), excludes Common Costs						Totals (includes Participant costs)	Totals - Utility Costs (excludes Participant costs)
	EDC_Labor *	EDC_Materials_and_Supplies *	CSP Costs*	Direct Marketing (CSP)*	Utility Incentives / Customer Compensation	Participant Costs (After Incentives)		
<i>Appliance Recycling</i>	\$34	\$54	\$0	\$319	\$575	\$0	\$982	\$982
<i>Custom Incentive</i>	\$306,857	\$0	\$1,467,409	\$0	\$12,041,827	\$26,918,471	\$40,734,563	\$13,816,093
<i>Efficient Equipment Incentive</i>	\$68,748	\$35,489	\$365,147	\$65,311	\$4,372,659	\$3,478,201	\$8,385,556	\$4,907,355
<i>HVAC Tune-up</i>	\$81,659	\$5,565	\$619,091	\$128	\$95,938	\$0	\$802,381	\$802,381
<i>Load Curtailment</i>	\$247,443	\$9,612	\$9,431,856	\$0	\$0	\$0	\$9,688,910	\$9,688,910
<b>Totals</b>	\$704,740	\$50,720	\$11,883,503	\$65,758	\$16,510,999	\$30,396,671	\$59,612,393	\$29,215,722

\* These are components of “Administrative Costs”

Governmental/Schools/Non-Profit Portfolio								
EE&C Program	Estimated Cost Elements (\$), excludes Common Costs						Totals (includes Participant costs)	Totals - Utility Costs (excludes Participant costs)
	EDC_Labor*	EDC_Materials_and_Supplies*	CSP Costs*	Direct Marketing (CSP)*	Utility Incentives / Customer Compensation	Participant Costs (After Incentives)		
<i>Appliance Recycling</i>	\$2	\$4	\$0	\$21	\$35	\$0	\$62	\$62
<i>Custom Incentive</i>	\$75,185	\$0	\$1,745,729	\$0	\$1,791,899	\$2,537,848	\$6,150,661	\$3,612,813
<i>Direct Load Control</i>	\$310	\$6	\$11,230	\$0	\$1,600	\$0	\$13,146	\$13,146
<i>Efficient Equipment Incentive</i>	\$56,019	\$40,218	\$1,453,382	\$70,849	\$7,296,993	\$56,132,276	\$65,049,737	\$8,917,461
<i>HVAC Tune-up</i>	\$2,627	\$231	\$15,309	\$0	\$3,120	\$0	\$21,286	\$21,286
<i>Load Curtailment</i>	\$28,022	\$1,089	\$1,068,138	\$0	\$0	\$0	\$1,097,248	\$1,097,248
<i>Renewable Energy</i>	\$148,102	\$204	\$0	\$0	\$3,506,929	\$19,759,289	\$23,414,524	\$3,655,236
<b>Totals</b>	<b>\$310,268</b>	<b>\$41,751</b>	<b>\$4,293,787</b>	<b>\$70,870</b>	<b>\$12,600,577</b>	<b>\$78,429,413</b>	<b>\$95,746,665</b>	<b>\$17,317,252</b>

\* These are components of "Administrative Costs"

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Total Portfolio Costs								
EE&C Program	Estimated Cost Elements (\$), excludes Common Costs						Totals (incl Participant Costs)	Totals - Utility Costs (excl Participant Costs)
	<i>EDC_Labor*</i>	<i>EDC_Materials_and_Supplies*</i>	<i>CSP Cost*s</i>	<i>Direct Marketing (CSP)*</i>	<i>Utility Incentives / Customer Compensation</i>	<i>Participant Costs (After Incentives)</i>		
<b>Total Direct Costs</b>	\$5,547,693	\$796,351	\$60,315,719	\$1,372,114	\$133,816,848	\$246,318,634	\$448,167,359	\$201,848,725
Common Costs							\$43,151,275	\$43,151,275
<b>Total</b>							\$491,318,634	\$245,000,000

\* These are components of “Administrative Costs”

**Table 110. Allocation of Common Costs to Applicable Customer Sector<sup>58</sup>**

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
Plan Development	\$3,300,304	Proportional to direct costs for the sector	\$895,952	\$478,908	\$1,164,611	\$477,689	\$283,144
EM&V	\$14,534,854	Proportional to direct costs for the sector	\$3,945,861	\$2,109,159	\$5,129,059	\$2,103,784	\$1,246,991
Advertising and Marketing <sup>59</sup>	\$9,877,630	Proportional to direct costs for the sector	\$2,681,537	\$1,433,347	\$3,485,619	\$1,429,694	\$847,433
General Admin	\$3,501,377	Proportional to direct costs for the sector	\$950,539	\$508,086	\$1,235,566	\$506,792	\$300,394
EEMIS	\$6,020,189	Proportional to direct costs for the sector	\$1,634,336	\$873,591	\$2,124,404	\$871,366	\$516,492
Plan Management	\$2,199,576	Proportional to direct costs for the sector	\$597,132	\$319,181	\$776,186	\$318,368	\$188,709
Major Accounts	\$3,717,345	Proportional to direct costs for the sector	\$1,009,170	\$539,425	\$1,311,777	\$538,051	\$318,922
<b>Totals</b>	<b>\$43,151,275</b>		<b>\$11,714,527</b>	<b>\$6,261,697</b>	<b>\$15,227,222</b>	<b>\$6,245,744</b>	<b>\$3,702,085</b>

<sup>58</sup> This is Table 6B in the Commission Template.<sup>59</sup> Advertising and marketing by program CSPs are included as direct program costs (Direct Marketing).

**Table 111. Summary of Estimated Portfolio EE&C Costs<sup>60</sup>**

<b>Portfolio</b>	<b>Total Sector Direct Program Cost (excluding Participant Costs)</b>	<b>Total Common Costs</b>	<b>Total of All Costs</b>	<b>Total Participant Costs</b>	<b>Total of All Costs</b>
Residential (Excluding Low-Income)	\$54,797,267	\$11,714,527	\$66,511,794	\$70,527,686	\$137,039,479
Residential Low-Income	\$29,290,332	\$6,261,697	\$35,552,029	\$0	\$35,552,029
Commercial/Industrial -- Small	\$71,228,152	\$15,227,222	\$86,455,374	\$66,964,864	\$153,420,238
Commercial/Industrial -- Large	\$29,215,722	\$6,245,744	\$35,461,466	\$30,396,671	\$65,858,137
Governmental/Non-profit	\$17,317,252	\$3,702,085	\$21,019,337	\$78,429,413	\$99,448,750
<b>Totals</b>	<b>\$201,848,725</b>	<b>\$43,151,275</b>	<b>\$245,000,000</b>	<b>\$246,318,634</b>	<b>\$491,318,634</b>

Note: total costs in Total Resource Cost Test (cost-effectiveness) are net present values and include utility and participant costs.

<sup>60</sup> 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.<sup>61</sup> In its EE&C Plan filing, PPL Electric has included pro forma tariff pages to implement such a cost recovery mechanism. The Implementation Order also directs that such cost recovery mechanisms must be non-bypassable, and not affect the EDC's price-to-compare, if the EE&C Plan benefits both shopping and non-shopping customers.<sup>62</sup> Because all of the programs included in PPL Electric's proposed EE&C Plan will benefit both shopping and non-shopping customers, the Company has designed its cost recovery mechanism to be non-bypassable. For residential customers, the cost recovery mechanism will be applied as a levelized cents per kWh component included in the distribution charge. For small C&I customers, the cost recovery mechanism will be applied as a levelized cents per kWh charge that will be a separate line item on the customer's bill. For large C&I customers, the cost recovery mechanism will be applied as a dollars per kW charge, as a separate line item on the customer's bill, where the demand (kW) is the customer's PJM Interconnection, LLC Peak Load Contribution (PLC) which may change yearly.

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

Although costs will vary year-to-year, PPL Electric proposes to recover those costs on a levelized basis. Annual budget amounts for each customer class will be developed on a levelized basis for the four years of the Company's proposed EE&C Plan. On a total system basis, that levelization will equate to an EE&C Plan budget in program year one of approximately \$30 million and EE&C Plan budgets in program years two through four of approximately \$72 million per year. These budget amounts will be adjusted to include the annual costs that PPL Electric will incur to pay for the statewide Act 129 evaluator. Section 2806.1(h) of Act 129 provides that the Commission can recover such program implementation costs from EDCs, and logically it follows that EDCs can recover those costs from customers. However, the costs for the statewide Act 129 evaluator are not included under the Company's 2% cost cap. In establishing that cost cap, Section 2806.1(g) specifically characterizes the cap as a limitation on the "total costs of any plan required under this section." Because the costs of the statewide Act 129 evaluator are not the costs of PPL Electric's EE&C Plan, they are not subject to the limitation set forth in Section 2806.1(g).

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<sup>61</sup> Implementation Order, at page 38

<sup>62</sup> *Ibid*, p. 38



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 Peak Load Contribution (PLC) which may change yearly.

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

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

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

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

Appendix F includes PPL Electric's Supplement No. 76 to Tariff-Electric Pa. PUC No. 201 at Docket No. P-2009-2093216, filed on November 19, 2009. These tariffs have been modified to reflect Act 129 Cost Recovery Rider.

**7.5. Describe how the cost recovery mechanism will ensure that measures approved are financed by the same customer class that will receive the direct energy and conservation benefits.**

Section 2806.1(a)(11) of Act 129 requires that EE&C measures must be paid for by the same customer class that receives the energy and conservation benefits of those measures. Accordingly, in its January 16, 2009 Implementation Order, the Commission directed EDCs to first assign the costs relating to each measure to those classes that will receive the benefits.<sup>63</sup> PPL Electric will follow this direct assignment approach wherever possible. However, some costs will relate to EE&C measures that are applicable to more than one customer class or that provide system-wide benefits. The Commission directed EDCs to allocate those costs, and general administrative costs, using reasonable and generally acceptable cost of service principles as are commonly utilized in base rate

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<sup>63</sup> Ibid, p. 36

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proceedings.<sup>64</sup> Consistent with this provision of the Implementation Order, PPL Electric proposes to allocate such costs using an allocation factor equal to the percentage of the EE&C costs directly assigned to each customer class to the total of EE&C costs directly assigned to all customer classes.

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<sup>64</sup> Ibid, p. 37

## 8. Cost-effectiveness

### 8.1. Explain and demonstrate how the proposed plan will be cost effective as defined by the Total Resource Cost Test (TRC) specified by the Commission.

Cost-effectiveness of the proposed portfolio is shown in Table 114. This table is an estimate based on planning assumptions in this EE&C Plan. The Company will complete a cost-effectiveness evaluation using actual results as part of its yearly impact evaluation. For each program in the Plan, cost-effectiveness was determined for each measure in the portfolio in accordance with the procedures for the modified California test<sup>65</sup> described in the Commission's Secretarial Letter concerning the implementation of Energy-efficiency and Conservation Program (Docket No. M-2008-2069887). Assessment of cost-effectiveness for the Plan began with a valuation of each conservation measure's net "total resource" benefits, as measured by the electric avoided costs and the measure's total incremental installed costs. A measure (or program) was deemed cost-effective if its net "total resource" benefits were positive, i.e.:

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

where,

$$\text{Total Resource Benefits} = \text{NPV} \left( \sum_{\text{year}=1}^{\text{measurelife}} \left( \sum_i^{\text{i}=8760} (\text{impact}_i \times \text{avoidedcost}_i) \right) \right)$$

and,

$$\text{Total Resource Cost} = \text{NPV} (\text{Incremental Measure Costs} + \text{Utility Costs}).$$

### Calculation of Avoided Costs of Supplying Electricity

In this Plan, avoided cost of electricity for the 15-year planning horizon was calculated based on the final TRC (Docket No. M-2009-2108601, Order entered June 23, 2009). For June 1, 2009 through May 31, 2014, on-peak and off-peak wholesale electric generation prices were obtained from the New York Mercantile Exchange (NYMEX), then distributed to an hourly shape using a 50% split between on-peak and off-peak hours. Missing NYMEX monthly values in 2014 were estimated by adjusting 2014 off-peak prices by the ratio of 2013 on-peak to off-peak prices. For June 1, 2014 through May 31, 2019, prices were calculated using NYMEX gas prices. Generation prices after this period were calculated using the EIA's AEO low-price case. Generation costs were further adjusted for avoided transmission and distribution prices estimated by customer class<sup>66</sup>. Avoided transmission prices were based on retail transmission rates and include PJM ancillary charges. Similarly, distribution costs were based on expected retail rates. Transmission, distribution, and ancillary prices were escalated after 2010 using the U. S. Bureau of Labor and Statistics (BLS) industry index for Electric Power Generation.

<sup>65</sup> See *California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs and Projects*, California Energy Commission, October 2001.

<sup>66</sup> Customer classes are defined as residential, small commercial and industrial, and large commercial and industrial.

Capacity costs were estimated using PJM base residual auction results through 2012. After 2012 and through 2019, prices were escalated using the BLS industry index for Electric Power Generation. Avoided costs by sector are summarized in Table 1.

## Program Benefit Components

As described above, benefits used in the TRC test calculation include the full value of time and seasonally differentiated generation, transmission and distribution, and capacity costs. Benefits also take into account avoided line losses<sup>67</sup>. For each energy-efficiency measure included in a program, hourly (8,760) system-avoided costs were adjusted by the hourly load shape of the end use affected by the measure to capture the full value of time and seasonally-differentiated impacts of the measure. Benefits also include avoided operating and maintenance costs directly related to the efficient measure.<sup>68</sup> Non-energy benefits such as water savings were not factored into the calculation because these benefits are typically difficult to quantify and too small to alter the outcomes of the analyses.

In accordance with the TRC and Commission Orders, there are no net-to-gross adjustments. Net-to-gross estimates will be included in final annual evaluation reports.

## Program Cost Components

The cost component of the TRC analysis includes incremental measure costs and direct utility costs. Incremental measure costs are the incremental expenses associated with installation of energy-efficiency measures (adjusted for tax credits and funding sources outside of Act 129 in accordance with the Secretarial Letter) compared to the “baseline” measure. The incremental cost includes any portion incurred by the utility or by the participant. Utility costs include, but are not limited to, program development, marketing, delivery, operation, legal, management, tracking systems, and EM&V. Generally, incentives are a portion of the incremental cost and are not included directly in the TRC analysis<sup>69</sup>. TRC costs also include increased operating and maintenance costs directly related to the efficient measure.

### 8.2. TRC data tables

As previously mentioned, cost-effectiveness of the proposed portfolio is shown in Table 114. This table is an estimate based on planning assumptions in this EE&C Plan. The Company will complete a cost-effectiveness evaluation using actual results as part of its yearly impact evaluation.

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<sup>67</sup> Line losses are not included in the reported and verified energy reductions used for compliance purposes. Line losses are included only for energy reductions in the TRC. Line losses are included in the TRC and for reported and verified peak load reductions as explained earlier.

<sup>68</sup> These are difficult to obtain, quantify, and verify. Therefore, these have been omitted for most measures, thereby understating program benefits.

<sup>69</sup> There are some programs where payments to customers are treated as a program cost, such as load curtailment.

**Table 112. TRC Benefits Tables**

## Section 8: Cost Effectiveness

Residential	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	8.77	2010	\$790	\$790	\$755	\$6,417	\$13		\$370	\$372	185	1,465	8,940	71,373
		2011	\$1,856	\$1,856	\$3,519	\$19,102	\$431		\$1,547	\$1,541	6,586	45,863	24,315	193,006
		2012	\$2,312	\$2,312	\$5,710	\$15,187	\$379		\$2,675	\$2,657	2,654	21,228	20,293	160,693
		2013	\$2,312	\$2,312	\$8,269	\$14,788	\$526		\$3,886	\$3,857	2,654	21,228	20,293	160,693
		Total	\$7,270	\$7,270	\$18,253	\$55,493	\$1,348		\$8,478	\$8,427	12,078	89,785	73,842	585,765
Compact Fluorescent Lighting Campaign	6.87	2010	\$5,549	\$2,078	\$5,420	\$33,416	\$250		\$2,838	\$2,331	3,636	21,816	61,839	371,031
		2011	\$12,499	\$4,598	\$20,300	\$80,565	\$779		\$10,718	\$8,804	8,608	51,649	145,999	875,997
		2012	\$8,911	\$4,417	\$31,193	\$52,609	\$749		\$16,714	\$13,729	6,410	38,460	94,234	565,406
		2013	\$8,603	\$4,114	\$42,586	\$50,572	\$1,087		\$22,784	\$18,715	6,296	37,779	90,065	540,390
		Total	\$35,563	\$15,207	\$99,499	\$217,162	\$2,865		\$53,054	\$43,580	24,951	149,704	392,137	2,352,824
Custom Incentive	2.55	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$10	\$2	\$2	\$22	\$0		\$1	\$1	2	27	18	272
		2012	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		2013	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		Total	\$10	\$2	\$6	\$22	\$0		\$3	\$3	2	27	18	272
Energy Efficiency Behavior & Education	2.24	2010	\$142	\$142	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$815	\$815	\$1,225	\$1,135	\$0		\$610	\$615	-	0	13,207	13,207
		2012	\$936	\$936	\$2,554	\$2,190	\$217		\$1,164	\$1,173	5,397	5,397	23,504	23,504
		2013	\$936	\$936	\$2,699	\$2,142	\$235		\$1,227	\$1,236	5,397	5,397	23,504	23,504
		Total	\$2,829	\$2,829	\$6,478	\$5,466	\$452		\$3,002	\$3,024	5,397	5,397	23,504	23,504
Direct Load Control	0.13	2010	\$58	\$58	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$832	\$832	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$2,337	\$2,337	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$7,553	\$7,553	\$1,397	\$1,109	\$1,397		\$0	\$0	32,075	32,075	0	0
		Total	\$10,779	\$10,779	\$1,397	\$1,109	\$1,397		\$0	\$0	32,075	32,075	0	0
Efficient Equipment Incentive	1.75	2010	\$5,276	\$2,156	\$851	\$10,801	\$76		\$351	\$424	1,105	14,072	9,175	121,648
		2011	\$23,864	\$8,820	\$3,791	\$31,652	\$340		\$1,589	\$1,863	4,234	52,439	27,919	360,411
		2012	\$8,041	\$2,203	\$5,396	\$16,718	\$274		\$2,341	\$2,781	1,479	18,646	14,534	199,557
		2013	\$6,556	\$1,253	\$6,715	\$10,044	\$355		\$2,901	\$3,460	1,326	16,835	9,220	120,377
		Total	\$43,736	\$14,431	\$16,753	\$69,215	\$1,044		\$7,182	\$8,527	8,143	101,991	60,848	801,993
Renewable Energy	0.53	2010	\$4,313	\$351	\$245	\$3,531	\$9		\$102	\$134	128	1,917	2,770	41,554
		2011	\$18,011	\$1,561	\$872	\$7,685	\$56		\$355	\$461	753	11,298	6,037	90,556
		2012	\$0	\$0	\$903	\$0	\$35		\$378	\$490	-	0	0	0
		2013	\$0	\$0	\$957	\$0	\$38		\$400	\$518	-	0	0	0
		Total	\$22,325	\$1,912	\$2,977	\$11,216	\$139		\$1,235	\$1,603	881	13,215	8,807	132,110
Energy Assessment & Weatherization	0.42	2010	\$30	\$30	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$925	\$574	\$155	\$844	\$91		\$33	\$31	1,432	8,897	686	5,732
		2012	\$886	\$837	\$219	\$79	\$58		\$81	\$79	19	19	924	924
		2013	\$972	\$925	\$240	\$84	\$63		\$89	\$87	20	20	997	997
		Total	\$2,814	\$2,366	\$614	\$1,007	\$213		\$204	\$198	1,470	8,935	2,607	7,653
Common Costs	-	2010	\$2,001	\$2,001	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$3,960	\$3,960	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3,071	\$3,071	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$2,683	\$2,683	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$11,715	\$11,715	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	2.94		\$137,039	\$66,512	\$145,977	\$360,690	\$7,458		\$73,157	\$65,362	84,997	401,129	561,764	3,904,121

## Section 8: Cost Effectiveness

Residential Low-Income	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
E-Power Wise	4.62	2010	\$32	\$32	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$194	\$194	\$218	\$1,215	\$22		\$98	\$99	340	2,043	2,119	12,715
		2012	\$213	\$213	\$351	\$691	\$23		\$164	\$165	231	1,387	1,182	7,092
		2013	\$179	\$179	\$480	\$570	\$33		\$223	\$224	189	1,134	967	5,802
		Total	\$618	\$618	\$1,050	\$2,475	\$78		\$484	\$488	761	4,564	4,268	25,610
Low Income WRAP	1.05	2010	\$3,022	\$3,022	\$109	\$1,559	\$6		\$40	\$62	93	1,397	1,200	18,000
		2011	\$9,417	\$9,417	\$656	\$6,983	\$49		\$238	\$369	676	10,135	5,425	81,368
		2012	\$9,151	\$9,151	\$1,509	\$10,352	\$60		\$568	\$881	720	10,803	8,305	124,574
		2013	\$7,083	\$7,083	\$2,284	\$7,596	\$88		\$861	\$1,335	540	8,093	6,222	93,327
		Total	\$28,673	\$28,673	\$4,559	\$26,489	\$203		\$1,707	\$2,648	2,029	30,428	21,151	317,269
Common Costs	-	2010	\$1,070	\$1,070	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$2,117	\$2,117	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$1,641	\$1,641	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$1,434	\$1,434	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$6,262	\$6,262	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	0.92		\$35,552	\$35,552	\$5,609	\$28,964	\$281		\$2,191	\$3,136	2,789	34,991	25,420	342,879

## Section 8: Cost Effectiveness

Commercial / Industrial Small	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
<i>Appliance Recycling</i>	15.70	2010	\$5	\$5	\$9	\$75	\$0		\$4	\$5	3	21	129	1,027
		2011	\$20	\$20	\$59	\$343	\$10		\$21	\$28	155	1,070	521	4,136
		2012	\$2	\$2	\$60	\$3	\$6		\$24	\$30	-	0	8	41
		2013	\$2	\$2	\$63	\$3	\$7		\$25	\$31	-	0	8	41
		Total	\$29	\$29	\$190	\$424	\$23		\$74	\$93	158	1,091	666	5,244
<i>Custom Incentive</i>	6.35	2010	\$117	\$101	\$3	\$39	\$0		\$1	\$1	3	44	39	580
		2011	\$460	\$138	\$175	\$1,694	\$66		\$50	\$60	1,033	15,499	1,396	20,940
		2012	\$1,179	\$993	\$861	\$7,541	\$162		\$318	\$381	3,003	45,039	7,150	107,250
		2013	\$600	\$507	\$1,272	\$3,825	\$241		\$469	\$562	1,501	22,520	3,575	53,625
		Total	\$2,356	\$1,739	\$2,311	\$12,899	\$470		\$838	\$1,004	5,540	83,103	12,160	182,395
<i>Direct Load Control</i>	0.13	2010	\$6	\$6	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$92	\$92	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$257	\$257	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$831	\$831	\$154	\$122	\$154		\$0	\$0	3,529	3,529	0	0
		Total	\$1,186	\$1,186	\$154	\$122	\$154		\$0	\$0	3,529	3,529	0	0
<i>Efficient Equipment Incentive</i>	1.20	2010	\$39	\$15	\$6	\$84	\$1		\$3	\$3	9	115	85	1,188
		2011	\$56,813	\$8,008	\$7,805	\$87,186	\$1,170		\$3,715	\$2,920	18,388	270,648	84,988	1,248,027
		2012	\$37,826	\$22,828	\$18,341	\$25,953	\$1,543		\$8,794	\$8,004	20,018	79,239	117,892	371,451
		2013	\$38,846	\$37,247	\$21,088	\$25,980	\$1,873		\$10,092	\$9,124	20,239	82,488	118,881	385,587
		Total	\$133,524	\$68,098	\$47,241	\$139,203	\$4,587		\$22,604	\$20,051	58,653	432,490	321,847	2,006,253
<i>HVAC Tune-up</i>	0.52	2010	\$37	\$37	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$112	\$112	\$69	\$64	\$33		\$21	\$15	521	521	464	464
		2012	\$6	\$6	\$2	\$6	\$0		\$1	\$1	0	1	29	87
		2013	\$6	\$6	\$5	\$7	\$0		\$3	\$2	0	1	32	97
		Total	\$161	\$161	\$77	\$78	\$33		\$26	\$19	521	523	525	647
<i>Renewable Energy</i>	0.22	2010	\$594	\$6	\$13	\$178	\$1		\$5	\$6	12	181	172	2,573
		2011	\$342	\$9	\$16	\$24	\$1		\$7	\$8	3	50	24	354
		2012	\$0	\$0	\$16	\$0	\$1		\$7	\$9	-	0	0	0
		2013	\$0	\$0	\$17	\$0	\$1		\$7	\$9	-	0	0	0
		Total	\$937	\$15	\$62	\$203	\$3		\$27	\$32	15	232	195	2,927
<i>Common Costs</i>	-	2010	\$2,601	\$2,601	\$0	\$0	\$0							
		2011	\$5,147	\$5,147	\$0	\$0	\$0							
		2012	\$3,991	\$3,991	\$0	\$0	\$0							
		2013	\$3,487	\$3,487	\$0	\$0	\$0							
		Total	\$15,227	\$15,227	\$0	\$0	\$0		\$0	\$0	-	0	0	0
<b>Total</b>	<b>1.15</b>		\$153,420	\$86,455	\$50,036	\$152,929	\$5,270		\$23,568	\$21,199	68,417	520,968	335,393	2,197,466



## Section 8: Cost Effectiveness

Commercial / Industrial Large	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	16.38	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1	\$1	\$2	\$15	\$1		\$1	\$1	8	59	26	210
		2012	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		2013	\$0	\$0	\$2	\$0	\$0		\$1	\$1	-	0	0	0
		Total	\$1	\$1	\$6	\$15	\$1		\$2	\$3	8	59	26	210
Custom Incentive	3.09	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$5,347	\$1,300	\$802	\$9,490	\$62		\$337	\$404	967	14,501	11,873	178,092
		2012	\$27,053	\$9,526	\$7,702	\$75,692	\$357		\$3,341	\$4,005	7,929	118,935	98,400	1,476,000
		2013	\$8,334	\$2,990	\$10,154	\$22,222	\$493		\$4,394	\$5,267	2,417	36,261	30,000	450,000
		Total	\$40,735	\$13,816	\$18,658	\$107,404	\$912		\$8,071	\$9,676	11,313	169,697	140,273	2,104,092
Efficient Equipment Incentive	9.25	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$6,982	\$3,671	\$4,153	\$45,978	\$512		\$2,024	\$1,618	8,049	116,619	56,775	828,983
		2012	\$1,403	\$1,236	\$6,516	\$24,958	\$363		\$3,456	\$2,697	995	14,920	32,863	492,949
		2013	\$0	\$0	\$6,758	\$0	\$394		\$3,574	\$2,789	-	0	0	0
		Total	\$8,386	\$4,907	\$17,427	\$70,936	\$1,269		\$9,054	\$7,104	9,044	131,538	89,638	1,321,932
HVAC Tune-up	0.37	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$520	\$520	\$0	\$0	\$0		\$0	\$0	1	1	4	4
		2012	\$133	\$133	\$48	\$120	\$0		\$28	\$20	9	28	696	2,088
		2013	\$149	\$149	\$106	\$144	\$1		\$61	\$44	10	31	773	2,319
		Total	\$802	\$802	\$154	\$264	\$1		\$89	\$64	20	59	1,473	4,411
Load Curtailment	0.61	2010	\$75	\$75	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$61	\$61	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$4,152	\$4,152	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$5,401	\$5,401	\$6,115	\$4,855	\$6,115		\$0	\$0	140,400	140,400	0	0
		Total	\$9,689	\$9,689	\$6,115	\$4,855	\$6,115		\$0	\$0	140,400	140,400	0	0
Common Costs	-	2010	\$1,067	\$1,067	\$0	\$0	\$0				-	0	0	0
		2011	\$2,111	\$2,111	\$0	\$0	\$0				-	0	0	0
		2012	\$1,637	\$1,637	\$0	\$0	\$0				-	0	0	0
		2013	\$1,430	\$1,430	\$0	\$0	\$0				-	0	0	0
		Total	\$6,246	\$6,246	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	3.24		\$65,858	\$35,461	\$42,361	\$183,474	\$8,299		\$17,216	\$16,847	160,786	441,753	231,410	3,430,646

## Section 8: Cost Effectiveness

Governmental/Schools/ Non-Profit	TRC Benefits By Program Per Year (\$000)													
	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	19.26	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$0	\$0	\$0	\$1	\$0		\$0	\$0	0	2	2	14
		2012	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$0	\$0	\$0	\$1	\$0		\$0	\$0	0	2	2	14
Custom Incentive	7.84	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1,842	\$348	\$266	\$3,275	\$12		\$115	\$138	186	2,795	3,336	50,047
		2012	\$2,869	\$2,907	\$3,379	\$35,657	\$13		\$1,531	\$1,835	143	2,150	38,000	570,000
		2013	\$1,440	\$358	\$3,773	\$2,696	\$21		\$1,707	\$2,046	143	2,150	2,920	43,800
		Total	\$6,151	\$3,613	\$7,418	\$41,628	\$46		\$3,353	\$4,019	473	7,095	44,256	663,847
Direct Load Control	0.13	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1	\$1	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3	\$3	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$9	\$9	\$2	\$1	\$2		\$0	\$0	40	40	0	0
		Total	\$13	\$13	\$2	\$1	\$2		\$0	\$0	40	40	0	0
Efficient Equipment Incentive	1.23	2010	\$12	\$2	\$1	\$15	\$0		\$1	\$0	2	26	15	215
		2011	\$36,027	\$4,039	\$3,288	\$36,246	\$532		\$1,540	\$1,215	8,363	122,954	35,319	516,120
		2012	\$14,630	\$2,501	\$5,084	\$17,622	\$760		\$2,384	\$1,940	10,553	155,655	16,568	231,612
		2013	\$14,380	\$2,375	\$7,140	\$16,499	\$1,278		\$3,215	\$2,647	10,427	155,027	15,699	227,272
		Total	\$65,050	\$8,917	\$15,513	\$70,383	\$2,570		\$7,141	\$5,803	29,344	433,662	67,601	975,219
HVAC Tune-up	0.57	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$12	\$12	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$3	\$3	\$1	\$3	\$0		\$1	\$1	0	1	16	48
		2013	\$6	\$6	\$4	\$7	\$0		\$2	\$2	0	1	32	97
		Total	\$21	\$21	\$6	\$11	\$0		\$3	\$2	1	2	48	145
Load Curtailment	0.61	2010	\$8	\$8	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$7	\$7	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$470	\$470	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$612	\$612	\$693	\$550	\$693		\$0	\$0	15,900	15,900	0	0
		Total	\$1,097	\$1,097	\$693	\$550	\$693		\$0	\$0	15,900	15,900	0	0
Renewable Energy	0.51	2010	\$0	\$0	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$16,391	\$2,056	\$520	\$6,046	\$86		\$196	\$238	1,358	20,373	5,670	85,056
		2012	\$7,023	\$1,599	\$954	\$4,683	\$152		\$364	\$439	2,419	36,292	4,202	63,029
		2013	\$0	\$0	\$1,003	\$0	\$165		\$379	\$458	-	0	0	0
		Total	\$23,415	\$3,655	\$2,477	\$10,729	\$403		\$939	\$1,135	3,778	56,665	9,872	148,085
Common Cost	-	2010	\$632	\$632	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$1,251	\$1,251	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$970	\$970	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$848	\$848	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		Total	\$3,702	\$3,702	\$0	\$0	\$0		\$0	\$0	-	0	0	0
<b>Total</b>	<b>1.40</b>		<b>\$99,449</b>	<b>\$21,019</b>	<b>\$26,109</b>	<b>\$123,303</b>	<b>\$3,713</b>		<b>\$11,436</b>	<b>\$10,960</b>	<b>49,536</b>	<b>513,366</b>	<b>121,779</b>	<b>1,787,311</b>

## Section 8: Cost Effectiveness

All Sectors		TRC Benefits By Program Per Year (\$000)												
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Appliance Recycling	8.80	2010	\$795	\$795	\$764	\$6,492	\$13		\$374	\$377	187	1,486	9,069	72,400
		2011	\$1,877	\$1,877	\$3,580	\$19,461	\$441		\$1,569	\$1,570	6,750	46,994	24,665	197,366
		2012	\$2,314	\$2,314	\$5,772	\$15,190	\$385		\$2,699	\$2,688	2,654	21,228	20,302	160,734
		2013	\$2,314	\$2,314	\$8,334	\$14,791	\$533		\$3,911	\$3,889	2,654	21,228	20,302	160,734
		Total	\$7,300	\$7,300	\$18,450	\$55,933	\$1,373		\$8,554	\$8,523	12,244	90,937	74,537	591,233
Compact Fluorescent Lighting Campaign	6.87	2010	\$5,549	\$2,078	\$5,420	\$33,416	\$250		\$2,838	\$2,331	3,636	21,816	61,839	371,031
		2011	\$12,499	\$4,598	\$20,300	\$80,565	\$779		\$10,718	\$8,804	8,608	51,649	145,999	875,997
		2012	\$8,911	\$4,417	\$31,193	\$52,609	\$749		\$16,714	\$13,729	6,410	38,460	94,234	565,406
		2013	\$8,603	\$4,114	\$42,586	\$50,572	\$1,087		\$22,784	\$18,715	6,296	37,779	90,065	540,390
		Total	\$35,563	\$15,207	\$99,499	\$217,162	\$2,865		\$53,054	\$43,580	24,951	149,704	392,137	2,352,824
Custom Incentive	3.85	2010	\$117	\$101	\$3	\$39	\$0		\$1	\$1	3	44	39	580
		2011	\$7,659	\$1,788	\$1,245	\$14,481	\$139		\$503	\$603	2,188	32,822	16,624	249,353
		2012	\$31,101	\$13,426	\$11,944	\$118,890	\$533		\$5,190	\$6,221	11,075	166,124	143,550	2,153,250
		2013	\$10,374	\$3,855	\$15,202	\$28,544	\$755		\$6,571	\$7,877	4,062	60,930	36,495	547,425
		Total	\$49,250	\$19,170	\$28,393	\$161,954	\$1,427		\$12,264	\$14,702	17,328	259,921	196,707	2,950,607
Energy Efficiency Behavior & Education	2.24	2010	\$142	\$142	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$815	\$815	\$1,225	\$1,135	\$0		\$610	\$615	-	0	13,207	13,207
		2012	\$936	\$936	\$2,554	\$2,190	\$217		\$1,164	\$1,173	5,397	5,397	23,504	23,504
		2013	\$936	\$936	\$2,699	\$2,142	\$235		\$1,227	\$1,236	5,397	5,397	23,504	23,504
		Total	\$2,829	\$2,829	\$6,478	\$5,466	\$452		\$3,002	\$3,024	5,397	5,397	23,504	23,504
Direct Load Control	0.13	2010	\$64	\$64	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$924	\$924	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$2,597	\$2,597	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$8,393	\$8,393	\$1,553	\$1,232	\$1,553		\$0	\$0	35,644	35,644	0	0
		Total	\$11,978	\$11,978	\$1,553	\$1,232	\$1,553		\$0	\$0	35,644	35,644	0	0
Efficient Equipment Incentive	1.59	2010	\$5,327	\$2,174	\$858	\$10,900	\$77		\$355	\$427	1,116	14,213	9,275	123,051
		2011	\$123,686	\$24,538	\$19,038	\$201,062	\$2,554		\$8,867	\$7,616	39,034	562,659	205,001	2,953,542
		2012	\$61,900	\$28,769	\$35,337	\$85,252	\$2,940		\$16,976	\$15,422	33,044	268,459	181,857	1,295,568
		2013	\$59,782	\$40,875	\$41,701	\$52,523	\$3,899		\$19,783	\$18,019	31,992	254,350	143,800	733,235
		Total	\$250,696	\$96,355	\$96,934	\$349,737	\$9,470		\$45,980	\$41,484	105,185	1,099,681	539,933	5,105,397
HVAC Tune-up	0.40	2010	\$38	\$38	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$644	\$644	\$70	\$65	\$33		\$21	\$15	521	521	468	468
		2012	\$141	\$141	\$52	\$129	\$0		\$30	\$22	10	30	741	2,223
		2013	\$161	\$161	\$115	\$158	\$1		\$66	\$48	11	33	838	2,513
		Total	\$985	\$985	\$237	\$352	\$34		\$118	\$85	542	584	2,046	5,203

## Section 8: Cost Effectiveness

All Sectors	TRC Benefits By Program Per Year (\$000)													
Program	TRC Ratio	Program Year	TRC Costs (\$000)	Program Costs (\$000)	Program Benefits (\$000)		Capacity (\$000)		Energy (\$000)		Load Reductions in kW		MWh Saved	
					Annual	Lifetime (NPV)	Annual		Annual		Annual	Lifetime	Annual	Lifetime
							Generation	Trans/Dist	Peak	Off Peak				
Load Curtailment	0.61	2010	\$83	\$83	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$68	\$68	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2012	\$4,622	\$4,622	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2013	\$6,013	\$6,013	\$6,808	\$5,404	\$6,808		\$0	\$0	156,300	156,300	0	0
		Total	\$10,786	\$10,786	\$6,808	\$5,404	\$6,808		\$0	\$0	156,300	156,300	0	0
Renewable Energy	0.51	2010	\$4,908	\$356	\$257	\$3,710	\$10		\$107	\$141	140	2,098	2,942	44,126
		2011	\$34,745	\$3,626	\$1,409	\$13,755	\$143		\$559	\$707	2,115	31,722	11,731	175,966
		2012	\$7,023	\$1,599	\$1,874	\$4,683	\$188		\$748	\$938	2,419	36,292	4,202	63,029
		2013	\$0	\$0	\$1,976	\$0	\$204		\$787	\$986	-	0	0	0
		Total	\$46,676	\$5,582	\$5,516	\$22,147	\$544		\$2,201	\$2,771	4,674	70,112	18,875	283,122
Energy Assessment & Weatherization	0.42	2010	\$30	\$30	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$925	\$574	\$155	\$844	\$91		\$33	\$31	1,432	8,897	686	5,732
		2012	\$886	\$837	\$219	\$79	\$58		\$81	\$79	19	19	924	924
		2013	\$972	\$925	\$240	\$84	\$63		\$89	\$87	20	20	997	997
		Total	\$2,814	\$2,366	\$614	\$1,007	\$213		\$204	\$198	1,470	8,935	2,607	7,653
E-Power Wise	4.62	2010	\$32	\$32	\$0	\$0	\$0		\$0	\$0	-	0	0	0
		2011	\$194	\$194	\$218	\$1,215	\$22		\$98	\$99	340	2,043	2,119	12,715
		2012	\$213	\$213	\$351	\$691	\$23		\$164	\$165	231	1,387	1,182	7,092
		2013	\$179	\$179	\$480	\$570	\$33		\$223	\$224	189	1,134	967	5,802
		Total	\$618	\$618	\$1,050	\$2,475	\$78		\$484	\$488	761	4,564	4,268	25,610
Low Income WRAP	1.05	2010	\$3,022	\$3,022	\$109	\$1,559	\$6		\$40	\$62	93	1,397	1,200	18,000
		2011	\$9,417	\$9,417	\$656	\$6,983	\$49		\$238	\$369	676	10,135	5,425	81,368
		2012	\$9,151	\$9,151	\$1,509	\$10,352	\$60		\$568	\$881	720	10,803	8,305	124,574
		2013	\$7,083	\$7,083	\$2,284	\$7,596	\$88		\$861	\$1,335	540	8,093	6,222	93,327
		Total	\$28,673	\$28,673	\$4,559	\$26,489	\$203		\$1,707	\$2,648	2,029	30,428	21,151	317,269
Portfolio Costs	-	2010	\$7,371	\$7,371										
		2011	\$14,587	\$14,587										
		2012	\$11,310	\$11,310										
		2013	\$9,883	\$9,883										
		Total	\$43,151	\$43,151	\$0	\$0	\$0		\$0	\$0	-	0	0	0
Total	1.97		\$491,319	\$245,000	\$270,092	\$849,360	\$25,020		\$127,568	\$117,503	366,525	1,912,207	1,275,766	11,662,422

## 9. Plan Compliance Information and Other Key Issues

### 9.1. Plan Compliance Issues.

#### 9.1.1. Describe how the plan provides a variety of energy-efficiency, conservation, and load management measures and will provide the measures equitably to all classes of customers in accordance with the January 15 Implementation Order.

PPL Electric went to considerable lengths to develop a Plan that would satisfy and balance the requirements of Act 129. The Plan Development Process, which provides an overview of the myriad of considerations and steps taken to ensure compliance with the January 15th Implementation Order, is outlined in Sections 1.2.2 – 1.2.1.3. Table 6 and Table 9 show the programs broken out by customer sector. As shown on those tables, each customer class has an opportunity to choose among a broad range of programs that offer energy-efficiency, conservation and load management measures. Within many of those programs, especially the Efficient Equipment Program, there are many energy efficiency measures available.

Also, as shown in Table 7, the proportion of the EE&C Plan's energy savings and budget for each customer sector are reasonably equitable by several metrics including each sector's share of total PPL Electric revenue and total PPL Electric load (kWh/yr).

#### 9.1.2. Provide statement delineating the manner in which the EE&C plan will achieve the requirements of the program under 66 Pa. C.S. §§ 2806.1(c) & 2806.1(d).

Act 129 requires 10% of the required energy and peak load reductions (compliance target) to come from institutional customers. For PPL Electric, those targets are 114,600 MWh/yr (May 2013 energy reduction target) and 30 MW (2012 peak load reduction target). 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 reduction and peak load reduction targets set forth in Act 129 within all of the other requirements of the Act.

Act 129, in 66 Pa. C.S. § 2806.1(c), requires each EDC to achieve 3% energy savings by May 31, 2013. In PPL Electric's case, that target equates to approximately 1.15 million MWh/yr. The Company's EE&C Plan, as described herein, is designed to achieve approximately 1.275 million MWh/yr of energy reductions by May 2013. The approximately 10% excess is intended to provide a reasonable cushion for uncertainties such as a realization rate that is worse than expected.<sup>70</sup> 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. PPL Electric's EE&C Plan is designed to achieve approximately 321 MW of peak load reductions by September 30, 2012. The approximately 8% excess is intended to provide a reasonable cushion for uncertainties such as a realization rate that is worse than

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<sup>70</sup> The realization rate is the ratio of verified gross savings to reported gross savings and it will not be known until the Company's independent evaluator completes the impact evaluation, approximately 6 months after the compliance dates.

expected. Given the uncertainties previously discussed about peak load reductions and predicting the peak hours, PPL Electric would prefer a larger cushion for uncertainty. However, a larger cushion is not possible within current budget constraints.

**9.1.3. Provide statement delineating the manner in which the EE&C plan will achieve the Low-Income requirements under 66 Pa. C.S. §§ 2806.1(b)(1)(i)(G).**

In accordance with the Commission's Low-Income Working Group (LIWG) Report dated April 27, 2010, an EDC is compliant with the Act 129 low-income requirement if the number of measures available to low-income customers is consistent with the percentage of low-income household usage shown in the last column on Table 1 of the LIWG Report. For PPL Electric, that percentage is 8.64%. PPL Electric's EE&C Plan is designed to dedicate (make available) at least 8.64% of the total measures to low-income customers. Approximately 63% of the total unique measures in PPL Electric's EE&C Plan are available to low-income customers. This percentage of measures available to low-income customers significantly exceeds the proportion required by Act 129 (8.64% in PPL Electric's case). Those measures are expected to achieve approximately 6% of the energy consumption and peak load reductions from the low-income customer sector. A list of measures is included in Appendix G. As discussed in Section 3.2.1, the Company has developed two programs specifically for the low-income sector to obtain energy and demand reductions from this sector. Additional multi-sector programs, including both efficiency and demand reduction programs, are available and will be promoted to low-income customers. Since it is not feasible to track low-income customer's participation in non low-income programs, the Company will not accrue energy and demand savings to the low-income sector when low-income customers participate in non low-income programs. In that situation, energy and demand savings will accrue to the customer sector for the customer's rate class (typically the residential sector). However, as agreed with the Commission, PPL Electric will estimate the savings from low-income customers who participate in non low-income programs. Those estimated savings will be included in PPL Electric's final annual report starting with Program Year 2.

In order to meet the energy and demand reduction set aside for the low-income sector, PPL Electric will leverage its existing delivery infrastructure, implement new grassroots social marketing efforts targeted to low-income communities and community groups, reach out to new low-income market partners to develop and implement co-marketing strategies, and expand its low-income WRAP program to reach new customers and increase measure installation.

**9.1.4. Provide statement delineating the manner in which the EE&C plan will achieve the Government/Non-Profit requirements under 66 Pa. C.S. §§ 2806.1(b)(1)(i)(B).**

Institutional customers will be eligible for the same range of energy-efficiency and demand response programs and measures as other customers in their underlying rate class (includes residential, small C&I, and large C&I rate classes). Institutional customers also are eligible to participate in the Renewable Energy program. In its Efficient Equipment Incentive Program, PPL Electric has included traffic lighting measures, designated primarily for municipalities. See section 3.5 for a complete listing of governmental/non-profit programs.

PPL Electric believes this mix of programs provides an extensive selection of program opportunities and EE&C measures to support the governmental/non-profit sector. PPL Electric recognizes the importance of obtaining participation from this sector and plans targeted promotions for those customers. To support program uptake in the governmental and non-profit sector, PPL Electric will increase its already active outreach to schools, school districts, and universities in its service territory, as well as to other public entities, particularly those with significant energy-efficiency potential. PPL Electric further plans to leverage municipal and other public sector interest in energy-efficiency stemming from the influx of Federal ARRA funding designated for community and state government facility energy-efficiency upgrades. In addition, PPL Electric and the C&I CSP may focus on increasing governmental/non-profit sector participation, particularly among larger customers such as universities and hospitals. PPL Electric and the C&I CSP may also 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, technically sound, and most, if not all, are in the TRM, will be added to the TRM, or will be treated as custom measures. However, the Company expects to explore emerging technologies and energy efficient practices if such measures can be shown to be cost effective. The Company expects that, under the Commercial and Industrial Custom program, certain projects will include experimental or emerging technologies. In such cases, the Company will track those measures separately and will limit expenditures on measure deemed "experimental" to comply with this requirement of Act 129.

**9.1.6. Describe how the plan will be competitively neutral to all distribution customers even if they are receiving supply from an EGS.**

As described in Section 9.1.1, each customer class has an opportunity to choose among a range of programs and measures. All of the programs are available to customers regardless of whether they receive default generation service from PPL Electric or obtain competitive supply from an Electric Generation Supplier (EGS). Default and competitive-supply customers alike will be able to participate in these programs and obtain the benefits available to participants. Monthly bill savings may be different for a competitive-supply customer to the extent that the customer may have purchased generation supply at a rate that is different from PPL Electric's rate for default generation service.

**9.2. Other Key Issues:**

**9.2.1. Describe how this EE&C plan will lead to long-term, sustainable energy-efficiency savings in the EDC's service territory and in Pennsylvania.**

The proposed Plan describes a four-year undertaking, designed to satisfy the performance requirements set forth by Act 129 in a manner that is consistent with the Commission's February 2009 Implementation Order and PPL Electric's own mission.

Many of the measures installed under the proposed programs will continue to perform and produce savings well beyond the term of the Plan. PPL Electric expects that the information and educational services offered over the course of the Plan will have a lasting, transformative effect on consumers' purchasing decisions regarding energy-using equipment and appliances and their energy consumption behavior. Programs offered by PPL Electric and other EDCs will stimulate demand for energy efficient products and encourage distributors and retailers to stock such equipment. It appears reasonable to expect that the program-induced increase in demand for and wider availability of energy-efficient equipment will have at least a role in transforming local and regional markets.

**9.2.2. Describe how this EE&C plan, and the EDC, will avoid possible overlaps between programs offered in different Pennsylvania EDC service territories as well as possibly programs offered in neighboring states.**

PPL Electric recognizes the importance of minimizing customer confusion (and maximizing customer participation and benefits) by coordinating program activities and incentives with neighboring EDCs. All of the Pennsylvania EDCs coordinated during the development of their EE&C Plans and continue to collaborate, coordinate, and share best practices during the implementation of programs. The focus of the coordination is to develop consistent programs and program design elements (such as the types and magnitude of customer incentives) where that consistency is appropriate. PPL Electric and PECO also investigated implementing joint programs, such as CFL and appliance recycling programs, but the benefits of those joint programs were not significant. However, several of the EDCs are using the same CSPs (such as the Appliance Recycling CSP and the Residential Lighting CSP) and sharing CSP resources such as a new appliance recycling facility.

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 encourages 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 educates customers about other sources of funding that are available. Customers may use financial incentives that are outside of Act 129 to help offset some of their capital outlay.

**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 has dedicated staff to manage its customer communication and education efforts. In addition, program CSPs also provide educational information to customers. At a minimum, the Company provides the following consumer education:

- **Consumer Energy Use Education Program.** PPL Electric has 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 developed and provides consumer educational materials 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, contains information and tools to support customer energy-efficiency strategies.
- **General efficiency awareness.** PPL Electric works with its Advertising CSP to develop a broad customer awareness and specific messaging 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 provides information to participants in specific programs on corresponding state and federal funding available. For example, participants in the Renewable Energy Program were given information on incentives available through the PA Sunshine Solar Program and Federal tax incentives to support the installation of renewable energy systems.

**9.2.6. Describe how the EDC will provide the public with information about the results from the programs.**

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 e-power web site. PPL Electric reviews results with stakeholders during its stakeholder meetings and provides its quarterly and annual reports to stakeholders via

## Section 9: Plan Compliance Information and Other Key Issues

the e-power website. PPL Electric shares customer success stories with customers, trade allies, and the public.

## CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

### VIA E-MAIL & FIRST CLASS MAIL

James A. Mullins  
Tanya J. McCloskey  
Office of Consumer Advocate  
555 Walnut Street  
Forum Place, 5th Floor  
Harrisburg, PA 17101-1923  
E-Mail: [jmullins@paoca.org](mailto:jmullins@paoca.org)  
E-Mail: [tmccloskey@paoca.org](mailto:tmccloskey@paoca.org)

Allison Curtin Kaster  
Bureau of Investigation & Enforcement  
Commonwealth Keystone Building  
400 North Street, 2nd Floor West  
PO Box 3265  
Harrisburg, PA 17105-3265  
E-Mail: [akaster@state.pa.us](mailto:akaster@state.pa.us)

Sharon Webb  
Office of Small Business Advocate  
300 North Second Street, Suite 1102  
Harrisburg, PA 17101  
E-Mail: [swebb@state.pa.us](mailto:swebb@state.pa.us)

Pamela C. Polacek  
Adeolu Bakare, Esquire  
McNees, Wallace & Nurick  
100 Pine Street  
PO Box 1166  
Harrisburg, PA 17108-1166  
E-Mail: [ppolacek@mwn.com](mailto:ppolacek@mwn.com)  
E-Mail: [abakare@mwn.com](mailto:abakare@mwn.com)  
*PP&L Industrial Customer Alliance*

Craig R. Burgraff  
Todd A. Stewart  
Hawke, McKeon & Sniscak LLP  
Harrisburg Energy Center  
100 North Tenth Street  
PO Box 1778  
Harrisburg, PA 17105-1778  
E-Mail: [crburgraff@hmsk-law.com](mailto:crburgraff@hmsk-law.com)  
E-Mail: [TSSStewart@hmslegal.com](mailto:TSSStewart@hmslegal.com)  
*Sustainable Energy Fund for Central Eastern PA*

### VIA E-MAIL ONLY

Thomas J. Sniscak  
Kevin J. McKeon  
Hawke McKeon & Sniscak LLP  
100 North Tenth Street  
PO Box 1778  
Harrisburg, PA 17105  
E-Mail: [tjsniscak@hmsk-law.com](mailto:tjsniscak@hmsk-law.com)  
E-Mail: [kjmckeon@hmslegal.com](mailto:kjmckeon@hmslegal.com)  
*UGI Utilities, Inc. – Gas Division*  
*UGI Penn Natural Gas, Inc. and*  
*UGI Central Penn Gas, Inc.*

Kimberly H. Childe  
PA Department of Environmental Protection  
400 Market Street, 9th Floor  
Harrisburg, PA 17101-2301  
E-Mail: [kchilde@pa.gov](mailto:kchilde@pa.gov)  
*PA Department of Environmental Protection*

Craig A. Doll  
25 West Second Street  
PO Box 403  
Hummelstown, PA 17036  
E-Mail: [CDoll76342@aol.com](mailto:CDoll76342@aol.com)  
*Richards Energy Group, Inc.*

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Eric Joseph Epstein  
4100 Hillsdale Road  
Harrisburg, PA 17112  
E-Mail: [lechambon@comcast.net](mailto:lechambon@comcast.net)  
*Eric J. Epstein, Pro se*

Daniel Clearfield  
Carl R. Shultz  
Eckert Seamans Cherin & Mellott, LLC  
213 Market Street, 8<sup>th</sup> Floor  
PO Box 1248  
Harrisburg, PA 17108-1248  
E-Mail: [dclearfield@eckertseamans.com](mailto:dclearfield@eckertseamans.com)  
E-Mail: [cshultz@eckertseamans.com](mailto:cshultz@eckertseamans.com)  
*Direct Energy Business, LLC*

Mark C. Morrow  
UGI Utilities, Inc.  
460 North Gulph Road  
King of Prussia, PA 19406  
E-Mail: [morrowm@ugicorp.com](mailto:morrowm@ugicorp.com)  
*UGI Utilities, Inc. – Gas Division*  
*UGI Penn Natural Gas, Inc. and*  
*UGI Central Penn Gas, Inc.*

Kent D. Murphy  
UGI Utilities, Inc.  
460 North Gulph Road  
King of Prussia, PA 19406  
E-Mail: [murphyke@ugicorp.com](mailto:murphyke@ugicorp.com)  
*UGI Utilities, Inc. – Gas Division*  
*UGI Penn Natural Gas, Inc. and*  
*UGI Central Penn Gas, Inc.*

John K. Baillie  
Citizens for Pennsylvania's Future  
425 Sixth Avenue, Suite 2770  
Pittsburgh, PA 15219  
E-Mail: [baillie@pennfuture.org](mailto:baillie@pennfuture.org)  
*Citizens for Pennsylvania's Future*

Frank Richards  
Richards Energy Group  
781 S. Chiques Road  
Manheim, PA 17545  
E-Mail: [frichards@richardsenergy.com](mailto:frichards@richardsenergy.com)  
*Richards Energy Group, Inc.*

Carolyn Pengidore  
President/CEO  
ClearChoice Energy  
1500 Oxford Drive, Suite 210  
Bethel Park, PA 15102  
E-Mail: [Carolyn@ClearChoice-Energy.com](mailto:Carolyn@ClearChoice-Energy.com)  
*Comperio Energy d/b/a ClearChoice Energy*

Harry S. Geller  
Julie George  
Pennsylvania Utility Law Project  
118 Locust Street  
Harrisburg, PA 17101-1414  
E-Mail: [hgellerpulp@palegalaid.net](mailto:hgellerpulp@palegalaid.net)  
E-Mail: [jgeorgepulp@palegalaid.net](mailto:jgeorgepulp@palegalaid.net)  
*Pennsylvania Communities Organizing for Change*

Christopher A. Lewis  
Christopher R. Sharp  
Blank Rome, LLP  
One Logan Square  
Philadelphia, PA 19103  
E-Mail: [Lewis@blankrome.com](mailto:Lewis@blankrome.com)  
E-Mail: [Sharp@blankrome.com](mailto:Sharp@blankrome.com)  
*Field Diagnostic Services, Inc.*

Divesh Gupta  
Constellation Energy Group, Inc.  
111 Market Place, Suite 500  
Baltimore, MD 21202  
E-Mail: [divesh.gupta@constellation.com](mailto:divesh.gupta@constellation.com)  
*Constellation New Energy*

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Ruben S. Brown, M.A.L.D.  
President, The E Cubed Company, LLC  
201 W. 70<sup>th</sup> Street, Apt. 41E  
New York, NY 10023-4386  
E-Mail: [ruben.brown.ecubed.llc@gmail.com](mailto:ruben.brown.ecubed.llc@gmail.com)  
*The E-Cubed Company, LLC*

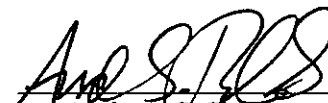
Kathleen M. Greely  
Program Manager  
PA Home Energy  
Performance Systems Development  
297 ½ Chestnut Street  
Meadville, PA 16335  
E-Mail: [kgreely@psdconsulting.com](mailto:kgreely@psdconsulting.com)  
*PA Home Energy*

Steve Pincus  
Assistant General Counsel  
PJM Interconnection, LLC  
955 Jefferson Avenue  
Norristown, PA 19403  
E-mail: [pincus@pjm.com](mailto:pincus@pjm.com)  
*PJM Interconnection, LLC*

Peter J. Krajsa  
Chairman and CEO  
AFC First Financial Corporation  
Great Bear Center at Brookside  
1005 Brookside Road  
PO Box 3558  
Allentown, PA 18106  
E-Mail: [pkrajsa@afcfirst.com](mailto:pkrajsa@afcfirst.com)  
*Keystone HELP Energy Efficiency Loan and  
Rebate Program c/o AFC First Financial  
Corporation*

Scott H. DeBroff  
Alicia R. Duke  
Rhoads & Sinon LLP  
One South Market Square  
12<sup>th</sup> Floor  
PO Box 1146  
Harrisburg, PA 17108-1146  
E-Mail: [sdebroyff@rhoads-sinon.com](mailto:sdebroyff@rhoads-sinon.com)  
E-Mail: [aduke@rhoads-sinon.com](mailto:aduke@rhoads-sinon.com)  
*EnerNOC, Inc.*

Date: June 14, 2012

  
\_\_\_\_\_  
Andrew S. Tubbs

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