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July 15, 2011

**VIA OVERNIGHT DELIVERY****ACT 129 ENERGY EFFICIENCY PLAN  
FILING TO BE REVIEWED UNDER  
THE PAPUC'S EXPEDITED PROCESS**

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

**RECEIVED****JUL 15 2011****PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU**

**Re: Petition Of PECO Energy Company For Approval Of Minor Changes To Its Act  
129 EE&C Plan Pursuant To The Commission's Expedited Review Process  
Docket No. M-2009-2093215**

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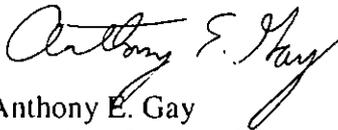
Dear Secretary Chiavetta:

Enclosed for filing are an original and nine (9) copies of the **Petition Of PECO Energy Company For Approval Of Minor Changes To Its Act 129 EE&C Plan Pursuant To The Commission's Expedited Review Process**. As indicated by the title of the Petition, the Company is seeking review under the expedited process established by the Commission's June 10, 2011 Final Order at Docket No. M-2008-2069887.

A copy of the Petition has been served upon the persons and in the manner indicated on the attached Certificate of Service. Pursuant to 52 Pa. Code §1.11(2), the enclosed Petition shall be deemed filed on the date shown on the express delivery receipt attached to the delivery envelope.

Kindly time stamp the extra copy of the Petition we have enclosed and return it to us in the self-addressed envelope that is enclosed. Please do not hesitate to contact me should you have any questions regarding this filing.

Very truly yours,



Anthony E. Gay  
Associate General Counsel

Enclosures

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**PETITION OF PECO ENERGY** :  
**COMPANY FOR APPROVAL OF ITS** :  
**ACT 129 ENERGY EFFICIENCY AND** : **DOCKET NO. M-2009-2093215**  
**CONSERVATION PLAN AND** :  
**EXPEDITED APPROVAL OF ITS** :  
**COMPACT FLUORESCENT LAMP** :  
**PROGRAM** :

**CERTIFICATE OF SERVICE**

I hereby certify that I have this date served true and correct copies of the **Petition Of PECO Energy Company For Approval Of Minor Changes To Its Act 129 EE&C Plan Pursuant To The Commission's Expedited Review Process** upon the individuals listed below, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant):

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BEFORE THE  
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PETITION OF PECO ENERGY :  
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CONSERVATION PLAN AND :  
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PROGRAM :

**PETITION OF PECO ENERGY COMPANY  
FOR APPROVAL OF MINOR CHANGES TO ITS ACT 129 EE&C PLAN  
PURSUANT TO THE COMMISSION'S EXPEDITED REVIEW PROCESS**

**I. INTRODUCTION**

PECO Energy Company ("PECO" or the "Company") hereby petitions the Pennsylvania Public Utility Commission (the "Commission") for approval of minor changes to the Company's Act 129 Energy Efficiency and Conservation Plan ("EE&C Plan" or "Plan"). PECO is filing this Petition pursuant to the Commission's expedited review process, which was established in its June 10, 2011 Final Order at Docket No. M-2008-2069887 (the "*Expedited Process Order*").

PECO has analyzed the success of its Smart Ideas Portfolio of energy efficiency programs through June 30, 2011 and developed savings projections for the Portfolio through May 31, 2013. Based on these projections, the Company has identified several Portfolio adjustments intended to: (1) allow PECO to continue to meet its compliance targets; (2) keep a diverse array of measures "in market" and available to customers through May 31, 2013; and (3) manage spending to remain within PECO's approved budget.

Consistent with the *Expedited Process Order* and PECO's standard practice since the initiation of its EE&C Program, PECO has met with interested stakeholders both individually and collectively to discuss the minor EE&C Plan changes proposed in this Petition. Based on

those discussions, the Company expects broad stakeholder support for the implementation of the changes.

PECO respectfully submits that the Portfolio adjustments described in this Petition are consistent with the Commission’s definition of “minor changes”. PECO also submits that they are in the public interest and should, therefore, be approved.<sup>1</sup>

## II. THE EXPEDITED PROCESS ORDER

The *Expedited Process Order* delegates the Commission’s authority to review and approve minor EE&C Plan changes to the staff of the Bureau of Conservation, Economics and Energy Planning, with assistance from staff of the Bureau of Fixed Utility Services and the Law Bureau. *Expedited Process Order*, p. 18. Minor changes are defined as:

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

*Id.* at 20. Commission staff is directed to issue a Secretarial Letter approving, denying, or transferring to the Office of Administrative Law Judge, some or all of the proposed minor changes within 35 days after the changes are filed with the Secretary. *Id.* at 19.

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<sup>1</sup> The Company intends to propose additional Portfolio adjustments that do not fall within the scope of “minor changes.” Consistent with the directives of the *Expedited Process Order*, PECO anticipates filing for approval of those adjustments through a future Petition made pursuant to the standard plan amendment process. *Expedited Process Order*, p. 20.

### III. BACKGROUND

1. PECO is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania with its principal office in Philadelphia, Pennsylvania. PECO provides electric delivery service to approximately 1.6 million customers and natural gas delivery service to approximately 475,000 customers in Pennsylvania.

2. On October 15, 2008, Act 129 was signed into law. Act 129 was subsequently codified in the Pennsylvania Public Utility Code at Sections 2806.1 and 2806.2 (66 Pa. C.S. §§ 2806.1 & 2806.2). On January 16, 2009, the Commission entered an Order providing standards and guidance for implementing the requirements of Act 129. *See Energy and Conservation Program, Docket No. M-2008-2069887.*

3. Generally, Act 129's energy efficiency provisions require each electric distribution company ("EDC") with at least 100,000 customers to adopt an EE&C plan that will: (1) achieve annual consumption savings of at least 1% for its retail customer base by May 31, 2011 and at least 3% by May 31, 2013; and (2) reduce the annual system peak demand for its retail customers over the 100 highest hours of demand by a minimum of 4.5% by May 31, 2013. 66 Pa. C.S. §§ 2806.1(c), (d).

4. The Act also includes provisions requiring that these reductions be derived from certain customer groups. Specifically, a minimum of 10% of an EDC's consumption reduction target must come from projected usage by federal, state and local governments, including municipalities, school districts, colleges and nonprofit agencies within the EDC's service territory. 66 Pa. C.S. § 2806.1(b)(1)(i)(B). In addition, an EDC's plan must include specific energy efficiency programs for low-income households (defined as households at or below 150%

of the Federal poverty income guidelines), which must be coordinated with other programs administered by the Commission or other government entities. 66 Pa. C.S. § 2806.1(b)(1)(i)(G).

5. The Act provides that EDCs are entitled to full and current cost recovery of prudent and reasonable costs, including administrative costs, but annual plan expenditures are limited to 2% of the EDC's total annual revenue as of December 31, 2006. 66 Pa. C.S. §§ 2806.1(g), (h).

6. Pursuant to the Act, PECO filed its proposed EE&C Plan on July 1, 2009. The Commission approved the Plan, with modifications, by Order entered February 17, 2010.

7. On September 15, 2010, PECO filed its first Annual Report to the Commission regarding its EE&C Plan, and also proposed several revisions. The Commission approved those revisions by Order entered January 28, 2011.

#### **IV. PROPOSED MINOR CHANGES TO PECO'S PLAN**

8. PECO's Smart Ideas Portfolio, which contains EE&C programs for the Residential (including Low-Income), Commercial/Industrial, and Governmental/Institutional/Non-Profit sectors, has made significant progress towards meeting Act 129's 2013 energy savings targets.<sup>2</sup> As of June 30, 2011, the Portfolio had generated approximately 79% (over 927,000 MWh) of the gross savings needed to meet 2013 compliance targets.

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<sup>2</sup> The Smart Ideas Portfolio is comprised of the following programs: CFL Initiative (now Smart Lighting Discounts), Appliance Pick Up (now Smart Appliance Recycling), Home Energy Incentives (now Smart Home Rebates), Low-Income Energy Efficiency Program, Commercial/Industrial Equipment Incentives (now Smart Equipment Incentives – Commercial & Industrial), Government/Public/Non-Profit Facility Energy Savings (now Smart Equipment Incentives – Governmental, Institutional, Non Profit), Commercial/Industrial New Construction (now Smart Construction Incentives), and Conservation Voltage Reduction.

9. Midway through the EE&C Plan period, and in light of its accomplishments to date, the Company initiated a comprehensive evaluation of its existing Portfolio against Act 129's requirements. As a result of this evaluation, PECO identified several Portfolio adjustments that will allow the Company to meet the 2013 compliance targets, ensure that a diverse array of measures will remain available to customers through May 31, 2013, and manage spending to remain within PECO's approved budget.

10. The minor changes that PECO is proposing to this Portfolio are described below on a program-by-program basis. Appendix A provides summary tables which: (1) identify each measure or measure condition the Company is proposing to change; (2) show why the change is "minor" consistent with the *Expedited Process Order*; and (3) provide the reasoning behind the change. In addition, and as required by the *Expedited Process Order*, the proposed changes are displayed in the following two exhibits which are also appended to this Petition:

**Exhibit 1** – Containing the affected programs of PECO's approved EE&C Plan

**Exhibit 2** – Containing a redlined version of the affected programs of PECO's approved EE&C Plan showing the Company's proposed minor changes

11. PECO is not proposing any changes to its Low-Income Energy Efficiency Program, which is on track to meet the Company's savings projections for the 2013 compliance target.

12. In addition, PECO is not proposing any changes to its Commission-approved Smart Lighting Discounts Program, but is using this filing to provide notice that it will shift the focus of the Program from standard compact fluorescent lamps ("CFLs") to specialty CFLs (e.g., dimmable bulbs). The Smart Lighting Discounts Program has already exceeded the Company's

participation goal of subsidizing 6.7 million CFLs. Indeed, since Program inception to June 30, 2011, the Program has subsidized more than 7 million CFLs.

13. PECO has discussed at stakeholder meetings held on June 15, June 30, July 5, and July 13 the success of the Program and its plans to shift focus to specialty CFLs. Because the existing Commission-approved Program does not limit the Company to incentivizing standard CFLs, PECO may shift focus to specialty CFLs without additional Commission approval. Nonetheless, the Company will continue to educate customers about energy efficient lighting options and proper bulb recycling.

**A. Smart Home Rebates (Residential)**

14. The Smart Home Rebates Program has already exceeded the 2013 Plan participation goal of 191,400 rebates and is projected to exceed its budget. Since Program inception to June 30, 2011, over 250,000 rebates have been issued. Despite these participation level successes, 63% of the Program budget has been spent to achieve just 37% of the energy savings goal. PECO is therefore proposing to make changes to a variety of measures to ensure that the Portfolio meets its savings goals.

15. The Company's changes fall into two "minor change" categories: (1) eliminating a measure; and (2) changing the conditions of a measure. Table 1 identifies each measure the Company is proposing to eliminate, the *Expedited Process Order* criteria that apply to the elimination, and the reason for elimination. Table 2 identifies each change PECO is proposing to the conditions of a particular measure, the *Expedited Process Order* criteria that apply to the change, and the reason for the change.

**B. Smart Appliance Recycling Program (Residential)**

16. PECO is proposing changes to the Smart Appliance Recycling Program to account for changes made in the 2011 Technical Reference Manual (“TRM”).

17. The 2011 TRM made two key changes that affect this Program: (1) it reduced the energy savings attributed to the removal of refrigerators and freezers; and (2) it made a distinction between refrigerator and freezer removal (which is covered by the existing Program recycling measures) and refrigerator and freezer replacement. PECO is therefore proposing to: (1) have the ability to reduce the rebate levels for the Refrigerator Recycling and Freezer Recycling measures to reflect the lower savings associated with removal; and (2) add a new measure for refrigerator and freezer replacement. *See* Tables 4 and 5. Each measure (removal and replacement) will have a rebate of “up to \$35.” Following approval of PECO’s proposal, the Company will set the rebate level at \$15. Thereafter, PECO will consider market conditions when setting rebate amounts and will utilize the existing stakeholder process to solicit input, on a quarterly basis, regarding adjustments to the rebate level for each measure.

18. PECO is also proposing to remove the Room Air Conditioner Recycling measure because it is no longer needed for the Portfolio to meet its compliance targets. *See* Table 3. In addition, this measure has caused some customer confusion because the Smart Appliance Recycling Program provided for the pickup of both an air conditioner and a refrigerator or freezer, but not for an air conditioner on its own. Therefore, a secondary benefit of this minor change is the elimination of a source of customer confusion.

**C. Smart Equipment Incentives Program (Commercial/Industrial, Governmental/Institutional/Non-Profit ), and Smart Construction Incentives Program (Commercial/Industrial)**

19. To date, the Smart Equipment Incentives Commercial & Industrial Program, Smart Equipment Incentives Governmental/Institutional/Non-Profit Program, and Smart Construction Incentives Program have succeeded in attracting a robust number of incentive applications. The Programs are expected to contribute to the Portfolio compliance targets within their established budgets. However, PECO is proposing changes to manage the Portfolio energy savings contribution for these customer classes as well as account for recent Statewide Evaluator determinations and changes in the 2011 TRM (see ¶¶ 24-25).

20. First, PECO proposes to establish separate waitlists for incentive applications under each of the Programs as soon as the Company receives Commission approval. These waitlists will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under these Programs.

21. If the Commission approves the waitlist proposal, the Company will place the applications in each waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for a particular Program are projected to fall short of targets, the Company will process and pay incentives for applications in the affected Program waitlist on a first-come, first-served basis.

22. Pending Commission approval of the waitlist proposal, the Company will continue to process and pay incentives on the applications that it receives before the waitlist is established. Following Commission approval, PECO will educate customers about the approved

Program changes, and will modify its incentive application and the messaging on its website to indicate that a waitlist has been established.

23. The Company's waitlist proposal is a minor change under the *Expedited Process Order* because it changes measure eligibility requirements and will not increase overall costs to the relevant customer class. See *Expedited Process Order*, p. 20. Table 6 identifies each measure that will be affected by the waitlist proposal.

24. Next, PECO proposes to change the structure of several rebates in both of the Smart Equipment Incentives Programs from prescriptive incentives (per unit basis) to custom incentives (per kWh saved basis). After discussions with the Statewide Evaluator, the Company determined that energy savings for these particular measures would need to be calculated on a custom basis. Because savings will be determined on a custom basis, the Company believes that it is appropriate to base incentive levels on those custom savings.

25. PECO is also reducing the rebate amount for the Ground Source Heat Pump measure to better reflect recent energy savings allowances. PECO based its current measure incentive level on a new ground source heat pump installation replacing a baseline existing air-source heat pump installation. The 2011 TRM sets existing ground source heat pumps as the baseline system being replaced, effectively lowering the savings for the measure. Adjustment of the incentive level is necessary to align it with similar HVAC measures and energy savings. Table 7 provides information about each measure affected by these rebate changes.

26. Finally, to provide additional clarity, PECO has removed existing references to renewable energy resources (including solar photovoltaic) from the Governmental/Institutional/Non-Profit Smart Equipment Incentives Program description. By Order entered October 28, 2009, the Commission directed PECO to delete its proposed

Renewable Resource Program from the Plan. Although PECO removed the Program in response to the Order, some renewable energy references remain in the Plan. PECO is removing these references to better reflect the Commission's previous directive.

**D. Permanent Load Reduction Program (Commercial/Industrial)**

27. PECO is proposing to eliminate the retro-commissioning measure from the Permanent Load Reduction Program and the mention of retro-commissioning as a custom project from the Commercial/Industrial Smart Equipment Incentives Program. This minor change is proposed because the Statewide Evaluator has determined that retro-commissioning is not a viable means to achieve sustainable savings. Table 8 provides additional detail about the elimination of retro-commissioning.

**V. NOTICE**

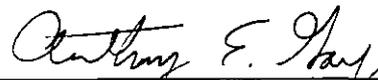
28. Pursuant to the *Expedited Review Order*, PECO is serving copies of this filing on the Pennsylvania Office of Consumer Advocate, the Pennsylvania Office of Small Business Advocate, the Commission's Office of Trial Staff, and all other parties of record to PECO's original EE&C Plan proceeding.

29. PECO will also post a complete redlined version of its revised EE&C Plan on the Company's website ([www.peco.com/KNOW](http://www.peco.com/KNOW)).

## VI. CONCLUSION

Based upon the foregoing, including the attached exhibits, PECO respectfully requests that Commission staff grant this Petition and enter a Secretarial Letter approving the Company's proposed minor EE&C Plan changes.

Respectfully submitted,



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July 15, 2011

*Counsel for PECO Energy Company*

## APPENDIX A

This Appendix contains summary tables which provide information about each minor change proposed by the Company. In particular, each table identifies: (1) the type of minor change (elimination of a measure, change in conditions of a measure, or addition of a measure); (2) the affected measure or measure condition; (3) which *Expedited Process Order* criteria apply to the change; (4) and the Company's reasoning for the change. It is important to note that PECO often relied on EE&C Plan projections (through May 31, 2013) to determine which criteria applied to a particular measure.

The *Expedited Process Order* criteria were derived from the Commission's definition of "minor change" in the Order. For example, the first type of minor change is "[t]he elimination of a measure that is underperforming, no longer viable for reasons of cost-effectiveness, savings or market penetration or has met its approved budgeted funding, participation level or amount of savings." *Expedited Process Order*, p. 20. From this definition, PECO identified seven criteria that could apply to a measure elimination: (1) underperforming; (2) no longer viable for reasons of cost-effectiveness; (3) no longer viable for reasons of savings; (4) no longer viable for reasons of market penetration; (5) has met approved budgeted funding; (6) has met participation level; and (7) has met amount of savings. When a table provides information about the elimination of a measure, the seven criteria are displayed and check marks indicate which criteria apply to a particular change. Criteria were identified in the same manner for two other types of minor changes: (1) adding a measure; and (2) changing the conditions of a measure.

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Table 1: Smart Home Rebates

	Underperforming	No longer viable - cost effectiveness	No longer viable - savings	No longer viable - market penetration	Has met approved budget funding	Has met participation level	Has met amount of savings	
Type of Minor Change: Elimination of a Measure								
Measures	Reason							
ENERGY STAR® Dishwasher				✓	✓	✓	✓	Exceeded 2013 participation level
ENERGY STAR Dehumidifier				✓	✓	✓	✓	Exceeded 2013 participation level
Ceiling Fan with ENERGY STAR Light Fixture	✓				✓			Underperforming
ENERGY STAR Outdoor Lighting Fixture	✓				✓			Underperforming
ENERGY STAR Windows	✓	✓	✓		✓			Not cost-effective
Attic/Roof Insulation	✓	✓	✓		✓			Not cost-effective
White Roof	✓	✓	✓		✓			Not cost-effective
Whole House Fan	✓	✓			✓			Not cost-effective
ENERGY STAR Light Fixtures					✓	✓	✓	Will exceed program participation level
ENERGY STAR 5.0 Desktop					✓			Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR 5.0 + 10% Monitor	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Advanced Power Strips					✓			Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR 4.0 Television					✓	✓	✓	Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR 5.0 Television					✓	✓	✓	Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR Laser Printer – Monochrome	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR Multifunction Laser Printer – Monochrome	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR Laser Fax Machine	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
ENERGY STAR Copier – Monochrome	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Residential Furnace Whistle (with electric heat)	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Electroluminescent Nightlight	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
LED Nightlight (1W LED)	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Faucet Aerator – Kitchen (with electric heat)	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Faucet – Bathroom (with electric heating)	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required
Shower Head (with electric heat)	✓				✓			Portfolio is expected to exceed savings targets; measure no longer required

Table 1

Table 2: Smart Home Rebates

	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	
<b>Type of Minor Change: Changing Conditions of a Measure</b>									
<b>Measures</b>									<b>Reason</b>
Change eligibility requirement for Clothes Washer to ENERGY STAR Most Efficient (ESME) and reduce rebate level from \$50 to \$25	✓	✓		✓				✓	Raising efficiency level for eligibility in order to encourage higher efficiency appliances. Reduction of rebate level to manage program budget.
Change eligibility requirement for Refrigerator to ESME and reduce rebate level from \$50 to \$25	✓	✓		✓				✓	Raising efficiency level for eligibility in order to encourage higher efficiency appliances. Reduction of rebate level to manage program budget.
Change eligibility requirement for Freezer to ESME and reduce rebate level from \$50 to \$25	✓	✓		✓				✓	Raising efficiency level for eligibility in order to encourage higher efficiency appliances. Reduction of rebate level to manage program budget.
Change eligibility requirement for LED lamps to ENERGY STAR and change rebate level to up to 50% of incremental cost	✓	✓	✓	✓	✓	✓		✓	Raising efficiency level for eligibility in order to encourage higher efficiency appliances. Reduction of rebate level to manage program budget.
Change eligibility requirement for ENERGY STAR Central AC to 16.0 SEER	✓	✓	✓	✓				✓	Raising efficiency level for eligibility in order to encourage higher efficiency HVAC equipment.
Change eligibility requirement for ENERGY STAR Air Source Heat Pump to 15.0 SEER	✓	✓	✓	✓				✓	Raising efficiency level for eligibility in order to encourage higher efficiency HVAC equipment.
Geothermal deSuperheater	✓	✓		✓	✓			✓	Included as part of Ground Source Heat Pump measure for both savings and rebate.

Table 2

**Table 3: Smart Appliance Recycling**

Type of Minor Change: Elimination of a Measure	Underperforming	No longer viable - cost effectiveness	No longer viable - savings	No longer viable - market penetration	Has met approved budget funding	Has met participation level	Has met amount of savings	Reason
Measure								
Room Air Conditioner							✓	Portfolio is expected to exceed savings targets; measure no longer required

Table 3

**Table 4: Smart Appliance Recycling**

	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	
<b>Type of Minor Change: Changing Conditions of a Measure</b>									
<b>Measure</b>									<b>Reason</b>
Change rebate level for Refrigerator Removal from \$35 to "up to \$35"	✓			✓				✓	Account for lower level of savings; account for uncertainty in customer response
Change rebate level for Freezer Removal from \$35 to "up to \$35"	✓			✓				✓	Account for lower level of savings; account for uncertainty in customer response

Table 4

Table 5: Smart Appliance Recycling

		Does not increase overall cost to customer class
Type of Minor Change: Addition of a Measure		
Measure	Reason	
Refrigerator/Freezer Replacement Rebate "up to \$35"	✓ To comply with 2011 TRM and reflect distinction between refrigerator/freezer recycling and replacement	

Table 5

**Table 6: Smart Equipment Incentives - Commercial/Industrial, Governmental / Institutional / Non-Profit, Smart Construction Incentives**

	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	
<b>Type of Minor Change: Changing Conditions of a Measure</b>									
<b>Measures</b>									
SB - ENERGY STAR room AC	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Small packaged and split system AC	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Small air-source heat pump	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency cooling - packaged units - 11 EER - 10 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency cooling - packaged units - 11.5 EER - 10 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency cooling - packaged units - 12 EER - 10 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency air-source HP - 11 EER - 10 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency air-source HP - 11.8 EER - 10 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Ground-source heat pump	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - HVAC tune-up	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - HVAC optimal start/stop	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - CFL bulbs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - CFL fixtures	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency lighting - T-8	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency lighting - T-8 U-tube	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency lighting - T-5	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - High-efficiency lighting - HID	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - LED exit signs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Occupancy sensors	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - White roofs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Premium-efficiency motors	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - Custom measures	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
SB - CFL bulbs - drop ship package of 3 bulbs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency air-source HP - 11 EER - 30 tons	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Ground-source heat pump	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - HVAC tune-up	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - HVAC optimal start/stop	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - CFL bulbs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - CFL fixtures	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency lighting - T-8	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency lighting - T-8 U-tube	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.

Table 6

**Table 6: Smart Equipment Incentives - Commercial/Industrial, Governmental / Institutional / Non-Profit, Smart Construction Incentives**

Type of Minor Change: Changing Conditions of a Measure	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	Reason
MC&I - High-efficiency lighting - T-5	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - High-efficiency lighting - HID	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - LED exit signs	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Occupancy sensors	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - White roofs	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Premium-efficiency motors	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Energy management control system	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Lighting control system	✓								Change in eligibility requirements due to the establishment of an application waitlist.
MC&I - Custom measures	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency air-source HP - 11 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Ground-source heat pump	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - HVAC tune-up	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - HVAC optimal start/stop	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - CFL bulbs	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - CFL fixtures	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency lighting - T-8	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency lighting - T-8 U-tube	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency lighting - T-5	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - High-efficiency lighting - HID	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - LED exit signs	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Occupancy sensors	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - White roofs	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Premium-efficiency motors	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Variable speed drives	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Energy management control system	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Lighting control system	✓								Change in eligibility requirements due to the establishment of an application waitlist.
LC&I - Custom measures	✓								Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency cooling - packaged units - 10.1 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency cooling - packaged units - 11 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency cooling - packaged units - 11.5 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency air-source HP - 10.1 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency air-source HP - 11 EER - 30 tons	✓								Change in eligibility requirements due to the establishment of an application waitlist.
Ground-source heat pump	✓								Change in eligibility requirements due to the establishment of an application waitlist.
HVAC tune-up	✓								Change in eligibility requirements due to the establishment of an application waitlist.
HVAC optimal start/stop	✓								Change in eligibility requirements due to the establishment of an application waitlist.

Table 6 (continued)

**Table 6: Smart Equipment Incentives - Commercial/Industrial, Governmental / Institutional / Non-Profit, Smart Construction Incentives**

Type of Minor Change: Changing Conditions of a Measure	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	Reason
<b>Measures</b>									
CFL bulbs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
CFL fixtures	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency lighting - T-8	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency lighting - T-5	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
High-efficiency lighting - HID	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED exit signs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Occupancy sensors	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
White roofs	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Premium-efficiency motors	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Energy management control system	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Lighting control system	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - green 8"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - green 12"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - yellow 8"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - yellow 12"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - red 8"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights - red 12"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights- Walk/Don't Walk - 9"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED traffic lights- Walk/Don't Walk - 12"	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Metal halide streetlights	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
High pressure sodium streetlights	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED streetlights	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Induction fluorescent streetlights	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Custom measures	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Energy Audit	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Strip curtains on walk-in coolers / freezers	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Anti-sweat heater controls	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
EC motor for walk-in coolers	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
EC motor for reach-in refrigerated cases	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Evaporator fan controls	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Automatic door closers for walk-in coolers	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Automatic door closers for walk-in freezers	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
Refrigerated display case night covers	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.
LED refrigerated case lighting	✓							✓	Change in eligibility requirements due to the establishment of an application waitlist.

Table 6 (continued)

**Table 6: Smart Equipment Incentives - Commercial/Industrial, Governmental / Institutional / Non-Profit, Smart Construction Incentives**

	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class
<b>Type of Minor Change: Changing Conditions of a Measure</b>								
<b>Measures</b>								<b>Reason</b>
ENERGY STAR solid door freezer	✓							Change in eligibility requirements due to the establishment of an application waitlist.
ENERGY STAR glass door freezer	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 101-200 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 201-300 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 301-400 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 401-500 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 501-1000 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker 1001-1500 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
High efficiency ice maker >1500 lbs/day	✓							Change in eligibility requirements due to the establishment of an application waitlist.
Hot holding cabinets	✓							Change in eligibility requirements due to the establishment of an application waitlist.
Beverage machine controls	✓							Change in eligibility requirements due to the establishment of an application waitlist.
Snack machine controls	✓							Change in eligibility requirements due to the establishment of an application waitlist.
ENERGY STAR refrigerated vending machine	✓							Change in eligibility requirements due to the establishment of an application waitlist.
Barrel wraps - Injection Molding & Extruders	✓							Change in eligibility requirements due to the establishment of an application waitlist.

Table 6 (continued)

**Table 7: Smart Equipment Incentives - Commercial/Industrial and Governmental/Institutional/Non-Profit**

	Eligibility Requirements	Technical Description	Rebate Structure	Rebate Amount	Projected Savings	Estimated incremental costs	Projected number of participants	Does not increase overall cost to customer class	
<b>Type of Minor Change: Changing Conditions of a Measure</b>									
<b>Measures</b>									<b>Reason</b>
Strip curtains on walk-in coolers/freezers			✓					✓	Changing rebate structure from prescriptive to custom based on Statewide Evaluator (SWE) determination of custom savings calculation methodology for this measure
Automatic door closers for walk-in coolers			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Automatic door closers for walk-in freezers			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Refrigerated display case night covers			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Hot food holding cabinet			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Barrel Wraps - Injection Molding & Extruders			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Lighting control system			✓					✓	Changing rebate structure from prescriptive to custom based on SWE determination of custom savings calculation methodology for this measure
Ground Source Heat Pump				✓	✓			✓	Changing rebate amount from \$413/ton to \$40/ton based on 2011 TRM equipment baseline definition

Table 7

**Table 8: Permanent Load Reduction**

Type of Minor Change: Elimination of a Measure	Underperforming	No longer viable - cost effectiveness	No longer viable - savings	No longer viable - market penetration	Has met approved budget funding	Has met participation level	Has met amount of savings	
Measure								Reason
Retro-commissioning			✓					Eliminating measure based on Statewide Evaluator determination that the energy savings are not sustainable.

Table 8

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### 3.2.4 EE Program 4—Home Energy Incentives (HEI)

#### A. Program Title and Program Years

Program Name: Home Energy Incentives

Program Years: PY 2009 – PY 2012

#### B. Objectives

The purpose of the HEI program is to increase the penetration of ENERGY STAR appliances and other high-efficiency measures in the homes of PECO's residential customers. The program enables the adoption of these energy efficiency measures by offering cash rebates for the purchase and installation of qualifying home equipment for lighting fixtures, heating, cooling, appliances, and shell improvements.

The program has several objectives:

- Increase consumers' awareness of the breadth of energy efficiency opportunities in their homes.
- Make significant contribution to PECO's energy savings goals.
- Demonstrate PECO's commitment to and confidence in the measures' performance and their ability to reduce home energy use.
- Strengthen customer trust in PECO as their partner in saving energy.
- Align incentives with other EDCs, where possible.

The HEI program is well-suited for accomplishing these objectives because the rebate-eligible measures are proven technologies about which customers can readily find supporting information; customers are familiar with cash-back rebates from other types of purchases they make, and the itemized list of included measures affords PECO the opportunity to strengthen relationships with upstream suppliers and influence stocking decisions. Furthermore, focus groups conducted in preparation of the program plan indicate that both general residential and low-income customers will be receptive to a prescriptive program such as this.

#### C. Target Market

The target market for the HEI program is all residential customers in PECO's service territory and, in particular, those customers with existing equipment that needs replacing or who can be persuaded to replace early. The target market includes customers in existing single-family homes or multifamily dwellings who are either replacing existing equipment or are purchasing equipment for the first time. Both owners and renters are eligible to participate in the program.

#### D. Program Description

This is a retrofit and renovation program, designed to upgrade existing equipment to higher levels of efficiency.

The HEI program is designed to encourage and assist residential customers in improving the energy efficiency of their homes through a broad range of energy efficiency options that address all major end uses. This program offers cash rebates to residential customers who install high-

efficiency electric equipment and engages equipment suppliers and contractors to promote the rebate-eligible equipment.

The program will promote and provide rebates to help defray the cost of high-efficiency models of common home equipment, with a focus on ENERGY STAR qualified appliances. Featuring ENERGY STAR equipment helps ensure that high-quality measures will be installed, which adds savings reliability and reduces the likelihood of customer dissatisfaction.

#### Rebates

- Customers purchase and install qualified products from retailers and/or contractors.
- Customers or their contractors submit rebate form to PECO (or the implementation CSP) with information that documents the qualifying sale/installation. The forms allow customers to see the exact rebate they can receive.
- PECO/CSP mails rebate checks to customers.

### **E. Implementation Strategy**

PECO will administer the HEI program through a CSP implementation contractor.

#### Channels for Program Delivery

This program will be delivered mainly through direct contact between PECO and its customers but offers opportunities for working with trade allies and other upstream suppliers.

- PECO develops awareness through direct marketing—e.g., bill inserts, newsletters, website, broadcast and print media, direct mail; and pays the participant rebates.
- The Residential Whole Home Performance program is a natural channel for this program. The audit recommendations will include resource information for the recommended measures, including rebates available under this HEI program.
- The Residential New Construction program is also a natural channel for this program. That program will offer rebates for the installation of packages of measures, rather than individual measures. Owners or builders who participate in the new construction program will be made aware of additional measures that can be installed after construction to further improve the home performance, including installation of ENERGY STAR appliances such as clothes washers or additional lighting fixtures.
- Retailers and equipment contractors/installers may be engaged to promote awareness of and use rebate offers to help sell qualifying equipment; they may also provide or pre-fill rebate forms to help customers obtain rebates. These allies are most likely to include:
  - Residential air conditioning and heating equipment dealers and installers
  - High-efficiency clothes washer and dishwasher dealers
  - Small electrical equipment dealers
- CSPs will implement the program on PECO's behalf, providing assistance with PECO's direct marketing; working with upstream suppliers to stock qualifying measures, promote the program, and assist with rebate applications; providing rebate fulfillment services; and tracking and reporting program activities and achievements toward goals.

## Overview of Roles and Activities

The implementation CSP(s) will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of upstream supplier network to stock and promote program
- Program marketing and education: including development and distribution of program materials in collaboration with PECO and upstream allies; and promotional campaigns in coordination with on-line audits, and the Whole Home Performance program
- Rebate processing: fulfillment house to receive, review and verify applications; and pay or submit to PECO to pay rebates
- Program performance tracking and improvement: including tracking availability of qualifying products, rebate submittals and payments, opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals.

The program is designed so that customers can easily submit rebate applications on their own. However, equipment suppliers and contractors can be very instrumental in achieving program success. Using the rebates and ENERGY STAR quality assurance as selling points, these allies can increase sales of qualifying equipment. They can further assist by aiding in the submittal of the rebate application. Across the country, many retailers will print out an extra receipt, suitable for submittal with the application; provide the customer with the appropriate rebate application; some may even help fill out and submit it.

## Education Overview

Under the program, PECO will educate local dealers and contractors about program procedures and benefits. To further promote good communication, PECO may conduct seminars to familiarize participating dealers and contractors with the structure and procedures of the program. Handouts will likely include specific information about rebate schedules and lists of qualifying high-efficiency models.

Consumer education will be combined with program awareness activities. Through the use of bill inserts, newsletters, on-line information, and direct mail, customers will receive educational information regarding the benefits of and opportunities to save money on energy efficiency upgrades.

## Applicable Collaborative Resources

Several other sources of financial assistance are available to consumers to enable home energy efficiency improvements.

- Keystone HELP<sup>®</sup> Energy Efficiency Loan and Rebate program and Renovate and Repair Loan program offer loans and rebates to Pennsylvania-resident homeowners. Financial incentives are available for installation of high efficiency heating, air conditioning, insulation, and windows. This program is mainly funded by the Department of Environmental Protection, Pennsylvania Treasury Department, and the Pennsylvania Housing Finance Agency; and is administered by AFC First Financial Corporation, a

Pennsylvania energy efficiency lender. Keystone HELP also provides qualified contractor referral listings.

- Nonprofit organizations and state and local governmental agencies have access to grants under the American Recovery and Reinvestment Act of 2009 (ARRA) for the purpose of performing energy efficiency retrofits.

## **F. Program Issues, Risks, and Risk Management Strategies**

The use of prescriptive rebates, that is, fixed per-unit incentives for a specific list of measures, is perhaps the approach with the most history among utility-sponsored energy efficiency programs. Because the measures on the list are well defined and the per-unit rebates are fixed, it is easily understood by customers and easy to administer.

## **G. Ramp Up Strategy**

PECO will contract with an implementation CSP immediately upon approval of the program by the Commission. The PECO/CSP team will lay the groundwork for successful launch of the program by preparing the upstream market for the program with information and in-store displays or labels for qualifying appliance models, and developing marketing and education materials, rebate forms, and protocols for program activity and rebate processing.

## **H. Marketing Strategy**

PECO will select a CSP with experience in promoting residential retrofit incentive programs. In particular, the CSP will have experience working with upstream suppliers; ensuring that in-store information is displayed; processing rebate applications; and ensuring that payment is made for measures that meet the purchase, installation, and documentation requirements.

## **I. Eligible Measures and Incentives**

**Home Energy Incentives Proposed Measures—Per-Unit Deemed Savings, Costs, and Incentives**

<u>Measure</u>	<u>Annual kWh Savings per Unit</u>	<u>kW Savings per Unit</u>	<u>Useful Life of Measure (years)</u>	<u>Increm. Cost per Unit</u>	<u>Incentive per Unit</u>	<u>Unit Definition</u>
ENERGY STAR room AC	98	0.059	10	\$50	\$25	per room AC
ENERGY STAR central AC – 16 SEER - 3 tons	536	0.418	14	\$533	\$300	per CAC
ENERGY STAR air-source heat pump - 15 SEER - 3 tons	1,045	0.298	12	\$850	\$325	per heat pump
ENERGY STAR air-source heat pump - 16 SEER - 3 tons	1,502	0.418	12	\$1,275	\$400	per heat pump
ENERGY STAR Most Efficient refrigerator	<u>72-100</u> <sup>10</sup>	0.013	13	\$65	<u>\$50</u>	per appliance
ENERGY STAR Most Efficient freezer	<u>52-83</u> <sup>10</sup>	0.011	13	\$65	<u>\$50</u>	per appliance
ENERGY STAR Most Efficient clothes washer	<u>93.7</u> <sup>11</sup>	0.015	11	\$350	<u>\$50</u>	per appliance
ENERGY STAR heat pump water heater	<u>1,914-2,202</u> <sup>12</sup>	<u>0.175-0.202</u> <sup>12</sup>	10	\$850	\$300	per water heater
High-efficiency electric water heater <u>.95 Energy Factor (EF)</u>	<u>217</u> <sup>12</sup>	<u>0.0199</u> <sup>12</sup>	<u>14</u>	\$50	\$25	per water heater
ENERGY STAR LED lamps	31-61 <sup>13</sup>	0.00266-- .0036 <sup>13</sup>	20	\$35	up to 50% of incremental cost	per lamp
ENERGY STAR High-efficiency gas furnace (fuel switching from BB)	12,000	0.000	18	\$3,338	\$1,000	per furnace
<b>Measure</b>	<b>Annual kWh Savings per Unit</b>	<b>kW Savings per Unit</b>	<b>Useful Life of Measure (years)</b>	<b>Increm. Cost per Unit</b>	<b>Incentive per Unit</b>	<b>Unit Definition</b>
ENERGY STAR High-efficiency gas furnace (fuel switching from HP)	10,000	0.000	18	\$2,138	\$550	per furnace
ENERGY STAR High-efficiency gas water heater (fuel switching)	4,100	0.100	13	\$744	\$250	per water heater
Ground-source heat pump	1,531	0.055	30	\$2,163	\$217	per ton

10 Per Pennsylvania Technical Reference Manual (TRM) – kWh is dependent on appliance model number.

11 Weighted average of deemed values in the TRM using the results from the PECO territory Residential Saturation Survey  
PECO EE&C filing dated July 1, 2009 Volume IV of V Appendix F-2.12 Per Interim TRM Measure Protocol  
13 Represents a range of kWh and kW based on Custom Measure Protocol approved by the SWE.

**Measures**

The measures eligible for incentives under this program are prescriptive. That is, all eligible measures will be defined and listed for customers. Custom measures are not part of this program.

**Incentives**

Incentives will be paid in the form of cash-back rebates. Incentives for the individual measures range from 10% to 100% of the incremental measure cost, with the majority covering less than 40%. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative. Varied incentive rates are consistent with other program practices. This generally reflects the variation in the maturity of measure adoption by consumers. Furthermore, when the program design is finalized, the rebate application form can allow for incentives that vary even within a measure. For example, for central air conditioning, higher incentives will be offered for higher SEER levels.

**J. Program Schedule**

The HEI program will operate during PY 2009 through PY 2012. This program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2, and rolled out to the public during PY 2009 Q3. The following table provides a schedule of key milestones:

**Proposed Residential Home Incentives Implementation Schedule**

<b>Key Milestone</b>	<b>Timing</b>
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP(s)	November 2009
Complete program design	December 2009
Pre-rollout program development: Develop upstream network Develop in-store, on-line information Prepare marketing materials and rebate forms Develop activity and rebate processing protocols	September – December 2009
Program rollout:	

Launch consumer education, marketing, and outreach All program services	January 2010 January 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP	Monthly throughout program implementation period
Reports to Commission	Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## **K. Evaluation, Measurement, and Verification Requirements**

The evaluation methodology and data collection proposed for the HEI program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

Primary:

- Number of measures purchased/installed
- Energy savings associated with purchased/installed measures
- Customer satisfaction with the program and the products
- Program implementation costs incurred

Secondary:

- Distribution of measure popularity and cost-effectiveness of the program
- Increase in number and variety of suppliers who stock qualified products

### Data Collection Approaches

- Impact Evaluation
  - Tracking system data for all projects
  - On-site inspection of a sample of projects to verify operation as reported
  - Customer surveys to assess likelihood of purchase without availability of program services and incentives and identify post-participation purchases outside the program (free-rider and free-driver impacts)
- Process Evaluation—Evaluation of program design and implementation will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:
  - Surveys of target market customers (participants and nonparticipants)
  - Surveys of appliance suppliers and service providers who participate and/or promote the program
  - Interviews with the implementation CSP and PECO program staff

- Review of program documents and tracking system data

### Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed, using the per-unit deemed savings values. Because measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing analyses or metering studies. However, some projects will be inspected for independent verification of installation and operation as reported. This is assumed based on PECO's understanding of using deemed savings as outlined in the TRM.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Post-surveys with participating customers will be used to estimate the net-to-gross ratio accounting for free-riders and free-drivers. Customers will be asked to provide information regarding whether they would have purchased the rebated items without the PECO promotion, whether they installed the items, and whether they subsequently purchased additional rebate-eligible items at full cost. This outline of the self-report methodology for the assessment of net impacts describes only the basic approach. The selected M&V contractor will develop the complete plan that ensures the appropriate measurement of savings in compliance with industry and State protocols.

### Process Evaluation Methodology

Program process evaluation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluation will be undertaken and conducted throughout the program by the implementation and M&V contractors selected by PECO.

Process evaluation will assess customer understanding, attitudes about, and satisfaction with the program and with PECO's other educational activities and materials associated with the launch of PECO's EE&C Plan. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants.

Interviews with program service providers will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the marketing and educational materials, effectiveness of advertising and promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use sales and promotion data maintained by the implementation CSP, information provided by PECO, and customer survey data.

## **L. Administrative Requirements**

PECO will administer the HEI program through a CSP implementation contractor. PECO's role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO staffing mix:

**Home Energy Incentives Program—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	1.125 FTE in PY 2009 (0.75 yr. @ 1.5 FTE), 1.5 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.5 FTE in PY 2009, 1.0 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

Participation and measure adoption estimates were developed based on existing homes in PECO's service territory and an assessment of the attainable market potential in the area, as well as the experience of other organizations that have offered this type of program.

**Home Energy Incentives Program—Estimated Participation  
(number of installations/year)**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
Attic / roof insulation	1,165	4,095	4,700	4,720	14,680
ENERGY STAR windows	1,165	4,095	4,700	4,720	14,680
ENERGY STAR room AC	641	2,253	2,585	2,596	8,075
ENERGY STAR dehumidifier	117	410	470	472	1,469
ENERGY STAR central AC	685	2,406	2,762	2,773	8,626
ENERGY STAR air-source heat pump	59	205	235	236	735
ENERGY STAR refrigerator	1,457	5,119	5,875	5,900	18,351
ENERGY STAR freezer	379	1,331	1,528	1,534	4,772
ENERGY STAR clothes washer	1,311	4,607	5,288	5,310	16,516
ENERGY STAR dishwasher	1,064	3,737	4,289	4,307	13,397
ENERGY STAR lighting fixtures	2,330	8,190	9,400	9,440	29,360
ENERGY STAR heat pump water heater	362	1,270	1,457	1,464	4,553
High-efficiency electric water heater	362	1,270	1,457	1,464	4,553
LED lamps	3,495	12,285	14,100	14,160	44,040
ENERGY STAR	548	1,925	2,209	2,219	6,901

Programmable thermostat					
ENERGY STAR High-efficiency gas furnace (fuel switching from BB)	105	369	423	425	1,322
ENERGY STAR High-efficiency gas furnace (fuel switching from HP)	47	164	188	189	588
ENERGY STAR High-efficiency gas water heater (fuel switching)	804	2,826	3,243	3,257	10,130
Whole-house fan	1,165	4,095	4,700	4,720	14,680
White roof	1,165	4,095	4,700	4,720	14,680
Ground-source heat pump	268	942	1,081	1,086	3,377

#### N. Estimated Program Budget

Approval of the plan is anticipated in PY 2009 Q2, resulting in less than a full year of program operation during the first program year. The cost estimates reflect this timing.

##### Home Energy Incentives Program—Proposed Budget

	PY 2009	PY 2010	PY 2011	PY 2012	Total
PECO Admin Labor	\$228,750	\$355,350	\$366,011	\$376,991	\$1,327,101
Implementation Contractor	\$500,356	\$1,860,445	\$3,627,636	\$3,441,939	\$9,430,377
Umbrella Costs	\$255,555	\$359,367	\$370,148	\$381,252	\$1,366,323
Program-Specific Education	\$150,000	\$309,000	\$318,270	\$327,818	\$1,105,088
IT Enablement Costs	\$20,872	\$21,498	\$22,143	\$22,808	\$87,322
Promotion	\$479,128	\$1,008,502	\$508,307	\$523,556	\$2,519,492
M&V	\$98,273	\$297,193	\$368,955	\$372,144	\$1,136,565
Incentives	\$1,661,970	\$6,013,758	\$7,108,136	\$7,353,255	\$22,137,119
<b>Total</b>	<b>\$3,394,904</b>	<b>\$10,225,113</b>	<b>\$12,689,606</b>	<b>\$12,799,763</b>	<b>\$39,109,387</b>

The program costs were estimated using the following information and estimates:

- The figures in the table above include a cost escalation of 3% per year. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes upstream network development; rebate application tracking and incentive fulfillment; contractor and retailer education and outreach; program monitoring and improvement, tracking system entry, and reporting.
- Umbrella Costs—Each program in the plan will pay a proportional share of the costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development, EE&C Plan development costs, and for residential on-line energy audit.

- **Program-Specific Education**—Assumed education costs for this program are \$300,000 per full program year, with bill inserts plus on-line and print materials in PY 2009 and some combination of bill inserts and materials in each year thereafter.
- **Promotion**—For media ads to promote the program. This is a large program within the residential sector and will be heavily advertised. Cost is estimated at nearly \$500,000 in PY 2009 (not a full operating year), \$1 million in PY 2010, and \$500,000 annually in PY 2011 and PY 2012.
- **Measurement and Verification (M&V)**—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs), which is at the low end of the industry average because no metering or bill analysis will likely be required.
- **Incentives**—The total incentives are based on the estimated savings in each program year. Overall, incentives represent 57% of the total program budget over the four program years.

**O. Projected Energy Savings and Demand Reduction**

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values indicated in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers through the program in that year plus the impact of measures still in operation from previous years.

**Home Energy Incentives—Cumulative Energy and Peak Demand Savings Estimates**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>
<b>MWh Savings</b>	10,007	45,156	85,485	125,994
<b>Peak MW Reduction</b>	0.451	2.035	3.853	5.679

## P. Cost-Effectiveness

### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.302/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.310/kWh

### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.049/kWh
- Levelized Cost of Reduced Peak Demand: \$1,095/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Home Energy Incentives	\$136	\$85	\$51	1.60

## Q. Re-filing Plan Adjustment 09/15/10

Based on PECO experience with Smart Home Rebates measures in the first program year, the overwhelming popularity of certain rebates, and the SWE's recommendation of recognizable kWh savings, PECO has requested changes and additional measures as specified in Section 3.2.4.I and the table below. The following measures were not included in PECO's Plan, but are approved in the TRM, have Interim TRM Protocols, or are under final review with SWE.



### **3.2.6EE Program 6—Appliance Pickup**

#### **A. Program Title and Program Years**

Program Name: Appliance Pickup

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Appliance Pickup program is to eliminate a very inefficient usage of electricity in homes: the retention of refrigerators, freezers, and room air conditioners for use as secondary units. This is a two-pronged goal: to remove existing secondary units from operation and to prevent existing primary refrigerators, freezers, and room air conditioners from being retained and used as secondary units when customers purchase new units.

The program has several objectives:

- Transform attitudes about retaining older, less efficient refrigerators, freezers, and room air conditioners as secondary units.
- Accrue energy savings and demand reductions toward PECO's goals.
- Demonstrate PECO's commitment to good stewardship of the environment by sponsoring proper disposal of units.

Appliance Pickup is well-suited for accomplishing these objectives because: consumers are more willing than ever to help safeguard the environment and adopt behaviors that save energy without compromising their lifestyles. The program makes it convenient and cost-effective for customers to dispose of these older units, overcoming a past barrier to getting rid of them.

The focus groups conducted in preparation of this plan indicated that many residential customers, including low-income customers, would participate in this program, especially if they have assurance that the units will be disposed of properly and there are financial incentives.

#### **C. Target Market**

The eligible population for the Appliance Pickup program is all residential customers in PECO's service territory.

The target market of residential customers for the Appliance Pickup program has a short-term and a longer-term component. Respectively, these are residential customers who currently own and operate secondary refrigerator, freezer, or room air conditioning units and customers who are purchasing new replacement units.

#### **D. Program Description**

The Appliance Pickup program is designed to eliminate retention of old refrigeration equipment from operation as secondary units in homes and to provide safe disposal of these units. The program offers free pickup of units from residences plus customer incentives and education about the benefits of secondary unit disposal, to encourage their participation.

In addition to educating residential customers about the benefits of secondary unit disposal, the program provides services to enable disposal of the units. The two program components are:

- Customer Incentives—including complimentary removal of existing or potential secondary units from customer’s home, plus payment of a small incentive for each unit removed
- Environmental Disposal of Units—including removal of CFCs for the refrigerant, the preparation of the refrigerant for reclamation or recycling, and the recycling of other materials such as the metal and plastic components

#### Customer Incentives

- Pickup of units from homes will be by appointment directly with the service provider.
- CSP mails incentive checks to customers after units have been removed.
- To qualify, refrigerator, freezer, or room air conditioning units must be in working condition, meet minimum size requirements, and be readily accessible for removal.
- Households are eligible to receive rebates for up to two refrigerators and one freezer, per program year. Room air conditioners are eligible as part of refrigerator or freezer pick up.

#### Environmental Disposal of Units

- Units will be removed to a collection facility and disassembled for environmentally responsible disposal of CFCs and recycling of remaining components.

### **E. Implementation Strategy**

PECO will administer the Appliance Pickup program through a CSP implementation contractor. The selected CSP will have a demonstrated record of providing exactly the services to be offered in this program and responsibly disposing of the units.

#### Channels for Program Delivery

- PECO develops awareness through direct marketing—e.g., bill inserts, newsletters, website, broadcast and print media, direct mail; and pays the participant incentives.
- Appliance dealers are excellent channels to provide information about this program because they interact with the target market at the time of replacement purchase decisions. Since many dealers offer free removal of existing units to close a sale, utilizing the services of the program contractor to remove the old units can save them money.
- The CSP will implement the program on PECO’s behalf, including providing assistance with PECO’s direct marketing and advertising, providing consumer education, recruiting participants, providing rebate fulfillment services, tracking program activities, and reporting activities and achievements toward goals.
- The Appliance Pickup program will be also be promoted to participants of the Home Energy Incentives and the Whole Home Performance programs.
- PECO will look to partner with other EDCs for potential cost efficiencies.

#### Overview of Roles and Activities

The appliance dealer channels can provide information about and facilitate participation in the program. And instead of incurring the cost of removing the old units themselves, they can coordinate or help customers schedule appointments with the appliance removal contractor.

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of facilities and protocols for removal and disposal of qualifying units
- Program marketing and education: including development and distribution of program materials in collaboration with PECO; education and engagement of appliance dealers; and program promotion
- Scheduling of pickups from customer homes, verification of unit qualification for complimentary removal and incentive payment, pickup and proper disposal of units
- Rebate Processing: fulfillment house to receive, review and verify documentation; and either pay incentives or submit incentives to PECO for payment
- Program performance tracking and improvement: including tracking of unit qualification, removal and disposal; rebate submittals and payments; and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

#### **F. Program Issues, Risks, and Risk Management Strategies**

The Appliance Pickup program is perhaps the simplest program to operate. PECO will select an implementation CSP with a demonstrated record of providing the services to be offered in this program and responsibly disposing of the units. It is likely that a single provider can be engaged to perform or subcontract for performance of all the necessary services.

Experience at other utilities and discussions with contractors, however, suggest that the cost effectiveness of this program hinges on volume. Unit disposal costs can be reduced by ensuring higher volumes. The implementation CSP will need to use extensive and effective marketing to obtain the volumes.

Removal of old units requires site-to-site pickups. If the distances involved in more remote pickups will significantly increase unit costs, the program can target particular urban regions and be marketed community by community with mailings and local newspaper and radio advertisements. Customer demographic data, such as the appliance saturation survey conducted in preparation of this plan, can be used determine if some areas have greater-than-average saturations of secondary refrigerators, freezers, and room air conditioners. If so, these areas would be effective places to initiate this component of the program.

#### **G. Ramp Up Strategy**

While the Appliance Pickup program is relatively simple and readily understandable to customers, it will nonetheless take time for customers to gain comfort with and trust in the program. Participation targets for the first year of operation are low. Once the message is disseminated, it is anticipated that acceptance will grow rapidly and steadily.

#### **H. Marketing Strategy**

PECO will select a CSP with experience providing appliance pickup as a fully turnkey program, including a marketing strategy. The implementation CSP will have already developed outreach

strategies and educational materials to market the program. This is a well-established type of program, operated by experienced CSPs whose ability to succeed rests on the volume of participants they can recruit.

### I. Eligible Measures and Incentives

#### Appliance Pickup Proposed Measures—Per-Unit Deemed Savings and Incentives

Unit Savings & Incentives	Annual kWh Savings per Unit	kW Savings per Unit	Incentive per Unit	Unit Definition
Refrigerator - removal of second unit	1,659	0.2057	up to \$35	per appliance
Freezer - removal of second unit	1,659	0.2057	up to \$35	per appliance
Refrigerator/Freezer – replacement	1,205	0.1494	up to \$35	per appliance

In addition to cash incentives, customers receive the added benefit of no-cost removal of units from their homes. Often, consumers must pay an additional cost for removal and safe disposal when replacing old primary units.

## J. Program Schedule

The Appliance Pickup program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2, and rolled out to the public during PY 2009 Q3. The program will operate during PY 2009 through PY 2012. The following table provides a schedule of key milestones:

**Proposed Appliance Pickup Implementation Schedule**

<b>Key Milestone</b>	<b>Timing</b>
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	December 2009
Pre-rollout program development: Establish disposal site(s) and procedures CSP develop relationships with appliance retailers Develop procedures for tracking activities and documenting results	September – December 2009
Program rollout: Launch consumer marketing and outreach Pick up and dispose of units	January 2010 January 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP Reports to Commission	Monthly throughout program implementation period Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

The evaluation methodology and data collection proposed for the Appliance Pickup program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

- Number of existing secondary units removed
- Number of primary units replaced and prevented from operation as secondary units
- Energy savings associated with removed units
- Customer satisfaction with the program
- Program implementation costs incurred

- Increase in awareness and receptivity to secondary appliance turn-in

### Data Collection Approaches

Data for evaluating the program will come from the following sources:

- Engineering or TRM estimates of measure savings
- Local weather data
- Follow-up surveys of residential customers contacted from customer information provided on the rebate applications and from PECO customer information system (for nonparticipants)
- Tracking of dealers engaged in promoting the program and assisting customers with rebate application submittal
- Program implementer/PECO staff surveys

### Impact Evaluation Methodology

The program will use deemed per-unit savings estimates to determine savings. The impact evaluation can either accept these values or use engineering estimates to calculate the savings associated with the reduction in refrigerator, freezer load, and air conditioner loads that result from the program. Additional data will be obtained from program records and a survey of program participants. The additional data will include information on customer operating conditions before the units are recycled as part of the program.

Post-participation surveys with participating customers will be used to review and revise as necessary the net-to-gross ratio accounting for free-riders and free-drivers. Customers will be asked to provide information regarding whether they would have disposed of the qualifying units without the PECO incentives, and whether they subsequently disposed of additional units on their own.

The critical issue in the impact evaluation will be the acquisition of valid and reliable survey data. The process evaluation will be used to monitor the data-tracking system that the recycling contractor uses to ensure the validity of the impact evaluation calculations. This outline of the self-report methodology for the assessment of net impacts describes only the basic approach. The selected M&V contractor will develop the complete plan that ensures defensible measurement of savings in compliance with industry and state protocols.

### Process Evaluation Methodology

The process evaluation will focus on program delivery, administration, implementation and customer response. Key issues will include assessment of the marketing and promotional efforts, monitoring of the contractor data-tracking system, and implementation procedures to ensure that the program is being implemented as designed.

The data collection techniques for the process evaluation will include in-person interviews with utility staff and the recycling contractors, on-site inspection of a sample of participant homes, and a survey of sample of participant homes. The interviews will focus on program implementation and administrative procedures. Site visits will be used to review contractor implementation procedures.

The participant survey will include questions on customer characteristics, equipment operating conditions, reasons for participation, program satisfaction, and response to promotional efforts.

In the first year of the program, the focus of the process evaluation will be to assess if the program is operating as planned and if the contractor is carefully maintaining records on program-related equipment. In the second year, the process evaluation will assess how well any program recommendations from the first-year process evaluation are being implemented. In subsequent years, the evaluation will continue to monitor program implementation.

**L. Administrative Requirements**

PECO will administer the Appliance Pickup program through a CSP implementation contractor. PECO’s role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO’s educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program implementation contractor is expected to operate a complete turnkey program with minimal assistance from PECO staff. PECO staffing is limited to:

**Appliance Pickup Program – Proposed PECO/Contract Staffing**

Staff	Allocation
Program manager: Responsible for final design and launch of program, and administering and overseeing CSP.	0.375 FTE in PY 2009 (0.75 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

Estimated household participation is based on a combination of electric equipment saturation and demographic data from the saturation survey conducted in preparation of this plan, as well as the experience of other utilities that have offered this type of program.

Participation and measure adoption estimates were developed based on existing homes in PECO’s service territory, an assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program. This includes information from experienced vendors, who confirmed that the estimates of units to be removed under the program are quite attainable.

**Appliance Pickup Program—Estimated Participation  
(number of units removed/year)**

	PY 2009	PY 2010	PY 2011	PY 2012	Total
Room AC units	500	1,500	1,500	1,500	5,000
Refrigerators	3,350	10,050	10,050	10,050	33,500
Freezers	1,700	5,100	5,100	5,100	17,000

## N. Estimated Program Budget

Each program year (PY) runs from June 1 of the year through May 31 of the following year. Approval of the plan is anticipated in PY 2009 Q2, with less than full year of program operation. The cost estimates reflect this timing.

### Appliance Pickup Program—Proposed Budget

	PY 2009	PY 2010	PY 2011	PY 2012	Total
PECO Admin Labor	\$56,250	\$77,250	\$79,568	\$81,955	\$295,022
Implementation Contractor	\$505,000	\$1,560,450	\$1,607,264	\$1,655,481	\$5,328,195
Umbrella Costs	\$62,576	\$87,138	\$89,752	\$92,445	\$331,911
Program-Specific Education	\$0	\$0	\$0	\$0	\$0
Promotion	\$101,000	\$312,090	\$321,453	\$331,096	\$1,065,639
M&V	\$27,797	\$79,810	\$82,204	\$84,670	\$274,482
Incentives	\$189,250	\$584,783	\$602,326	\$620,396	\$1,996,754
<b>Total</b>	<b>\$941,874</b>	<b>\$2,701,521</b>	<b>\$2,782,566</b>	<b>\$2,866,043</b>	<b>\$9,292,004</b>

The program costs were estimated using the following information and estimates:

- The figures in the table above include a cost escalation of 3% per year. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes customer and appliance dealer recruitment, education, rebate processing, unit pickup and recycling, program tracking and improvement, and reporting as described above.

Experience with other programs suggests that the average cost of all the above implementation activities is \$100 per refrigerator or freezer removed and \$25 per room air conditioner removed at the same time as refrigerator or freezer.

- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development, EE&C Plan development costs, and for residential on-line energy audit.
- Program-Specific Education—These are already included in the general education portion of the Umbrella Costs and the CSP Implementation costs noted above.
- Promotion—Implementation contractor will perform all required promotion. Experience with other programs suggests that the cost of promotion averages out to about \$20 per pickup, the value included in this budget.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs), at the low end of industry average because no metering or bill analysis will likely be required.

- Incentives—The total incentives are based on the estimated savings in each program year. Overall, the incentives represent 21% of the total program budget over the four program years.

### O. Projected Energy Savings and Demand Reduction

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values indicated in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region. These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from appliances removed through the program in that year plus the impact of appliances removed from previous years.

#### Appliance Pickup Program—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
MWh Savings	7,494	29,977	52,460	74,944
Peak MW Reduction	1.441	5.764	10.087	14.410

### P. Cost-Effectiveness

#### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.122/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.124/kWh

#### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.010/kWh
- Levelized Cost of Reduced Peak Demand: \$50/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Appliance Pickup	\$64	\$6	\$57	9.91

**Q. Re-filing Plan Adjustment 09/15/10**

Based on a review by the SWE, the kWh savings associated with a recycled room air conditioning ("A/C") unit changed from 1,147 kWh, which was utilized in PECO's approved Plan, to 353 kWh. Accordingly, PECO is proposing that the rebate amount for this measure be reduced to better align with the approved kWh savings.

***Proposed Changes to Recycled Window A/C Unit Rebate Amount***

<b>Measure</b>	<b>Current Incentive</b>	<b>Proposed Incentive</b>	<b>Approved Plan kWh savings</b>	<b>Revised kWh Savings</b>	<b>kW</b>
Appliance Recycling – Room Air Conditioner Pick up with refrigerator or freezer	\$25	\$10	1,147	353	0.6395

### **3.2.7 EE Program 7—Commercial/Industrial Equipment Incentives**

#### **A. Program Title and Program Years**

Program Name: Commercial & Industrial Equipment Incentives

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Commercial & Industrial Equipment Incentives program is to increase awareness of energy savings opportunities and assist customers in acting on those opportunities to decrease energy usage in commercial and industrial facilities and in master-metered multifamily residential buildings.

This program is designed for retrofit and replacement projects. (The Commercial & Industrial New Construction program addresses major renovation and new facility construction projects.)

The program has several objectives:

- Increase consumers' awareness and understanding of the breadth of energy efficiency opportunities in their facilities.
- Make it easier for customers to adopt more energy-efficient equipment and equipment maintenance.
- Make a significant contribution to attainment of PECO's energy savings goals.
- Demonstrate PECO's commitment to and confidence in the measures' performance and their ability to reduce business customer energy use.
- Strengthen customer trust in PECO as their partner in saving energy.
- Align incentives with other EDCs, where possible.

Results of focus groups conducted in preparation of the program plan indicate that commercial and industrial customers in general, and business customers in particular, are the most comfortable with this type of program and most said they would likely participate.

#### **C. Target Market**

The eligible customer population for the Commercial & Industrial Equipment Incentives program is all existing commercial and industrial accounts, including master-metered multifamily housing facilities, provided with electricity by PECO, except for government, public, and non-profit facilities (see the Government/Public/Non-Profit Facility Energy Savings program).

There are approximately 153,400 business accounts in this sector overall, with the following makeup:

- Small businesses—145,000 accounts with demand <100 kW
- Medium C&I facilities—6,500 accounts with demand 100-500 kW
- Large C&I facilities—1,900 accounts with demand >500 kW

Within the target market, the focus for this program is the equipment retrofit or change-out market; that is, customers with existing equipment that needs replacing or who can be persuaded to replace their equipment early.

#### **D. Program Description**

The Commercial & Industrial Equipment Incentives program is designed to encourage and assist nonresidential customers in improving the energy efficiency of their existing facilities through a broad range of energy efficiency options that address all major end uses and processes. This program offers incentives to customers who install high-efficiency electric equipment and engages equipment suppliers and contractors to promote the incentive-eligible equipment.

The program has the following components, to accommodate the variety of customer needs and facilities in this sector:

- Two types of financial incentives for installation of energy efficient equipment:
  - Prescriptive Incentives—deemed per-unit savings for itemized measures; easy and appropriate for relatively low-cost or simple measures
  - Custom Incentives—paid on fixed per kWh or kW basis; more complex process and appropriate for larger and more complex projects, often with multiple measures
- Measures and assistance for different types of commercial and industrial customers:
  - Small Business track—specialized outreach to promote and enable mostly prescriptive measures best suited to smaller facilities, with eligibility to install custom measures as well. In addition, PECO will offer each small business three CFLs free of charge
  - Medium and Large Commercial & Industrial tracks—emphasis on flexibility of custom projects to address variety of business and industrial process energy improvements, with availability of prescriptive measures
- Customer referrals to qualified audit providers who can help customers identify appropriate and cost-effective retrofit opportunities

#### **Prescriptive Measure Incentives**

- Quick and easy incentive application for measures with known and reliable energy savings. No pre-approval required.
- Customers purchase and install qualified products from retailers and/or contractors.
- Customers or their contractors submit incentive form to PECO with information that documents the qualifying sale/installation. The form allows customers to see the exact incentive they can receive. PECO mails rebate checks to customers or their contractors.
- The prescriptive incentives are cash-back rebates that generally cover a portion of the incremental cost of the qualifying models; that is, the cost premium of qualifying models over less-efficient models available.

### Custom Project Incentives

- Provides financial incentives on projects not suitable for prescriptive incentives because of size or multiple types of equipment involved.
- More complex offering, with the following services and requirements:
  - Review design/specification and savings estimates for completeness and applicability of incentives
  - Pre- and post-project inspections to estimate and verify savings
  - Incentives paid on a fixed \$/kWh basis
- Examples of custom projects include chiller replacements, air compressor improvements, , and experimental technologies.

### Drop Shipment of CFLs for Small Businesses

- Designed to promote awareness of the program, educate business customers on the ease and benefits of using CFLs, and encourage additional energy efficiency actions by small businesses.
- PECO will offer to provide each small business with three CFL bulbs, at no charge to the customer.
- Promote through direct mail about the offer with a mail-back coupon that allows customers to select from an array of standard and specialty lamps.
- Upon receipt of mail-back coupon, the three bulbs will be mailed directly to the customer.

## **E. Implementation Strategy**

PECO will administer the Commercial & Industrial Equipment Incentives program through a CSP implementation contractor.

### Channels for Program Delivery

Effective implementation of the program depends on all aspects of the delivery working effectively. This includes making qualifying products available, distributing information about the products and the program, promoting the program adequately, and educating those influential in making product selection and purchasing decisions.

- **Product Supply**
  - Equipment suppliers—Vendors are influential in equipment selection in commercial and industrial facilities. They can be and should be engaged to recommend rebate-eligible models of equipment for retrofit and replacement projects. As appropriate, the incentives for equipment purchased under the program can be split or directed to these vendors.
  - Other trade allies—Installation and maintenance contractors can provide services associated with some of the qualifying measures, such as HVAC diagnostic tune-ups, identifying and sealing air and duct leaks, and refrigeration system maintenance.

Again, as appropriate, incentives offered on qualifying measures can be directed to or split with these providers to encourage them to promote program participation.

- **Program and Product Information Distribution**
  - Trade allies—As both deliverers of program products and potential participants in the program, all vendors of the qualifying equipment and service measures should be engaged to receive and also provide to their public sector clients information about the program measure benefits, how the program works, and assistance with the incentive process.
  - Utility staff—While PECO will engage a CSP to implement the program, the staff has ongoing contact with all key account customers. The staff will provide information about the program benefits, measures, and process.
  - Conservation service providers—The implementation CSP will develop and distribute information about the qualifying products and participation assistance by establishing and leveraging existing relationships with the product and service suppliers.
- **Program Promotion**
  - Trade allies—All vendors of the qualifying equipment and service measures should be engaged to make their clients aware of the program and encourage their participation by recommending high-efficiency equipment models and diagnostic services.
  - Facility auditors—Part of auditors' services can and should include making customers aware of this program and the incentives available for installation of high-efficiency measures.
  - Bill inserts to all and direct mail to subsegments within this target market; e.g., small businesses.
  - CSP—A key responsibility of the implementation CSP is outreach and effective promotion of the program to the target market.
- **Education: Opportunities to educate both the trade allies, who themselves are potential participants and delivery channels, and facility managers include:**
  - Bill inserts and/or direct mail
  - Trade publication articles on the benefits of specific measures, technologies, and diagnostic tune-ups, as well as whole facility assessments
  - Trade industry meetings leveraged to include product and program education as part of them
  - Workshops provided by government agencies for commercial and industrial businesses to understand how to improve energy use in their facilities
  - Facility audit reports
  - CSPs (includes industry and technology experts) who meet individually with facility decision makers during outreach and project development

#### Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of relationships with equipment and maintenance suppliers to make incentive-eligible equipment and services available and to promote their participation in the program
- Program marketing: including development and distribution of program materials and assistance with direct mail or other promotion in collaboration with other PECO contractors
- Participant recruitment and assistance: including assisting customers and contractors with selection of measures and incentive application submittal, assisting customers and contractors with development of estimates and documentation for approval of custom measure projects
- Rebate processing: including a fulfillment house to receive, review and verify applications; and either pay or submit the financial incentives to PECO for payment
- Program performance tracking and improvement: including tracking availability of qualifying products, rebate submittals and payments, and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, including progress toward program goals

#### Education Overview

The program will provide and leverage education provided by other groups to ensure that program channels and participants have the understanding and tools to make the program successful. These are mainly focused on educating equipment suppliers and contractors, and include:

- Training sessions for trade allies and other product supply and program and product distribution providers—these are to provide both technical information regarding the applicability and benefits of the measures promoted under the program, information about how the program works, and their role in and incentives for having their customers participate in the program.
- Since referrals to auditors who can help identify energy efficiency opportunities is part of the program, having trained and qualified auditors available is important. Many utility-sponsored programs rely upon outside training organizations to ensure that auditors are well-versed in building science principles and whole-building concepts for energy performance. The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET) have set widely-used standards for auditor training and already offer training sessions within Pennsylvania.

#### Applicable Collaborative Resources

Several other sources of technical and financial assistance are available to commercial and industrial energy users to enable energy efficiency improvements. Among them:

- Pennsylvania Department of Environmental Protection (DEP) offers workshops and other assistance to help small businesses improve energy efficiency at their facilities. The

services are sponsored by DEP's Office of the Small Business Ombudsman in partnership with the Electrotechnology Application Center, the Pennsylvania Technical Assistance Program and the PADEP Pollution Prevention/Energy Efficiency Roundtable. Funding for the Energy Management Workshop is provided through a U.S. Department of Energy grant.<sup>10</sup>

- Energy Efficiency & Conservation Block Grants—being made available under the American Recovery and Reinvestment Act of 2009 to fund or extend funding of energy improvements throughout the state. In particular, these funds may be used for the following activities relevant to this market and this program:<sup>11</sup>
  - Commercial building energy audits
  - Financial incentive programs and mechanisms for energy efficiency improvements such as energy savings performance contracting, on-bill financing, and revolving loan funds
  - Energy efficiency and conservation programs for buildings and facilities
  - Energy distribution technologies that significantly increase energy efficiency, including distributed resources, combined heat and power, and district heating and cooling systems

## **F. Program Issues, Risks, and Risk Management Strategies**

There are several issues associated with providing an energy efficiency program to commercial and industrial customers. Key ones are identified below, along with how the Commercial & Industrial Equipment Incentives can address them.

- This is a very diverse market sector, both in size and makeup. The inclusion of multiple tracks, for smaller businesses and for larger commercial and industrial customers, provides the structure to develop specific outreach activities and educational/promotional messages that resonate with each group. Such activities and measures need to be developed more explicitly during the final program design, for small businesses in particular.
- The energy uses of industrial customers are also diverse and often site-specific. The implementation contractor must have expertise to understand or engage the services of process experts to assist industrial customers in particular with project development as well as to perform pre- and post-installation inspections.
- Equipment vendors and installation contractors have considerable influence in equipment purchase decisions. This effectively makes these trade allies part of the participant target market. To engage them in promoting and having their clients' projects participate in the program, it may be necessary and appropriate to structure the incentive payments so that part or all the incentive is directed to them or split with the customer.

## **G. Ramp Up Strategy**

PECO will contract with an implementation CSP immediately upon approval of the program by the Commission. Since this program has several diverse components and addresses a complex

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<sup>10</sup> <http://www.depweb.state.pa.us/news>, April 2009.

<sup>11</sup> <http://www.eecbg.energy.gov/#ic1>, April, 2009.

and diverse market, a relatively long time is allocated to developing activity and incentive protocols, educational materials, and development of relationships with equipment vendors and contractors who supply this market. All the elements to encourage and support immediate participation will be in place prior to the program launch.

## H. Marketing Strategy

PECO will select an implementation CSP with experience in promoting commercial and industrial retrofit incentive programs. In particular, the CSP will have experience in working with equipment suppliers and contractors, ensuring that they are aware of and understand the program; in working with customers, ensuring they understand the program and measure benefits, and can advise them on project development; and in processing incentive applications, ensuring that payment is made for measures that meet the purchase, installation, and documentation requirements. And this experience needs to extend to all types of customers, from small businesses to large industrial process facilities.

## I. Eligible Measures and Incentives

### Measures

Both prescriptive and custom measures are eligible for incentives under this program. Prescriptive measures offered and associated rebates will be defined and listed for customers. Custom projects, consisting of energy-saving measures not listed or involving multiple systems are also eligible. The proposed measures for small business and general commercial and industrial customers are included in the tables below.

### Incentives

On average, incentive levels provided to customers/contractors under this program for installation of rebate-eligible prescriptive measures are about 33% of the incremental measure costs. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative. Custom measure incentive levels are set commensurate with other utility-sponsored programs, and are generally a lower percent of incremental costs.

### **Commercial & Industrial Equipment Incentives Proposed Measures—Per-Unit Savings, Costs, and Incentives**

Small Business Customers (< 100 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
SB - ENERGY STAR room AC	98	0.059	10	\$50	\$17	per RAC
SB - Small packaged and split system AC	127	0.099	14	\$118	\$39	per ton cooling
SB - Small air-source heat pump	348	0.099	12	\$283	\$94	per ton cooling
SB - High-efficiency cooling - packaged units - 11 EER - 10 tons	100	0.065	15	\$49	\$16	per ton cooling
SB - High-efficiency cooling - packaged units - 11.5 EER - 10 tons	149	0.097	15	\$76	\$25	per ton cooling
SB - High-efficiency cooling - packaged units - 12 EER - 10 tons	194	0.126	15	\$103	\$34	per ton cooling
SB - High-efficiency air-source HP - 11 EER - 10 tons	407	0.081	15	\$146	\$49	per ton cooling

Small Business Customers (< 100 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
SB - High-efficiency air-source HP - 11.8 EER - 10 tons	656	0.131	15	\$252	\$84	per ton cooling
SB - Ground-source heat pump	1503	0.300	30	\$1,238	\$40	per ton cooling
SB - HVAC tune-up	2600	1.622	5	\$2,650	\$883	per HVAC unit
SB - HVAC optimal start/stop	1142	0.159	15	\$1,125	\$375	per control point
SB - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
SB - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
SB - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
SB - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
SB - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
SB - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
SB - LED exit signs	307	0.035	15	\$104	\$34	per sign
SB - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
SB - White roofs	0.105	0.00003	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
SB - Premium-efficiency motors	90	0.011	20	\$5.00	\$1.70	per hp
SB - Custom measures	50,000 kWh per project	7 kW per project	15	\$0.75	\$0.08	per kWh saved or an equivalent based on the appropriate units
SB - CFL bulbs - drop ship package of 3 bulbs	459	0.109	3	\$10	\$10	per CFL package

Medium C&I Customers (> 100 kW, < 500 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
MC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
MC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	206	0.134	15	\$103	\$34	per ton cooling
MC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
MC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
MC&I - High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
MC&I - Ground-source heat pump	1503	0.300	30	\$1,238	\$40	per ton cooling
MC&I - HVAC tune-up	7800	4.866	5	\$7,950	\$2,650	per HVAC unit
MC&I - HVAC optimal start/stop	3427	0.478	15	\$1,500	\$500	per control point
MC&I - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
MC&I - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
MC&I - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
MC&I - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
MC&I - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
MC&I - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
MC&I - LED exit signs	307	0.035	15	\$104	\$34	per sign
MC&I - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
MC&I - White roofs	0.105	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
MC&I - Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
MC&I - Energy management control system	3.523	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
MC&I - Custom measures	80,000 kWh per project	15 kW per project	15	\$0.50	\$0.08	per kWh saved or an equivalent based on the appropriate units

Large C&I Customers (> 500 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
LC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
LC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	206	0.134	15	\$103	\$34	per ton cooling
LC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
LC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
LC&I - High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
LC&I - Ground-source heat pump	1503	0.300	30	\$1,238	\$40	per ton cooling
LC&I - HVAC tune-up	7800	4.866	5	\$7,950	\$2,650	per HVAC unit
LC&I - HVAC optimal start/stop	3427	0.478	15	\$1,000	\$333	per control point
LC&I - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
LC&I - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
LC&I - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
LC&I - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
LC&I - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
LC&I - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
LC&I - LED exit signs	307	0.035	15	\$104	\$34	per sign
LC&I - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
LC&I - White roofs	0.105	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
LC&I - Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
LC&I - Variable speed drives	2137	0.514	20	\$485	\$75	per hp
LC&I - Energy management control system	4	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
LC&I - Custom measures	240,000 kWh per project	40 kW per project	15	\$0.33	\$0.07	per kWh saved or an equivalent based on the appropriate units

## J. Program Schedule

The Commercial & Industrial Equipment Incentives program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2/Q3, and rolled out to the public during PY 2009 Q4. The program will operate from the latter part of program year PY 2009 through PY 2012. The following table provides a schedule of key milestones:

### Proposed Commercial & Industrial Equipment Incentives Implementation Schedule

Key Milestone	Timing
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	February 2010
Pre-rollout program development: Prepare marketing materials and incentive applications Develop activity and incentive processing protocols Identify qualified auditors	September 2009 – February 2010
Program rollout: Launch consumer marketing and outreach All program services	March 2010 (PY 2009 Q4)
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

The evaluation methodology and data collection proposed for the program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

#### Primary:

- Number of program measures installed
- Energy savings associated with installed measures
- Customer satisfaction with the program and the products
- Program implementation costs incurred

## Secondary:

- Distribution of measure popularity and cost-effectiveness of program, to enable program improvement
- Number and variety of suppliers/contractors who stock qualified products

## Data Collection Approaches

Data for evaluating the program will come from the following sources:

- Impact Evaluation
  - Tracking system data for all projects
  - On-site inspection and metering of a sample of projects to verify operation as reported
  - PECO customer energy consumption data for engineering or statistical analyses of impacts

- Process Evaluation

Evaluation of program design and implementation process will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:

- Follow-up surveys of C&I customers contacted from customer information provided on the incentive applications and from PECO customer information system (for nonparticipants)
- Surveys of upstream suppliers engaged in promoting the program and assisting customers with project development and incentive application submittal
- Interviews with the implementation CSP and PECO program staff
- Review of program documents and tracking system data

## Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed. For prescriptive measures, recorded savings will use the per-unit deemed savings values. Because prescriptive measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing analyses or metering studies on these projects. However, some number of projects will be inspected for independent verification of installation and operation as reported.

For custom measure projects, the gross savings need to be estimated based on engineering models and estimates. The M&V assessment will necessarily require pre/post building simulation modeling, billing analyses and/or metering to verify the project savings. For program impact assessment, this can be accomplished through verification of a sample of projects that account for a large portion of the reported savings and are most representative of projects by the different target market segments.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Assessment of free-rider and

free-driver effects, if deemed appropriate, may be conducted using customer billing and survey data in conjunction with established M&V methodologies and procedures.

**Process Evaluation Methodology**

Evaluation of the program implementation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluation will be undertaken and conducted throughout the program by the implementation and the M&V contractor(s) selected by PECO.

Process evaluation will assess customer understanding of, attitudes about, and satisfaction with both the program and with PECO’s broader educational activities. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants. The diversity of customers in this target market, including small businesses, master-metered multifamily housing facilities, general office as well as specialty facilities, and factories, means that survey content and fielding will need to accommodate a wide variety of participation experiences.

Interviews with program service providers will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the educational materials, effectiveness of promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use sales and promotion data maintained by the implementation CSP, information provided by PECO, and customer survey data.

**L. Administrative Requirements**

PECO will administer the Commercial & Industrial Equipment Incentives program through a CSP implementation contractor. PECO’s role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO’s educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO staffing mix:

**Commercial & Industrial Equipment Incentives Program—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	0.75 FTE in PY 2009 (0.75 yr. @ 1.0 FTE), 1.0 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.5 FTE in PY 2009, 1.0 FTE in PY 2010 through PY 2012
Engineer: Provide assistance to customers,	0.5 FTE in PY 2009, 1.0 FTE in PY 2010

contractors, and implementation CSP to ensure proper estimation of project savings and review of audit results and recommendations.	through PY 2012
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### M. Estimated Participation

Participation and measure adoption estimates were developed based on the existing stock of commercial and industrial facilities in PECO’s service territory and assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

#### Commercial & Industrial Equipment Incentives Program—Estimated Participation (number of installations/year)

	PY 2009	PY 2010	PY 2011	PY 2012	Total
<b>Small Business:</b>					
Prescriptive measures	10,875	91,821	56,821	56,821	<b>216,339</b>
Custom projects	20	135	135	135	<b>425</b>
<b>Medium C&amp;I:</b>					
Prescriptive measures	11,088	55,720	55,720	55,720	<b>178,248</b>
Custom projects	11	68	68	68	<b>215</b>
<b>Large C&amp;I:</b>					
Prescriptive measures	5,706	28,989	28,989	28,989	<b>92,672</b>
Custom projects	7	41	41	41	<b>130</b>

Notes about the above participation estimates:

- Small business prescriptive measures includes estimated participation by 20% of accounts, each receiving three CFL lamps, in PY 2010.
- Multiple prescriptive measures may be installed by the same customer; therefore the installation estimates do not equate to number of customers who will participate.

### N. Estimated Program Budget

Approval of the plan is anticipated in PY 2009 Q2, resulting in less than a full year of program operation in the first program year. The cost estimates reflect this timing.

**Commercial & Industrial Equipment Incentives Program—Proposed Budget**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
PECO Admin Labor	\$247,500	\$432,600	\$445,578	\$458,945	\$1,584,623
Implementation Contractor	\$737,238	\$4,141,285	\$7,387,460	\$10,806,332	\$23,072,316
Umbrella Costs	\$312,175	\$364,620	\$375,559	\$386,825	\$1,439,179
Program-Specific Education	\$150,000	\$309,000	\$318,270	\$327,818	\$1,105,088
IT Enablement Costs	\$20,872	\$21,498	\$22,143	\$22,808	\$87,322
Promotion	\$229,128	\$460,027	\$243,082	\$250,374	\$1,182,610
M&V	\$140,741	\$668,252	\$789,095	\$940,657	\$2,538,745
Incentives	\$1,842,479	\$10,998,767	\$10,957,415	\$11,286,138	\$35,084,800
<b>Total</b>	<b>\$3,680,134</b>	<b>\$17,396,050</b>	<b>\$20,538,602</b>	<b>\$24,479,898</b>	<b>\$66,094,683</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes cost of providing the following:
  - Participant recruitment and assistance—including customers as well as equipment suppliers and contractors, technical and incentive application assistance, and pre/post-installation inspections
  - Rebate processing and fulfillment
  - Program monitoring and tracking—including recording and reporting of activities, providing required data for PECO’s tracking system and regulatory reporting, complaint resolution, and process tracking and improvements
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—Assumed education costs for this program are \$150,000 in PY 2009 and \$300,000 per full program year, using fact sheet bill inserts, additional mail and on-line materials, and articles in trade publications. This is a program that includes diverse and complex measures, processes, and customers.
- Promotion—This is a large program within the nonresidential sector. In addition to the attention given to it in the promotion of PECO’s overall Energy Efficiency umbrella campaign, direct mail marketing will be utilized for both the education and acquisition of eligible customers to ensure maximum participation rates are achieved. This program-specific promotion is estimated at \$250,000 per program year, including PY 2009 (starting January 2010); plus direct mail of coupons to all small business customers to request CFLs in PY 2010.

- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 4% of total program budget (including incentives, excluding M&V costs).
- Incentives—The incentives budget is based on per-unit incentive allowances and estimated number of installations. Overall, the incentives represent 54% of the total program budget over the four program years.

### O. Projected Energy Savings and Demand Reduction

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values provided in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

Prescriptive measure per-unit values and customer per-project values were applied to the estimated number of installations rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers in that year plus the impact of measures still in operation from previous years.

#### C&I Equip. Incentives—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
MWh - Small Business - Prescriptive	3,101	35,402	51,650	67,707
MWh - Small Business - Custom	1,000	7,750	14,500	21,250
MWh - Small Business - Total	<b>4,101</b>	<b>43,152</b>	<b>66,150</b>	<b>88,957</b>
MWh - Medium C&I - Prescriptive	5,060	32,128	59,196	86,072
MWh - Medium C&I - Custom	880	6,320	11,760	17,200
MWh - Medium C&I - Total	<b>5,940</b>	<b>38,448</b>	<b>70,956</b>	<b>103,272</b>
MWh - Large C&I - Prescriptive	3,024	21,756	40,488	59,122
MWh - Large C&I - Custom	1,680	11,520	21,360	31,200
MWh - Large C&I - Total	<b>4,704</b>	<b>33,276</b>	<b>61,848</b>	<b>90,322</b>
<b>MWh Total</b>	<b>14,745</b>	<b>114,876</b>	<b>198,954</b>	<b>282,552</b>

Peak MW - Small Business - Prescriptive	0.826	8.935	13.220	17.460
Peak MW - Small Business - Custom	0.140	1.085	2.030	2.975
Peak MW - Small Business - Total	<b>0.966</b>	<b>10.020</b>	<b>15.250</b>	<b>20.435</b>
Peak MW - Medium C&I - Prescriptive	1.208	7.553	13.899	20.199
Peak MW - Medium C&I - Custom	0.165	1.185	2.205	3.225
Peak MW - Medium C&I - Total	<b>1.373</b>	<b>8.738</b>	<b>16.104</b>	<b>23.424</b>
Peak MW - Large C&I - Prescriptive	0.772	5.577	10.383	15.166
Peak MW - Large C&I - Custom	0.280	1.920	3.560	5.200
Peak MW - Large C&I - Total	<b>1.052</b>	<b>7.497</b>	<b>13.943</b>	<b>20.366</b>
<b>MW Total</b>	<b>3.390</b>	<b>26.256</b>	<b>45.297</b>	<b>64.224</b>

## P. Cost-Effectiveness

### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.183/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.234/kWh

### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.042/kWh
- Levelized Cost of Reduced Peak Demand: \$199/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
C&I Equipment Incentives	\$214	\$141	\$73	1.52

#### **Q. Plan Re-filing Adjustment 09/15/10**

Based on the analysis of, and PECO's consultation with its Conservation Service Provider, KEMA Services, Inc. ("KEMA"), PECO is proposing to add several measures, currently not in the Pennsylvania TRM, (outlined in the table below) to the Commercial/Industrial Equipment Incentives Program and the Government/Public/Non-Profit Facility Energy Savings Program. KEMA's experience in executing energy efficiency programs in other jurisdictions has shown that adding the proposed set of measures extends the reach of energy efficiency efforts and savings to grocery stores, food service establishments, small business customers, and non-profit institutions. The addition of these measures to the Plan will not impact the total cost of the programs as the incentives can be funded under the approved budget.

PECO is requesting to have the following measures added to the Plan. These measures are for C&I, as well as Governmental customers.

**Proposed Commercial/Industrial/Governmental/Non-Profit Measures:**

<u>Measure Name</u>	<u>Annual kWh Savings per Unit</u>	<u>kW Savings per Unit</u>	<u>Useful Life of Measure (years)</u>	<u>Increm. Cost per Unit</u>	<u>Incentive Per Unit</u>	<u>Unit Definition</u>
Anti-sweat heater controls	402	0.007	12	\$80	\$45	per linear foot
EC motor for walk-in coolers	401	0.044	15	\$250	\$50	per motor
EC motor for reach-in refrigerated cases	345	0.033	15	\$185	\$45	per motor
Evaporator fan controls	478	0.060	16	\$291.50	\$70	per motor
LED refrigerated case lighting	375	0.061	16	\$266	\$50	per door
ENERGY STAR solid door freezer	1,725	0.057	12	\$805	\$150	per freezer
ENERGY STAR glass door freezer	5,923	0.676	12	\$1,000	\$400	per freezer
High efficiency ice maker 101-200 lbs/day	1,029	0.118	12	\$296	\$100	per ice maker
High efficiency ice maker 201-300 lbs/day	1,551	0.177	12	\$312	\$150	per ice maker
High efficiency ice maker 301-400 lbs/day	1,840	0.210	12	\$559	\$175	per ice maker
High efficiency ice maker 401-500 lbs/day	2,004	0.229	12	\$981	\$200	per ice maker
High efficiency ice maker 501-1000 lbs/day	3,176	0.363	12	\$1,485	\$300	per ice maker
High efficiency ice maker 1001-1500 lbs/day	5,019	0.573	12	\$1,821	\$400	per ice maker
High efficiency ice maker > 1500 lbs/day	5,585	0.638	12	\$2,194	\$500	per ice maker
Beverage machine controls	1,612	0.000	10	\$180	\$100	per machine
Snack machine controls	387	0.000	10	\$80	\$30	per machine
ENERGY STAR refrigerated vending machine	1,576	0.180	14	\$900	\$150	per machine

## **R. Plan Adjustments 07/15/11**

### **Establishment of an Application Waitlist**

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.2.8 EE Program 8—Commercial/Industrial New Construction**

#### **A. Program Title and Program Years**

Program Name: Commercial & Industrial New Construction

Program Years: PY 2011 – PY 2012

#### **B. Objectives**

The purpose of the Commercial & Industrial New Construction program is to greatly improve the energy efficiency of all newly constructed facilities and facilities that are completely renovated or reconstructed in the PECO service territory.

The program has several objectives:

- Change building design and construction practices used by architects and engineers, contractors, and owners to include all cost-effective energy efficiency designs and equipment.
- Capture “lost opportunities” to reduce electric demand and energy usage in the commercial and industrial sector by providing participants with design assistance and custom rebates or performance contracting for the construction of energy-efficient buildings and facilities.

Results of focus groups conducted in preparation of the program plan indicate that commercial and industrial customers across the board are comfortable with this type of program and many said they would likely participate.

#### **C. Target Market**

The target market for the Commercial & Industrial New Construction program is decision makers for the design and/or construction of new facilities and renovation contractors and developers. This program will cover both new constructions and buildings/facilities undergoing

“major renovation,” defined as buildings where multiple major systems are undergoing significant upgrades.

While the energy and peak load savings resulting from this program will be accrued by the building owners/tenants, the key target market of the program are the professionals most responsible for the design and equipment decisions—architects and engineers, design/builders, developers, and contractors.

#### **D. Program Description**

The Commercial & Industrial New Construction program is designed to instill and accelerate adoption of design and construction practices so that new commercial and industrial facilities are more energy efficient than the current stock. The program provides facility designers and builders with training, design assistance, and incentives to incorporate energy efficient systems and construction practices in newly constructed and renovated facilities.

The program has the following components, directed mainly to commercial and industrial design and construction community: training, design assistance, and financial incentives.

##### Training

- General training in best practices—provides technical workshops and other technical developmental activities for the design and engineering community to familiarize and educate them on energy efficient design methods and new technologies.

##### Design Assistance

- Directed to upstream providers of design and construction services—architects and engineers (A&E), designers/builders, and contractors.
- Project-specific assistance—will provide a participant with the services of a consulting engineer to evaluate the cost-effectiveness of energy-saving measures under consideration and to recommend measures that may have been overlooked.
- The program will also provide design and engineering consultants with validation of their prospective energy efficiency projects in presentations to clients.

##### Incentives

- Directed to upstream providers of design and construction services but also available to facility owners.
- Custom rebates payable on a per kWh savings basis, compared with “standard” design and equipment installations.
- Participant must submit project energy savings generated by PECO-approved building energy modeling software (e.g., eQUEST) to be eligible for installation rebate

#### **E. Implementation Strategy**

PECO will administer the Commercial & Industrial New Construction program through a CSP implementation contractor.

##### Channels for Program Delivery

- Because they are the key decision makers in new commercial and industrial facility design, it will be advantageous for PECO to work “upstream”—with the design and construction community. For the program to be effective, PECO must educate these professionals on how and why to upgrade their building practices. Once convinced, these design and construction influencers can promote the program and the efficiency benefits to their clients as well as to their suppliers and subcontractors. These professionals are really both participants and delivery channels for the program.
- Articles and advertising in building design and engineering trade publications.
- Bill inserts to existing commercial and industrial customers to alert them to opportunities available for major renovations and expansions to their facilities.
- A conservation service provider (CSP) will implement the program on PECO’s behalf, including providing assistance with PECO’s direct marketing; recruiting and providing education to upstream channels; providing rebate fulfillment services; and tracking and reporting program activities and achievements toward goals.

### Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Identification and recruitment of upstream market actors for program participation and delivery channel activities
- Education: including development and operation of training seminars for A&Es, designers, builders, and developers; and development and distribution of educational publications
- Marketing: including development and distribution of program materials in collaboration with PECO and design and construction professionals who will be both program participants and promoters
- Design and Project Assistance: engineering and technical support for project development, and cost-effectiveness assessment, and estimation of financial incentives; design review and post-installation inspections
- Rebate Processing: fulfillment house to receive, review and verify applications; and either pay or submit rebates to PECO for payment
- Program Performance Tracking and Improvement: including project tracking and documentation of project measures, rebate submittals and payments, opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

### Education Overview

Education is a key component of the Commercial & Industrial New Construction program. The market will change through training, education and demonstration. The program will increase confidence in the performance and benefits of increased energy efficiency (better performance,

lower fuel bills, increased comfort, reduced maintenance, etc.). Designers and builders will be encouraged to implement more energy-efficient strategies to increase energy efficiency through the program. Emphasis on the additional benefits of comprehensive energy efficiency improvements and continual maintenance to retain savings will demonstrate an overall cost-effectiveness that can be achieved without the need for financial incentives over the longer term. Ongoing deployment of these strategies will become “standard” practice by these same designers and builders in additional projects, affecting long-term market transformation.

To accomplish this, the program will offer several forms of education as noted above:

- Training seminars will be taught by experts in specific aspects of high-efficiency building design and construction. Many utilities offer these no-fee sessions on an ongoing basis. In addition to teaching key principles and an understanding of the program, they will provide PECO with an excellent opportunity to develop strong relationships and build trust with this influential group, which is also the key target market for the program.

PECO will consider linking the training activities with nationwide certification programs for builders, inspectors, lighting designers and with continuing education programs for architects and engineers.

- Publications with technical information, practical advice, and persuasive messages will be developed. These can be included in newsletters directed to design/build, published in trade journals, sent in direct mail, distributed at seminars, and made available on a PECO website page designed for this audience.

#### Applicable Collaborative Resources

- ENERGY STAR has considerable material on its website directed to commercial and industrial design and construction community, which this program should leverage. This includes Commercial Building Design guidelines and strategies, “Designed to Earn the ENERGY STAR” program and the “ENERGY STAR Challenge” for architecture firms, communications materials, many types of training opportunities, and an extensive tools and resources library.<sup>12</sup>
- ENERGY STAR also offers opportunity for buildings to gain EPA rating. By promoting practices and measures recommended by ENERGY STAR, the C&I New Construction program can have added credibility. Building types eligible for an EPA rating include: Office, Courthouse, Bank/Financial Institution, K-12 School, Supermarket/Grocery, Retail (big box), Hospital, Medical Office, Hotel, Residence Hall/Dormitory, and Warehouse (refrigerated/non-refrigerated).
- Sustainable Development Fund Financing—provides financing for the installation of solar PV and hot water heating systems.

#### **F. Program Issues, Risks, and Risk Management Strategies**

Currently, several market barriers inhibit the participation in new construction programs. Such barriers, which the program implementation activities will address, include:

- Perception of Increased Cost: Many designers and builders feel that increased building performance costs more, and that it is not cost-effective.

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<sup>12</sup> [http://www.energystar.gov/index.cfm?c=business.bus\\_index](http://www.energystar.gov/index.cfm?c=business.bus_index), May 2009.

- **Risk Aversion:** Historically, the commercial design and engineering community has been particularly slow to adopt new technologies or solutions. A&Es prefer to design and install systems and buildings using familiar technologies and designs. Liability issues are also a concern.
- **First Cost vs. Lifecycle Cost Considerations:** Building developers are very concerned with first cost considerations as they often must build within a pre-determined budget. As such, they are reluctant to consider high-efficiency measures, which usually cost more.
- **Limited Technical Information:** Designers and owners have limited familiarity with new products, technologies and their applications, and their associated benefits that extend beyond energy savings (comfort, durability, health, productivity and maintenance). ENERGY STAR, AIA, and other available training programs are whittling away at this problem.
- **Inadequate Operational Procedures:** Building systems are usually not tested to ensure that they perform as designed. In addition, owners frequently fail to implement an ongoing maintenance and quality assurance procedure to properly operate the equipment.

### **G. Ramp Up Strategy**

Prior to program launch, considerable effort needs to go into preparing the ground for the success of the program, including:

- Need to develop relationships within the design/build community
- Need to develop and arrange training on best practices for design and construction of new commercial and industrial facilities

### **H. Marketing Strategy**

PECO will select a CSP with experience in promotion through trade allies associated with builders and design firms. The implementation CSP will utilize established trade ally channels for educating and developing stakeholder awareness of the benefits of designing, building and promoting energy efficient construction standards.

### **I. Eligible Measures and Incentives**

Participants will be encouraged to take a comprehensive approach to building/facility design. Custom rebates, which will be offered, best support this concept. Participants can design whole buildings/facilities with any combination of energy efficiency features and receive these financial incentives for the energy savings of the entire project compared with standard efficiency or basic code compliance.

**Commercial & Industrial New Construction Proposed Measures—Per-Unit Savings, Costs, and Incentives**

<b>Measure</b>	<b>Annual kWh Savings</b>	<b>kW Savings</b>	<b>Useful Life of Measure</b>	<b>Incremental Cost</b>	<b>Incentive per Unit</b>
Custom project	250,000 per project	30 per project	15 years	\$0.25 per kWh saved	\$0.07 per kWh saved or an equivalent based on the appropriate units

The proposed incentive level covers approximately 28% of the incremental cost and is consistent with actual project experience. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative.

**J. Program Schedule**

The following schedule identifies key milestones for the Commercial & Industrial New Construction program. The program will start in PY 2011 and continue services through PY 2012.

**Proposed Commercial & Industrial New Construction Implementation Schedule**

<b>Key Milestone</b>	<b>Timing</b>
Assign PECO program manager and staff	Anticipated January 2011
Start program design	June 2011
Select and contract with program implementation CSP	November 2009
Complete program design	August 2011
Pre-rollout program development: Build designer/builder network Develop designer/builder training curriculum and schedule Develop marketing strategies Develop procedures for tracking activities and documenting results	June 2011 (PY 2011 Q1)
Program rollout: Offer designer/builder education Offer design assistance and rebates	September 2011 (PY 2011 Q2) September 2011 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## **K. Evaluation, Measurement, and Verification Requirements**

The data collection guidelines proposed for the program reflect current measurement and verification (M&V) practices. The M&V requirements and methods used to evaluate this program will conform with State protocols, once they are published.

### Metrics for Gauging Program Success

- Number of projects completed
- Energy savings associated with facilities built through participation in the program
- Number of training seminar attendees and/or trades people certified in energy-efficient building principles
- Increase in receptivity/adoption of energy-efficient building practices by designers, builders, and developers to measure the effectiveness of the marketing and education activities

### Data Collection Approaches

The data required for evaluating the program will depend on the methodology chosen. They will likely include the following sources and information:

- Billing and/or metered use data
- Engineering estimates of measure savings
- Local weather data
- Program tracking system for measures installed, rebates paid, and building characteristics
- Upstream and building owner surveys regarding program awareness, satisfaction with the program and with the project results, understanding and perceived savings from measures, tenant characteristics, and program influence on design and construction decisions
- Program implementer/PECO staff surveys

### Impact Evaluation Methodology

The impact evaluation will likely use a variety of techniques to assess energy savings due to the program in new facilities/buildings. The analysis techniques will likely include performing engineering analyses and perhaps metering as well, to determine whether the participant facilities operate as designed and achieve the expected savings. Site visits will be conducted as part of the engineering and metering data collection; additional site visits may be added at a later date if any installation problems are identified. Site visits will be used to determine if measures were installed as expected and to gather data for the engineering analysis of the homes as built. For this program perhaps above all others, the understanding and availability of baseline values for facility consumption will be critical to an assessment of energy savings.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Assessment of free-rider and

free-driver effects, if deemed appropriate, may be conducted using survey data in conjunction with established M&V methodologies and procedures.

**Process Evaluation Methodology**

Program participants, local inspectors, and program implementation staff will be interviewed for the process evaluation. These interviews will focus on the construction and inspection processes of facilities built to new standards. In addition to obtaining information on facility characteristics, the participant (builder and/or owner) survey will ask questions about the effectiveness of program promotional activities, participant and occupant satisfaction with the facility, and whether the occupants have encountered any problems with their new equipment.

During the first year, the process evaluation will focus on program implementation, administration, and delivery. Interviews will be used to determine if the program is encouraging new construction practices and if the upstream market stakeholders and facility owners are finding the education useful. If there are difficulties in obtaining participation during the first year, the evaluation may be expanded to include focus group interviews with a larger sample of designers, builders, developers, and facility owners. During the second year, the process evaluation will assess how well program changes recommended during the first-year process evaluation are being implemented.

**L. Administrative Requirements**

PECO will administer the Commercial & Industrial New Construction program through a CSP implementation contractor. PECO’s role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO’s educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize builder and customer satisfaction with the program

The program is expected to operate with the following PECO/Contract staffing mix:

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program, and administering and overseeing CSP.	0.5 FTE in PY 2011 and PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.25 FTE in PY 2011 and PY 2012
Engineer: Responsible for assisting and reviewing CSP and participant estimates of project cost and savings	0.5 FTE in PY 2011 and PY 2012

**M. Estimated Participation**

Participation estimates were developed based on projected new construction in PECO’s service territory, an assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

The current forecast for new commercial and industrial construction is extremely low in the next two years. As a result, the program will not launch until PY 2011 and, even then, low participation is expected.

**Commercial & Industrial New Construction Program—Estimated Participation  
(number of facilities/year)**

	PY 2009	PY 2010	PY 2011	PY 2012	Total
Custom projects	0	0	35	65	100

**N. Estimated Program Budget**

Program development begins in PY 2011 and program launch is expected a few months into that program year. The following cost estimates reflect this timing.

**Commercial & Industrial New Construction Program—Proposed Budget**

Budget	PY 2009	PY 2010	PY 2011	PY 2012	Total
PECO Admin Labor	\$0	\$0	\$190,962	\$196,691	\$387,653
Implementation Contractor	\$0	\$0	\$371,315	\$682,954	\$1,054,269
Umbrella Costs	\$15,609	\$18,231	\$18,778	\$19,341	\$71,959
Program-Specific Education	\$0	\$0	\$159,135	\$163,909	\$323,044
Promotion	\$0	\$0	\$106,090	\$109,273	\$215,363
M&V	\$0	\$0	\$149,608	\$241,515	\$391,123
Incentives	\$0	\$0	\$649,801	\$1,242,977	\$1,892,778
<b>Total</b>	<b>\$15,609</b>	<b>\$18,231</b>	<b>\$1,645,689</b>	<b>\$2,656,660</b>	<b>\$4,336,189</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes network development and recruitment, design assistance, rebate processing, program tracking and improvement, and reporting, as described above.
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—PECO education costs are assumed at \$150,000/year in PY 2011 and PY 2012.
- Promotion—Estimated costs are \$100,000 in each of the program years, PY 2011 and PY 2012.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 10% of total program budget (including incentives, excluding M&V

costs). New construction projects require inspection and review to ensure that savings estimates are reasonable and attained.

- Incentives—The incentives budget is based on per-unit incentive allowances and the estimated number of installations. Overall, the incentives represent 44% of the total program budget over the four program years.

### O. Projected Energy Savings and Demand Reduction

The savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region. These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers through the program in that year plus the impact of measures still in operation from previous years.

#### C&I New Construction Program—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
MWh Savings	0	0	8,750	25,000
Peak MW Reduction	0.000	0.000	1.050	3.000

### P. Cost-Effectiveness

#### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2011-PY 2012 timeframe (through May 2013):  
\$0.173/kWh

#### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.023/kWh
- Levelized Cost of Reduced Peak Demand: \$188/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
C&I New Construction	\$18	\$8	\$10	2.35

## **Q. Plan Adjustments 07/15/11**

### **Establishment of an Application Waitlist**

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.2.9EE Program 9—Government/Public/Non-Profit Facility Energy Savings**

#### **A. Program Title and Program Years**

Program Name: Government/Public/Non-Profit Facility Energy Savings

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Government/Public/Non-Profit Facility Energy Savings program is to achieve savings in this sector equal to a minimum of 10% of PECO's total energy reduction goals.

The program has several objectives:

- Substantially improve the energy efficiency of government and public facilities.
- Facilitate the monitoring of energy efficiency projects toward the goal.
- Capture opportunities to reduce consumption by street lighting and traffic signal lights.
- Enable eligible customers to identify and implement cost effective energy saving opportunities.

This program provides all of the same services offered to commercial customers in other programs. Additionally, it provides assistance with obtaining facility audits. The key difference is that for the government/public/non-profit facility segment, all the energy efficiency related services are offered within a single program. This includes retrofits and new construction projects.. This grouping will make it easier for PECO to demonstrate accomplishments toward meeting, at a minimum, the 10% energy use reduction goal for this customer segment as required by Act 129.

#### **C. Target Market**

The target market for the Government/Public/Non-Profit Facility Energy Savings program is all public facilities, including federal, state, and municipal buildings, and public schools, hospitals and other non-profits. There are approximately 11,000 such facilities and tens of thousands of street lights and traffic signals.

#### **D. Program Description**

The Government/Public/Non-Profit Facility Energy Savings program provides financial and technical assistance to achieve significant electricity savings in public sector facilities. This program offers the same financial incentives to reduce energy use in public sector facilities as in other nonresidential facilities, along with providing assistance in identifying key improvement opportunities and addressing the special planning and purchasing protocols of public and non-profit agencies.

The program has the following components:

- Street light replacements—includes incentives for retrofitting incandescent and mercury vapor lamps with high-pressure sodium, metal halide, or emerging energy-efficient technologies (e.g. LED or induction street lights).

- **Traffic signal replacements**—includes incentives for retrofitting incandescent traffic signals with LED. This includes red, green, yellow, and pedestrian signals. LED lamps save energy and also save on maintenance due to their longer lives.
- **Prescriptive and custom measure rebates**—includes rebates for installation of a full array of energy efficiency improvements. Prescriptive measures include lighting, HVAC, motors, and controls. Examples of custom measures include chillers, water/wastewater efficiency upgrades, , and very large or complex versions of any of the prescriptive measures listed above.
- **Audits with cost reimbursement for installation of recommended measures**—designed to assist facility operators to identify energy-saving opportunities and prioritize projects to fit with planning cycles and leverage other funding sources in addition to PECO incentives.

## **E. Implementation Strategy**

The program is designed to make it as easy as possible for government/public/non-profit facility customers and their contractors to obtain rebates for prescriptive measures, while also providing flexibility in accommodating the diversity of energy-savings opportunities and varying complexities of projects likely in this sector with custom measure incentives. The program provides something close to a one-stop shop for obtaining energy efficiency assistance through audits offered to help customers and their influential contractors in this target market identify and prioritize their energy-savings opportunities. PECO will administer the Government/Public/Non-Profit Facility Energy Savings program through a CSP implementation contractor.

### Channels for Program Delivery

Effective implementation of the program depends on all aspects of the delivery working effectively. This includes making qualifying products available, distributing information about the products and the program, promoting the program adequately, and educating those influential in making product selection and purchasing decisions. This program will engage the following channels for delivery of these key aspects the program:

- **Product Supply**
  - **Equipment suppliers**—public agencies often have contracts or standing agreements with equipment vendors. These vendors are influential in equipment selection. They should be educated about energy-efficient alternatives and incentives available to make these alternatives cost-competitive. Suppliers provide the most direct link between the program and the consumers in this sector's existing facilities. As appropriate, the incentives for equipment purchased under the program can be split or directed to these vendors.
  - **Architects and engineers**—for major renovations, expansions, and new building construction, the A&Es are most influential in the decisions that affect a facility's energy use. Properly educated and convinced to use building efficiency best practices, they can specify qualifying program measures to public sector construction projects.
  - **Other trade allies**—installation and maintenance contractors can provide services associated with some of the qualifying measures, such as HVAC diagnostic tune-ups, identifying and sealing air and duct leaks, and refrigeration system maintenance.

Again, as appropriate, incentives offered on qualifying measures can be directed to or split with these providers to encourage them to promote program participation.

- **Program and Product Information Distribution**
  - Trade allies & affinity groups—as both deliverers of program products and potential participants in the program, all vendors of the qualifying equipment and service measures should be engaged to receive and also provide to their public sector clients information about the program measure benefits, how the program works, and assistance with the incentive process.
  - Utility staff—while PECO will engage a CSP to implement the program, the staff (including Account Managers and County Affairs Managers) has ongoing contact with many of these customers. The staff will provide information about the program benefits, measures, and process.
  - Conservation service providers—the implementation CSP will develop and distribute information about the qualifying products and participation assistance by establishing and leveraging existing relationships with the product and service suppliers.
- **Program Promotion**
  - Energy Service Performance Contracting (ESPC)—the ESPC program in Pennsylvania provides energy services to state facilities, providing an avenue to promote the program through these existing relationships.
  - Trade allies & affinity groups—all vendors of the qualifying equipment and service measures should be engaged to make their public sector clients aware of the program and encourage their participation by recommending high-efficiency equipment models and diagnostic services.
  - Public agency news publications—leverage existing communication channels used by public agencies to make facility managers aware of the program opportunities.
  - Direct mail—this is a limited and known target market that PECO can reach by mail with specially crafted letters, program applications, and other promotional materials.
  - CSPs—a key responsibility of the implementation CSP is outreach and effective promotion of the program to the target market.
- **Education**

Opportunities to educate both the trade allies, who themselves are both potential participants and delivery channels, and public agency facility managers include:

  - Bill inserts and/or direct mail
  - Agency and industry training sessions (piggybacking program education on these meetings)
  - CSPs (includes industry and technology experts) who meet individually with facility decision makers and provide auditor training
  - Facility audit reports

## Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of relationships with government/public/non-profit facility equipment and maintenance suppliers to make incentive-eligible equipment and services available and to promote their participation in the program
- Auditor/contractor training: this can be provided directly or through arrangements with nationally recognized providers who conduct training and certification sessions in locations on request; CSP will maintain directory of qualified auditors
- Program marketing: including development and distribution of program materials and assistance with direct mail or other advertising in collaboration with other PECO contractors
- Participant recruitment and assistance: including scheduling audits with qualified auditors, assisting customers and contractors with incentive application submittal, assisting customers and contractors with the development of estimates and documentation for approval of custom measure projects, and providing information on applicable EECBG/ARRA funds and/or tax credits
- Rebate processing: fulfillment house to receive, review and verify applications; and either pay or submit rebates to PECO for payment
- Program performance tracking and improvement: including tracking of all program activities, rebate submittals and payments, and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

## Education Overview

The program will provide and leverage education provided by other groups to ensure that program channels and participants have the understanding and tools to make the program successful. These include:

- Seminars for state and local government leaders—these can be independently arranged but can also be coordinated with seminars already in preparation in many localities as officials try to educate their staff about allocations of American Recovery and Reinvestment Act of 2009 (ARRA) funds. The implementation CSP will work to align the timing of ARRA funding requirements and Act 129 plan approval to best leverage both resources.
- PECO will offer a series of municipal forums designed to educate and inform municipalities about programs and incentives.
- Training sessions for trade allies and other product supply and program and product distribution providers—these are to provide both technical information regarding the applicability and benefits of the measures promoted under the program, and information about how the program works, customers' role in and incentives for participating, and issues related to government agency procurement practices.

- The audit component of the program will also provide one-on-one customer education about energy efficiency benefits in general and the recommended measure benefits more specifically, Pennsylvania's commitment to reducing energy use in public facilities, and the availability of resources designed to enable energy efficiency improvement projects.
- Training and qualification of auditors is important. Many utility-sponsored programs rely upon outside training organizations to ensure that auditors are well-versed in building science principles and whole-building concepts for energy performance. The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET<sup>®</sup>) have set widely-used standards for auditor training and already offer training sessions within Pennsylvania.

### Applicable Collaborative Resources

There are a number of resources that this program may be able to leverage to help in its successful operation. These include:

- Energy Service Performance Contracting (ESPC)—Pennsylvania already has an ESPC program for state facilities. This infrastructure can be used to extend the reach of the PECO program to an even greater number of government facilities.<sup>13</sup>
- Energy Efficiency & Conservation Block Grants (EECBG)—being made available to the state, cities, and counties through ARRA to fund or extend funding of energy improvements throughout the state. Of particular applicability to this program and government-owned facilities and infrastructure, these funds may be used for the following activities:<sup>14</sup>
  - Facility energy audits
  - Financial incentive programs and mechanisms for energy efficiency improvements such as energy savings performance contracting, on-bill financing, and revolving loan funds
  - Grants to governmental agencies for the purpose of performing energy efficiency retrofits
  - Energy efficiency and conservation programs for buildings and facilities
  - Building codes and inspections to promote building energy efficiency
  - Energy distribution technologies that significantly increase energy efficiency, including distributed resources and combined heat and power
  - Working with the Delaware Valley Regional Planning Commission (DVRPC) to train and educate municipalities about programs and how to work through the process to coordinate all sources of project funding.
- The Reinvestment Fund/Sustainable Development Fund (SDF) Financing—provides financing to companies and organizations for installation of solar PV and hot water

<sup>13</sup> *Potential for Energy Efficiency, Demand Response, and Onsite Solar Energy in Pennsylvania*, prepared by ACEEE, April 2009.

<sup>14</sup> <http://www.eecbg.energy.gov/#1c1>, April 23, 2009

heating systems and also has a lease-financing product for large nonprofit institutions (schools and hospitals) for energy conservation improvements.

- The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET) training capabilities offer opportunities for PECO to ensure that auditors are properly trained and qualified to provide services under this program. Many utilities collaborate with these groups to bring training to their area so that a trained workforce is available to perform the work promoted under their programs.

## **F. Program Issues, Risks, and Risk Management Strategies**

There are several issues associated with providing an energy efficiency program to government, public, and non-profit customers. Key ones are identified below, along with how the Government/Public/Non-Profit Facility Energy Savings program can address them.

- Governmental agencies typically have more complex procurement practices than private businesses. For implementation of the program to be successful, the outreach, project scheduling, incentive fulfillment process, and trade ally involvement strategies used by the implementation contractor all need to reflect understanding and accommodation of these practices.
- Access to EECBG funds by the target market customers, while providing additional financial assistance to enable projects, may also impose additional steps in the project development cycle, possibly further increasing the lead time for projects. Close coordination with issuers of ARRA funds and assistance to participating customers will be important to ensuring successful project completion and participant satisfaction.
- Government and public agencies will need help identifying and prioritizing energy-saving opportunities. The audit component will directly address this need. But a commercial building audit often costs about \$20,000. While the program will provide at least partial reimbursement of this cost to customers who install recommended measures, the up-front cost will be borne by the customer unless “bought down” by the contractor who will perform the work.
- The program will require the availability of a sufficient number of qualified auditors. This means that training needs to be procured prior to the launch of other program components. This should not be difficult but needs immediate attention, well before program launch. Furthermore, the issue of how the training will be paid for needs to be worked out. In many areas with similar programs, contractors are fully responsible for the cost of their training, though the training provider or program sponsor may cover some or all of the cost if certain conditions are met; e.g., purchase of blower door or other diagnostic equipment, completion of a certain number of audits.
- Identifying whether a customer has non-profit status, and therefore whether it is eligible to participate in this program instead of taking advantage of Commercial & Industrial Equipment Incentives, may be confusing. This is particularly true of hospitals, which sometimes change status from public to private or vice-versa. The program addresses this potential problem by offering the same incentives on applicable measures in both programs and clearly defining eligibility criteria for audit rebates. This will avoid possible dissatisfaction among customers whose status changes during their participation in the program.

**G. Ramp Up Strategy**

PECO will select an implementation CSP with experience in working with government, public, and non-profit customers; and with implementing energy efficiency programs. Since this is a relatively diverse market, with special contracting requirements, a relatively long time is allocated to developing the program prior to rollout. All the elements to encourage and support immediate participation, including availability of qualified facility auditors, will be in place prior to the program launch.

**H. Marketing Strategy**

PECO will select an implementation CSP with experience in promoting commercial and industrial energy efficiency programs and in performing outreach to government, public, and non-profit customers in particular. The CSP will have experience in working with equipment suppliers and contractors who work with these customers and with facility auditors, ensuring that they are aware of and understand the program and measures that qualify for incentives. Notably, this experience needs to extend to all types of customers, from small non-profit businesses to hospitals, commercial buildings and large industrial process facilities to governmental agencies.

**I. Eligible Measures and Incentives**

Measures

Both prescriptive and custom measures are eligible for incentives under this program. Prescriptive measures offered and associated rebates will be defined and listed for customers. These include all the street lighting and traffic signal measures. Custom projects, consisting of energy-saving measures not listed or involving multiple systems are also eligible. The proposed measures are included in the table below.

Incentives

On average, incentive levels provided to customers/contractors for installation of rebate-eligible measures are about 33% of the incremental measure costs. That is, the additional cost of a high-efficiency measure beyond a standard-efficiency alternative.

Additionally, it is assumed that each participating facility (not street lights or traffic signals) will have an audit performed, to identify energy-savings opportunities, at a cost of \$20,000 per facility. Customers/contractors who install measures recommended as part of the audit can receive reimbursement from PECO for part of their audit costs, up to \$10,000. The amount will be based on the customer/contractor cost of the improvements. For planning purposes, we assumed this reimbursement to be \$5,000 or 25% of the average audit cost.

**Government/Public/Non-Profit Facility Energy Savings Proposed Measures  
—Per-Unit Savings, Costs, and Incentives**

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
High-efficiency cooling - packaged units - 11 EER -	206	0.134	15	\$103	\$34	per ton cooling

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
30 tons						
High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
Ground-source heat pump	1,503	0.300	30	\$1,238	\$40	per ton cooling
HVAC tune-up	7,800	4.866	5	\$7,950	\$2,650	per HVAC unit
HVAC optimal start/stop	3,427	0.478	15	\$1,500	\$500	per control point
CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
CFL fixtures	276	0.066	6	\$100	\$50	per fixture
High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
LED exit signs	307	0.035	15	\$104	\$34	per sign
Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
White roofs	0.11	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
Energy management control system	3.52	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
LED traffic lights - green 8"	226	0.060	10	\$145	\$48	per lamp
LED traffic lights - green 12"	520	0.138	10	\$155	\$52	per lamp
LED traffic lights - yellow 8"	10	0.059	10	\$145	\$48	per lamp
LED traffic lights - yellow 12"	24	0.070	10	\$155	\$52	per lamp
LED traffic lights - red 8"	299	0.062	10	\$145	\$48	per lamp
LED traffic lights - red 12"	694	0.144	10	\$155	\$52	per lamp
LED traffic lights-Walk/Don't Walk - 9"	491	0.056	10	\$145	\$48	per lamp
LED traffic lights-Walk/Don't Walk - 12"	946	0.108	10	\$155	\$52	per lamp
Metal halide streetlights	657	0.000	6	\$60	\$20	per lamp
High pressure sodium streetlights	657	0.000	15	\$30	\$10	per lamp

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
LED streetlights	548	0.000	20	\$400	\$133	per lamp
Induction fluorescent streetlights	569	0.000	20	\$200	\$67	per lamp
Custom measures	240,000 kWh per project	40 kW per project	15	\$0.33	\$0.07	per kWh saved or an equivalent based on the appropriate units
Energy Audit	0	0.000	0	\$20,000	\$5,000	per audit

**Note: PECO will offer a 10% Incentive increase for LED traffic light replacements of 20,000 or more when installations are completed before 5/31/12.**

## J. Program Schedule

The Government/Public/Non-Profit Facility Energy Savings program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2/Q3, and rolled out to the public during PY 2009 Q4. The program will operate from the latter part of program year PY 2009 through PY 2012. The following table provides a schedule of key milestones:

### Proposed Government/Public/Non-Profit Facility Energy Savings Implementation Schedule

Key Milestone	Timing
Assign PECO program manager and staff	July 2009
Begin final program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	February 2010
Pre-rollout program development: Conduct auditor/contractor training and recruitment Develop protocols for working with public agency customers	September 2009 – February 2010
Program rollout	March 2010 (PY 2009 Q4)
Prepare reports: Documentation of program activities and progress toward goals by CSP	Monthly throughout program implementation period
Reports to Commission	Quarterly, and annually each July 15th

Conclude program operation for this planning cycle	May 2013
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## **K. Evaluation, Measurement, and Verification Requirements**

The evaluation methodology and data collection proposed for the program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

- Energy savings from completed projects (toward goal of achieving 10% of the plan savings through projects in this sector)
- Number of participating facilities or projects
- Number of facility audits requested/completed
- The percent of recommended measures installed per completed audit
- Understanding of and satisfaction with the program by target market customer and upstream providers/participants

### Data Collection Approaches

Data for evaluating the program will come from the following sources:

- Impact Evaluation
  - Tracking system data for all projects
  - On-site inspection and sub-metering of a sample of custom projects to verify operation as reported
  - PECO customer energy consumption data for engineering or statistical analyses of impacts

- Process Evaluation

Evaluation of program design and implementation performance will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:

- Surveys of target market customers (participants and nonparticipants)
- Surveys of public facility equipment suppliers and service providers who participate and/or promote the program
- Interviews with the implementation CSP and PECO program staff
- Review of program documents and tracking system data

### Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed. For prescriptive measures, recorded savings will use the per-unit deemed savings values. Because prescriptive measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing

analyses or metering studies on these projects. However, some projects will be inspected for independent verification of installation and operation as reported.

For custom measure projects, the gross savings need to be estimated based on engineering models and estimates. The M&V assessment will necessarily require pre/post building simulation modeling, billing analyses and/or sub-metering of select projects to verify savings.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects—are not claimed by PECO under the program. Assessment of free-rider and free-driver effects, if deemed appropriate, may be conducted using customer billing and survey data in conjunction with established M&V methodologies and procedures.

#### Process Evaluation Methodology

Evaluation of the program implementation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluations will be undertaken and conducted throughout the program by the implementation and the M&V contractor(s) selected by PECO.

Process evaluations will assess customer understanding, attitudes about, and satisfaction with both the program and with PECO's broader educational activities. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants. The diversity of customers in this target market, including large and small government agencies, traffic signal and street light operators, local schools and public colleges, public health facilities, and other non-profit agencies means that survey content and fielding will need to accommodate a wide variety of participation experiences.

Interviews with program service providers, including auditors, will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the marketing and educational materials, effectiveness of advertising and promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use data maintained by the implementation CSP, information provided by PECO, and customer survey data.

#### **L. Administrative Requirements**

PECO will administer the Government/Public/Non-Profit Facility Energy Savings program through a CSP implementation contractor. PECO's role will be to ensure that

- the CSP performs all activities associated with delivery of all components of the program, and
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO/Contract staffing mix:

**Government/Public/Non-Profit Facility Energy Savings—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	0.75 FTE in PY 2009 (0.75 yr. @ 1.0 FTE), 1.0 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.25 FTE in PY 2009 (0.5 yr. @ .5 FTE), 0.5 FTE in PY 2010 through PY 2012
Engineer: Provide assistance to customers, contractors, and implementation CSP to ensure proper estimation of project savings and review of audit results and recommendations.	0.25 FTE in PY 2009 (0.5 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012
Business analyst: Responsible for coordinating with other collaborative resource agencies to assist customers in this market.	0.25 FTE in PY 2009 (0.5 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

Participation and measure adoption estimates were developed based on the size a makeup of government and public facilities in PECO's service territory on assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

**Government/Public/Non-Profit Facility Energy Savings Program—Estimated Participation by May 2013**

	<b>Adoption</b>	<b>Installations</b>
Street light replacements	Replace 5% of current incandescent and mercury vapor stock	2,590 lamps
Traffic signal replacements	Replace 90% of incandescent stock in city; replace 72% of incandescent stock in suburbs	76,234 lamps
Prescriptive measures		99,799 installations
Custom measures		275 projects
Energy Audits	All custom projects plus about half participants with prescriptive measures	612 audits

**N. Estimated Program Budget**

Approval of the plan is anticipated in PY 2009 Q2, with program launch in the latter part of that program year. The following cost estimates reflect this timing.

**Government/Public/Non-Profit Facility Energy Savings—Proposed Budget**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
PECO Admin Labor	\$217,500	\$370,800	\$381,924	\$393,382	\$1,363,606
Implementation Contractor	\$496,020	\$1,770,130	\$3,383,354	\$5,098,959	\$10,748,462
Umbrella Costs	\$202,914	\$237,003	\$244,113	\$251,436	\$935,467
Program-Specific Education	\$37,500	\$77,250	\$79,568	\$81,955	\$276,272
Promotion	\$100,000	\$51,500	\$53,045	\$54,636	\$259,181
M&V	\$72,806	\$319,195	\$375,574	\$439,248	\$1,206,823
Incentives	\$1,372,930	\$8,133,146	\$8,377,141	\$8,761,221	\$26,644,438
<b>Total</b>	<b>\$2,499,671</b>	<b>\$10,959,024</b>	<b>\$12,894,718</b>	<b>\$15,080,837</b>	<b>\$43,564,598</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella costs, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes cost of providing the following:
  - Coordination of and with relevant collaborative resources
  - Participant recruitment and assistance—including qualified auditors, contractors, and customers; scheduling audit appointments
  - Rebate processing and fulfillment
  - Program monitoring and tracking—including recording and reporting of activities, providing required data for PECO’s tracking system and regulatory reporting, complaint resolution, and process tracking and improvements
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—Estimated costs of education are \$75,000 in PY 2009, to ensure adequate training of auditors and program understanding by trade allies and affinity groups.
- Promotion—Including multiple direct mail and bill inserts to the target market, with an especially large effort in PY 2009 to make these customers and their contractors aware of the program and activities to help them access ARRA funds.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs).

- Incentives—The incentives budget is based on per-unit incentive allowances and estimated number of installations. Overall, the incentives represent 61% of the total program budget over all four program years.

## O. Projected Energy Savings and Demand Reduction

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values provided in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

Prescriptive measure per-unit values and customer per-project values were applied to the estimated number of installations rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers in that year plus the impact of measures still in operation from previous years.

Since the planning years run June 1 through May 31 each year, the program will be in operation during PY 2009 for only 7 months and PY 2012 runs through May 2013. The participation estimates reflect this timing.

### Government/Public/Non-Profit Facility—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
Energy Savings (MWh)	9,920	68,743	127,565	186,651
Peak Demand Reduction (MW)	2.335	15.693	29.050	42.556

## P. Cost-Effectiveness

### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011):  
\$0.196/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013):  
\$0.222/kWh

### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.038/kWh
- Levelized Cost of Reduced Peak Demand: \$176/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Government/Public /Non-Profit Facility Energy Savings	\$155	\$93	\$62	1.67

**Q. Plan Adjustments 07/15/11**

Establishment of an Application Waitlist

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.3.7 DR Program 7—Permanent Load Reduction**

#### **A. Program Title and Program Years**

Program Name: Permanent Load Reduction

Program Years: Development: PY 2009; Operation: PY 2010-PY 2012

#### **B. Objectives**

The objective of this program is to realize energy savings and peak demand reductions from eligible commercial/industrial customers in PECO's service territory during the top 100 hours. The targeted net system peak demand reduction from this program is set at about 15 MW by the end of PY 2012.

#### **C. Target Market**

This program will be targeted toward all eligible commercial/industrial customers in PECO's service territory.

#### **D. Program Description**

This program is designed to encourage customers to permanently move electricity usage from peak periods to off-peak periods on an ongoing basis. Energy storage systems or any other technologies that permanently shift or eliminate load from peak to off-peak periods that are deployed at customer sites would be eligible for the program. Examples of such systems may include technologies like Gas Absorption chillers and Thermal Energy Storage (ice building for cooling) systems. The program is not restricted to offering incentives for any specific technology and encompasses any measure option that enables permanent load shifting, like an energy efficiency lighting upgrade, or process equipment modernization in which a reduction in energy consumption can be verified. This program would be designed in the same manner as the Custom Rebate portion of the C&I Equipment Incentives program.

#### **E. Implementation Strategy**

PECO will implement the Permanent Load Reduction (PLR) program through one or more CSP implementation contractors, directly with end use customers, and architectural, mechanical and electrical engineering/design firms. PECO's role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components or the program
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The key elements in the implementation strategy are:

- Program staff assignment- PECO will select and assign a program manager and an engineer for developing this program, following approval by the Commission.
- Contract with outside implementation contractor- PECO will select and contract program implementation with an outside CSP.

- **Customer Recruitment and Assistance-** Eligible commercial/industrial customers who can install permanent load shifting technologies will be recruited to participate in the program. The contractor will be responsible for customer recruitment, as well as assisting customers with development of estimates and documentation for approval of custom measure projects.
- **Program marketing-** PECO staff along with the contractor will be responsible for distribution of program materials to eligible participants. PECO's account representatives will have primary responsibility for establishing direct communication with the customers in order to promote the program. Direct mail can also be used for program promotion.
- **Customer education-** The contractor will be responsible for educating participants about the program through one-on-one contacts and through training workshops, lectures, and seminars.
- **Incentive processing-** The contractor will be responsible for receiving, review and verifying incentive applications. Incentives can be paid directly by the contractor or submitted to PECO for payment.
- **Reporting-** This will involve reporting of program activities to meet regulatory and internal requirements, including progress toward program goals
- **Program performance tracking and improvement-** This will involve tracking performance of the technologies used for load reduction, incentive submittals and payments, and identification of areas for program improvement.

#### **F. Program Issues, Risks, and Risk Management Strategies**

Unlike the other DR measures, most projects designed for permanent load shift exhibit a documentable reduction in demand for energy. As such once verified, the demand reduction is by definition, permanent. The demand reductions from this program will be realized during the top 100 hours annually.

#### **G. Ramp Up Strategy**

Program participant recruitment activity starts in PY 2009, even though program impacts are not realized in that year since PY 2009 ends May 31, 2010, which is prior to the start of the 2010 DR season.

#### **H. Marketing Strategy**

The marketing strategy for the PLR program will be based on a business to business approach through PECO's account management, in addition to equipment manufactures, trade allies, and engineering & design firms. The implementation contractor(s) will be responsible for distributing information about qualifying technologies and with assisting customers in program participation.

#### **I. Eligible Measures and Incentives**

Examples of technologies that lead to permanent load reduction are:

- Gas Absorption Chiller System
- Thermal Energy Storage System

Incentives are administered, similar to custom rebates in energy efficiency programs, at a level of 21% of per participant cost. For the three measures mentioned here, that effectively translates into incentive levels indicated in the table below.

Measures	Per Participant Annual Incentives (\$/kW)
a. Gas absorption chiller system	\$343
b. Thermal energy storage system	\$350

## J. Program Schedule

### Proposed Permanent Load Reduction Program Schedule

Key Milestone	Timing
Assign PECO program manager and staff	October 2009
Begin final program design	October 2009
Select and contract with program implementation CSP(s)	November 2009
Complete program design	March 2010
Pre-rollout program development: Conduct contractor recruitment and training	October 2009
Program rollout: Launch marketing and outreach Undertake customer education Perform verifications and improvements	April 2010 April 2010 June 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

PECO will work with a third party M&V contractor to design and execute appropriate analyses of a statistically valid set of sites to verify load reductions at individual sites as well as aggregate load reductions achieved.

## L. Administrative Requirements

PECO will administer the program through one or more CSP implementation contractors. PECO's role will be to ensure that the CSP performs all implementation activities related to the program

The program is expected to operate with the following PECO/Contract staffing mix:

### Permanent Load Reduction Program – Proposed PECO/Contract Staffing

Staff	Allocation
Program manager	0.38 FTE in PY 2009 0.5 FTE in PY 2010 through PY 2012
Engineer	0.25 FTE in PY 2009 0.5 FTE in PY 2010 through PY 2012

### M. Estimated Participation

**Permanent Load Reduction—Estimated Participation ('number of participants' or 'units installed' per year)**

	PY 2009	PY 2010	PY 2011	PY 2012
a. Gas absorption chiller system	2	10	15	15
b. Thermal energy storage system	2	3	5	5
<b>Total no. of participants/units installed</b>	<b>9</b>	<b>28</b>	<b>50</b>	<b>50</b>

\*The proposed adjustment will not impact the total cost of the Program as incentives can be offered for other qualifying technologies.

### N. Estimated Program Budget

The table below gives the estimated budget for the PLR Program.

#### Permanent Load Reduction—Estimated Budget

	PY 2009	PY 2010	PY 2011	PY 2012	Total
<b>Customer-Specific Costs</b>					
Incentive Costs	\$223,428	\$747,372	\$1,190,037	\$1,233,180	\$3,394,017
<b>Sub-Total</b>	<b>\$223,428</b>	<b>\$747,372</b>	<b>\$1,190,037</b>	<b>\$1,233,180</b>	<b>\$3,394,017</b>
<b>Direct Labor Costs</b>					
Program Manager	\$56,250	\$77,250	\$79,568	\$81,955	\$295,022
Engineer	\$37,500	\$77,250	\$79,568	\$81,955	\$276,272
<b>Sub-Total</b>	<b>\$93,750</b>	<b>\$154,500</b>	<b>\$159,135</b>	<b>\$163,909</b>	<b>\$571,294</b>
<b>Other Program Services</b>					

Implementation Contractor (CSP) <sup>52</sup>	\$0	\$198,296	\$493,021	\$805,252	\$1,496,569
Umbrella Costs <sup>53</sup>	\$31,218	\$36,462	\$37,556	\$38,683	\$143,918
Evaluation <sup>54</sup>	\$7,639	\$29,464	\$51,618	\$62,313	\$151,035
Education <sup>55</sup>	\$0	\$0	\$0	\$0	\$0
IT System enablement costs	\$0	\$0	\$0	\$0	\$0
Promotion <sup>56</sup>	\$0	\$0	\$0	\$0	\$0
<b>Sub-Total</b>	<b>\$38,857</b>	<b>\$264,221</b>	<b>\$582,196</b>	<b>\$906,248</b>	<b>\$1,791,522</b>
<b>Grand Total</b>	<b>\$356,035</b>	<b>\$1,166,093</b>	<b>\$1,931,368</b>	<b>\$2,303,338</b>	<b>\$5,756,833</b>

## O. Projected Energy Savings and Demand Reduction

### Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
Energy Savings (MWh)	451	6,325	17,607	28,888
Peak Demand Reduction (MW)	0.0	3.9	9.3	14.7

## P. Cost-Effectiveness

- Levelized Cost of saved energy: \$0.045/kWh
- Levelized Cost of saved capacity: \$89/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
PLR Program	\$29	\$19	\$10	1.56

<sup>52</sup> Assume \$50/kW costs for all four program years

<sup>53</sup> Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.

<sup>54</sup> Evaluation costs are assumed to be 3% of program implementation costs

<sup>55</sup> This is the contractor's responsibility, so no costs are incurred by PECO.

<sup>56</sup> This is the contractor's responsibility, so no costs are incurred by PECO.

### 3.2.4 EE Program 4—Home Energy Incentives (HEI)

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#### A. Program Title and Program Years

Program Name: Home Energy Incentives

Program Years: PY 2009 – PY 2012

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

#### B. Objectives

The purpose of the HEI program is to increase the penetration of ENERGY STAR appliances and other high-efficiency measures in the homes of PECO's residential customers. The program enables the adoption of these energy efficiency measures by offering cash rebates for the purchase and installation of qualifying home equipment for lighting fixtures, heating, cooling, appliances, and shell improvements.

The program has several objectives:

- Increase consumers' awareness of the breadth of energy efficiency opportunities in their homes.
- Make significant contribution to PECO's energy savings goals.
- Demonstrate PECO's commitment to and confidence in the measures' performance and their ability to reduce home energy use.
- Strengthen customer trust in PECO as their partner in saving energy.
- Align incentives with other EDCs, where possible.

The HEI program is well-suited for accomplishing these objectives because the rebate-eligible measures are proven technologies about which customers can readily find supporting information; customers are familiar with cash-back rebates from other types of purchases they make, and the itemized list of included measures affords PECO the opportunity to strengthen relationships with upstream suppliers and influence stocking decisions. Furthermore, focus groups conducted in preparation of the program plan indicate that both general residential and low-income customers will be receptive to a prescriptive program such as this.

#### C. Target Market

The target market for the HEI program is all residential customers in PECO's service territory and, in particular, those customers with existing equipment that needs replacing or who can be persuaded to replace early. The target market includes customers in existing single-family homes or multifamily dwellings who are either replacing existing equipment or are purchasing equipment for the first time. Both owners and renters are eligible to participate in the program.

#### D. Program Description

This is a retrofit and renovation program, designed to upgrade existing equipment to higher levels of efficiency.

The HEI program is designed to encourage and assist residential customers in improving the energy efficiency of their homes through a broad range of energy efficiency options that address all major end uses. This program offers cash rebates to residential customers who install high-

efficiency electric equipment and engages equipment suppliers and contractors to promote the rebate-eligible equipment.

The program will promote and provide rebates to help defray the cost of high-efficiency models of common home equipment, with a focus on ENERGY STAR qualified appliances. Featuring ENERGY STAR equipment helps ensure that high-quality measures will be installed, which adds savings reliability and reduces the likelihood of customer dissatisfaction.

### Rebates

- Customers purchase and install qualified products from retailers and/or contractors.
- Customers or their contractors submit rebate form to PECO (or the implementation CSP) with information that documents the qualifying sale/installation. The forms allow customers to see the exact rebate they can receive.
- PECO/CSP mails rebate checks to customers.

## **E. Implementation Strategy**

PECO will administer the HEI program through a CSP implementation contractor.

### Channels for Program Delivery

This program will be delivered mainly through direct contact between PECO and its customers but offers opportunities for working with trade allies and other upstream suppliers.

- PECO develops awareness through direct marketing—e.g., bill inserts, newsletters, website, broadcast and print media, direct mail; and pays the participant rebates.
- The Residential Whole Home Performance program is a natural channel for this program. The audit recommendations will include resource information for the recommended measures, including rebates available under this HEI program.
- The Residential New Construction program is also a natural channel for this program. That program will offer rebates for the installation of packages of measures, rather than individual measures. Owners or builders who participate in the new construction program will be made aware of additional measures that can be installed after construction to further improve the home performance, including installation of ENERGY STAR appliances such as clothes washers or additional lighting fixtures.
- Retailers and equipment contractors/installers may be engaged to promote awareness of and use rebate offers to help sell qualifying equipment; they may also provide or pre-fill rebate forms to help customers obtain rebates. These allies are most likely to include:
  - Residential air conditioning and heating equipment dealers and installers
  - High-efficiency clothes washer and dishwasher dealers
  - Small electrical equipment dealers
- CSPs will implement the program on PECO's behalf, providing assistance with PECO's direct marketing; working with upstream suppliers to stock qualifying measures, promote the program, and assist with rebate applications; providing rebate fulfillment services; and tracking and reporting program activities and achievements toward goals.

### Overview of Roles and Activities

The implementation CSP(s) will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of upstream supplier network to stock and promote program
- Program marketing and education: including development and distribution of program materials in collaboration with PECO and upstream allies; and promotional campaigns in coordination with on-line audits, and the Whole Home Performance program
- Rebate processing: fulfillment house to receive, review and verify applications; and pay or submit to PECO to pay rebates
- Program performance tracking and improvement: including tracking availability of qualifying products, rebate submittals and payments, opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals.

The program is designed so that customers can easily submit rebate applications on their own. However, equipment suppliers and contractors can be very instrumental in achieving program success. Using the rebates and ENERGY STAR quality assurance as selling points, these allies can increase sales of qualifying equipment. They can further assist by aiding in the submittal of the rebate application. Across the country, many retailers will print out an extra receipt, suitable for submittal with the application; provide the customer with the appropriate rebate application; some may even help fill out and submit it.

### Education Overview

Under the program, PECO will educate local dealers and contractors about program procedures and benefits. To further promote good communication, PECO may conduct seminars to familiarize participating dealers and contractors with the structure and procedures of the program. Handouts will likely include specific information about rebate schedules and lists of qualifying high-efficiency models.

Consumer education will be combined with program awareness activities. Through the use of bill inserts, newsletters, on-line information, and direct mail, customers will receive educational information regarding the benefits of and opportunities to save money on energy efficiency upgrades.

### Applicable Collaborative Resources

Several other sources of financial assistance are available to consumers to enable home energy efficiency improvements.

- Keystone HELP<sup>®</sup> Energy Efficiency Loan and Rebate program and Renovate and Repair Loan program offer loans and rebates to Pennsylvania-resident homeowners. Financial incentives are available for installation of high efficiency heating, air conditioning, insulation, and windows. This program is mainly funded by the Department of Environmental Protection, Pennsylvania Treasury Department, and the Pennsylvania Housing Finance Agency; and is administered by AFC First Financial Corporation, a

Pennsylvania energy efficiency lender. Keystone HELP also provides qualified contractor referral listings.

- Nonprofit organizations and state and local governmental agencies have access to grants under the American Recovery and Reinvestment Act of 2009 (ARRA) for the purpose of performing energy efficiency retrofits.

## **F. Program Issues, Risks, and Risk Management Strategies**

The use of prescriptive rebates, that is, fixed per-unit incentives for a specific list of measures, is perhaps the approach with the most history among utility-sponsored energy efficiency programs. Because the measures on the list are well defined and the per-unit rebates are fixed, it is easily understood by customers and easy to administer.

## **G. Ramp Up Strategy**

PECO will contract with an implementation CSP immediately upon approval of the program by the Commission. The PECO/CSP team will lay the groundwork for successful launch of the program by preparing the upstream market for the program with information and in-store displays or labels for qualifying appliance models, and developing marketing and education materials, rebate forms, and protocols for program activity and rebate processing.

## **H. Marketing Strategy**

PECO will select a CSP with experience in promoting residential retrofit incentive programs. In particular, the CSP will have experience working with upstream suppliers; ensuring that in-store information is displayed; processing rebate applications; and ensuring that payment is made for measures that meet the purchase, installation, and documentation requirements.

## **I. Eligible Measures and Incentives**

**Home Energy Incentives Proposed Measures—Per-Unit Deemed Savings, Costs, and Incentives**

<u>Measure</u>	<u>Annual kWh Savings per Unit</u>	<u>kW Savings per Unit</u>	<u>Useful Life of Measure (years)</u>	<u>Increm. Cost per Unit</u>	<u>Incentive per Unit</u>	<u>Unit Definition</u>
Attic / roof insulation		0.890	0.000	20	\$2	\$0.50 per ft <sup>2</sup> roof
ENERGY STAR windows		<u>3.4</u>	<u>0.0003</u>	20	<u>\$15</u>	<u>\$3.75</u> per square foot
ENERGY STAR room AC	98	0.059	10	\$50	<u>\$25</u>	per room AC
ENERGY STAR dehumidifier		<del>54</del> <u>374<sup>9</sup></u>	0.010	12	\$10	\$10 per dehumidifier
ENERGY STAR central AC—14.5 SEER—3 tons		296	0.231	14	\$266	\$150 per CAC
ENERGY STAR central AC—15 SEER—3 tons		381	0.298	14	\$355	\$225 per CAC
ENERGY STAR central AC—16 SEER—3 tons	536	0.418	14	\$533	\$300	per CAC
ENERGY STAR air-source heat pump—14.5 SEER—3 tons		801	0.231	12	\$638	\$250 per heat pump
ENERGY STAR air-source heat pump - 15 SEER - 3 tons	1,045	0.298	12	\$850	\$325	per heat pump
ENERGY STAR air-source heat pump - 16 SEER - 3 tons	1,502	0.418	12	\$1,275	\$400	per heat pump
ENERGY STAR Most Efficient refrigerator	<u>72-100<sup>10</sup></u>	0.013	13	\$65	<u>\$50</u>	per appliance
ENERGY STAR Most Efficient freezer	<u>52-83<sup>10</sup></u>	0.011	13	\$65	<u>\$50</u>	per appliance
ENERGY STAR Most Efficient clothes washer	<u>93.7<sup>11</sup></u>	0.015	11	\$350	<u>\$50</u>	per appliance
ENERGY STAR dishwasher			0.023	11	\$45	<del>\$25</del> per appliance
ENERGY STAR lighting fixtures		<u>94.5<sup>14</sup></u>	0.002	20	\$25	\$10 per fixture
ENERGY STAR heat pump water heater	<u>1,914-2,202<sup>12</sup></u>	<u>0.175-0.202<sup>12</sup></u>	10	\$850	\$300	per water heater
High-efficiency electric water heater .95 Energy Factor (EF)	<u>217<sup>12</sup></u>	<u>0.0199<sup>12</sup></u>	<u>14</u>	\$50	\$25	per water heater
ENERGY STAR LED lamps	631-361 <sup>13</sup>	0.000480.0 0.0266-- 0.00266.00 36 <sup>13</sup>	20	\$35	\$15-up to 50% of incremental cost	per lamp
ENERGY STAR High-efficiency gas furnace (fuel switching from BB)	12,000	0.000	18	\$3,338	\$1,000	per furnace

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
ENERGY STAR High-efficiency gas furnace (fuel switching from HP)	10,000	0.000	18	\$2,138	\$550	per furnace
ENERGY STAR High-efficiency gas water heater (fuel switching)	4,100	0.100	13	\$744	\$250	per water heater
Whole house fan		266	0.000	10	\$350	\$90 per fan
White roof		0.350	0.000	20	\$0.70	\$0.17 per ft <sup>2</sup> roof
Ground-source heat pump	1,531	0.055	30	\$2,163	\$217	per ton

10 Per Pennsylvania Technical Reference Manual (TRM) – kWh is dependent on appliance model number.

11 Weighted average of deemed values in the TRM using the results from the PECO territory Residential Saturation Survey PECO EE&C filing dated July 1, 2009 Volume IV of V Appendix E-2.12 Per Interim TRM Measure Protocol.

13 Represents a range of kWh and kW based on Custom Measure Protocol approved by the SWE.

### Measures

The measures eligible for incentives under this program are prescriptive. That is, all eligible measures will be defined and listed for customers. Custom measures are not part of this program.

### Incentives

Incentives will be paid in the form of cash-back rebates. Incentives for the individual measures range from 10% to 100% of the incremental measure cost, with the majority covering less than 40%. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative. Varied incentive rates are consistent with other program practices. This generally reflects the variation in the maturity of measure adoption by consumers. Furthermore, when the program design is finalized, the rebate application form can allow for incentives that vary even within a measure. For example, for central air conditioning, higher incentives will be offered for higher SEER levels.

### **J. Program Schedule**

The HEI program will operate during PY 2009 through PY 2012. This program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2, and rolled out to the public during PY 2009 Q3. The following table provides a schedule of key milestones:

### Proposed Residential Home Incentives Implementation Schedule

Key Milestone	Timing
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP(s)	November 2009
Complete program design	December 2009
Pre-rollout program development: Develop upstream network Develop in-store, on-line information Prepare marketing materials and rebate forms Develop activity and rebate processing protocols	September – December 2009
Program rollout: Launch consumer education, marketing, and outreach All program services	January 2010 January 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

#### K. Evaluation, Measurement, and Verification Requirements

The evaluation methodology and data collection proposed for the HEI program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

##### Metrics for Gauging Program Success

Primary:

- Number of measures purchased/installed
- Energy savings associated with purchased/installed measures
- Customer satisfaction with the program and the products
- Program implementation costs incurred

Secondary:

- Distribution of measure popularity and cost-effectiveness of the program

- Increase in number and variety of suppliers who stock qualified products

#### Data Collection Approaches

- Impact Evaluation
  - Tracking system data for all projects
  - On-site inspection of a sample of projects to verify operation as reported
  - Customer surveys to assess likelihood of purchase without availability of program services and incentives and identify post-participation purchases outside the program (free-rider and free-driver impacts)
- Process Evaluation—Evaluation of program design and implementation will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:
  - Surveys of target market customers (participants and nonparticipants)
  - Surveys of appliance suppliers and service providers who participate and/or promote the program
  - Interviews with the implementation CSP and PECO program staff
  - Review of program documents and tracking system data

#### Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed, using the per-unit deemed savings values. Because measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing analyses or metering studies. However, some projects will be inspected for independent verification of installation and operation as reported. This is assumed based on PECO's understanding of using deemed savings as outlined in the TRM.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Post-surveys with participating customers will be used to estimate the net-to-gross ratio accounting for free-riders and free-drivers. Customers will be asked to provide information regarding whether they would have purchased the rebated items without the PECO promotion, whether they installed the items, and whether they subsequently purchased additional rebate-eligible items at full cost. This outline of the self-report methodology for the assessment of net impacts describes only the basic approach. The selected M&V contractor will develop the complete plan that ensures the appropriate measurement of savings in compliance with industry and State protocols.

#### Process Evaluation Methodology

Program process evaluation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluation will be undertaken and conducted throughout the program by the implementation and M&V contractors selected by PECO.

Process evaluation will assess customer understanding, attitudes about, and satisfaction with the program and with PECO's other educational activities and materials associated with the launch of PECO's EE&C Plan. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants.

Interviews with program service providers will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the marketing and educational materials, effectiveness of advertising and promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use sales and promotion data maintained by the implementation CSP, information provided by PECO, and customer survey data.

**L. Administrative Requirements**

PECO will administer the HEI program through a CSP implementation contractor. PECO's role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO staffing mix:

**Home Energy Incentives Program—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	1.125 FTE in PY 2009 (0.75 yr. @ 1.5 FTE), 1.5 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.5 FTE in PY 2009, 1.0 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

Participation and measure adoption estimates were developed based on existing homes in PECO's service territory and an assessment of the attainable market potential in the area, as well as the experience of other organizations that have offered this type of program.

**Home Energy Incentives Program—Estimated Participation  
(number of installations/year)**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
Attic / roof insulation	1,165	4,095	4,700	4,720	14,680
ENERGY STAR windows	1,165	4,095	4,700	4,720	14,680
ENERGY STAR room AC	641	2,253	2,585	2,596	8,075
ENERGY STAR dehumidifier	117	410	470	472	1,469
ENERGY STAR central AC	685	2,406	2,762	2,773	8,626
ENERGY STAR air-source heat pump	59	205	235	236	735
ENERGY STAR refrigerator	1,457	5,119	5,875	5,900	18,351
ENERGY STAR freezer	379	1,331	1,528	1,534	4,772
ENERGY STAR clothes washer	1,311	4,607	5,288	5,310	16,516
ENERGY STAR dishwasher	1,064	3,737	4,289	4,307	13,397
ENERGY STAR lighting fixtures	2,330	8,190	9,400	9,440	29,360
ENERGY STAR heat pump water heater	362	1,270	1,457	1,464	4,553
High-efficiency electric water heater	362	1,270	1,457	1,464	4,553
LED lamps	3,495	12,285	14,100	14,160	44,040
ENERGY STAR Programmable thermostat	548	1,925	2,209	2,219	6,901
ENERGY STAR High- efficiency gas furnace (fuel switching from BB)	105	369	423	425	1,322
ENERGY STAR High- efficiency gas furnace (fuel switching from HP)	47	164	188	189	588
ENERGY STAR High- efficiency gas water heater (fuel switching)	804	2,826	3,243	3,257	10,130
Whole-house fan	1,165	4,095	4,700	4,720	14,680
White roof	1,165	4,095	4,700	4,720	14,680
Ground-source heat pump	268	942	1,081	1,086	3,377

**N. Estimated Program Budget**

Approval of the plan is anticipated in PY 2009 Q2, resulting in less than a full year of program operation during the first program year. The cost estimates reflect this timing.

### Home Energy Incentives Program—Proposed Budget

	PY 2009	PY 2010	PY 2011	PY 2012	Total
PECO Admin Labor	\$228,750	\$355,350	\$366,011	\$376,991	\$1,327,101
Implementation Contractor	\$500,356	\$1,860,445	\$3,627,636	\$3,441,939	\$9,430,377
Umbrella Costs	\$255,555	\$359,367	\$370,148	\$381,252	\$1,366,323
Program-Specific Education	\$150,000	\$309,000	\$318,270	\$327,818	\$1,105,088
IT Enablement Costs	\$20,872	\$21,498	\$22,143	\$22,808	\$87,322
Promotion	\$479,128	\$1,008,502	\$508,307	\$523,556	\$2,519,492
M&V	\$98,273	\$297,193	\$368,955	\$372,144	\$1,136,565
Incentives	\$1,661,970	\$6,013,758	\$7,108,136	\$7,353,255	\$22,137,119
<b>Total</b>	<b>\$3,394,904</b>	<b>\$10,225,113</b>	<b>\$12,689,606</b>	<b>\$12,799,763</b>	<b>\$39,109,387</b>

The program costs were estimated using the following information and estimates:

- The figures in the table above include a cost escalation of 3% per year. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes upstream network development; rebate application tracking and incentive fulfillment; contractor and retailer education and outreach; program monitoring and improvement, tracking system entry, and reporting.
- Umbrella Costs—Each program in the plan will pay a proportional share of the costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development, EE&C Plan development costs, and for residential on-line energy audit.
- Program-Specific Education—Assumed education costs for this program are \$300,000 per full program year, with bill inserts plus on-line and print materials in PY 2009 and some combination of bill inserts and materials in each year thereafter.
- Promotion—For media ads to promote the program. This is a large program within the residential sector and will be heavily advertised. Cost is estimated at nearly \$500,000 in PY 2009 (not a full operating year), \$1 million in PY 2010, and \$500,000 annually in PY 2011 and PY 2012.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs), which is at the low end of the industry average because no metering or bill analysis will likely be required.
- Incentives—The total incentives are based on the estimated savings in each program year. Overall, incentives represent 57% of the total program budget over the four program years.

## O. Projected Energy Savings and Demand Reduction

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values indicated in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers through the program in that year plus the impact of measures still in operation from previous years.

### Home Energy Incentives—Cumulative Energy and Peak Demand Savings Estimates

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>
MWh Savings	10,007	45,156	85,485	125,994
Peak MW Reduction	0.451	2.035	3.853	5.679

## P. Cost-Effectiveness

### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.302/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.310/kWh

### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.049/kWh
- Levelized Cost of Reduced Peak Demand: \$1,095/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Home Energy Incentives	\$136	\$85	\$51	1.60

## Q. Re-filing Plan Adjustment 09/15/10

Based on PECO experience with Smart Home Rebates measures in the first program year, the overwhelming popularity of certain rebates, and the SWE's recommendation of recognizable kWh savings, PECO has requested changes and additional measures as specified in Section 3.2.4.I and the table below. The following measures were not included in PECO's Plan, but are approved in the TRM, have Interim TRM Protocols, or are under final review with SWE.

## Eligible Measures and Incentives

<u>Measure</u>	<u>Annual kWh Savings per Unit</u>	<u>kW Savings per Unit</u>	<u>Useful Life of Measure (years)</u>	<u>Increm. Cost per Unit</u>	<u>Incentive per Unit</u>	<u>Unit Definition</u>
<u>Ceiling Fan with ENERGY STAR Light Fixture</u>	<u>180</u>	<u>0.01968</u>	<u>10</u>	<u>\$27</u>	<u>\$10</u>	<u>per fixture</u>
<u>ENERGY STAR Outdoor Light Fixture</u>	<u>135</u>	<u>0</u>	<u>20</u>	<u>\$10</u>	<u>\$10</u>	<u>per fixture</u>
<u>High-efficiency electric water heater .93 EF</u>	<u>133</u>	<u>0.0122</u>	<u>14</u>	<u>\$50</u>	<u>\$25</u>	<u>per water heater</u>
<u>High-efficiency electric water heater .94 EF</u>	<u>175</u>	<u>0.0161</u>	<u>14</u>	<u>\$50</u>	<u>\$25</u>	<u>per water heater</u>
<u>Ground Source Heat Pump Desuperheater</u>	<u>1,842</u>	<u>0.34</u>	<u>10</u>	<u>\$850</u>	<u>\$250</u>	<u>per unit</u>
<u>ENERGY STAR 4.0 Television<sup>14</sup></u>	<u>125</u>	<u>0.010</u>	<u>12</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>Smart Strip</u>	<u>184</u>	<u>0.013</u>	<u>5</u>	<u>\$20</u>	<u>\$10</u>	<u>per unit</u>
<u>ENERGY STAR 5.0 Television<sup>14</sup></u>	<u>150</u>	<u>0.010</u>	<u>12</u>	<u>\$0</u>	<u>\$15</u>	<u>per unit</u>
<u>ENERGY STAR 5.0 Desktop Computer</u>	<u>77</u>	<u>0.010</u>	<u>4</u>	<u>\$0</u>	<u>\$7.50</u>	<u>per unit</u>
<u>ENERGY STAR 5.0 +10% Monitor</u>	<u>14</u>	<u>0.0019</u>	<u>5</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>ENERGY STAR Laser Fax Machine</u>	<u>78</u>	<u>0.0105</u>	<u>4</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>ENERGY STAR Copier - Monochrome</u>	<u>73 - 162</u>	<u>-0.0098 - 0.0218</u>	<u>6</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>ENERGY STAR Laser Printer - Monochrome</u>	<u>26 - 329</u>	<u>-0.0035 - 0.0443</u>	<u>5</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>ENERGY STAR Multifunction Laser Printer - Monochrome</u>	<u>78 - 730</u>	<u>-0.0105 - 0.0984</u>	<u>6</u>	<u>\$0</u>	<u>\$10</u>	<u>per unit</u>
<u>Residential Furnace Whistle (with electric heat)</u>	<u>111</u>	<u>0.000</u>	<u>18</u>	<u>\$10</u>	<u>\$3</u>	<u>per unit</u>
<u>Electroluminescent Nightlight</u>	<u>26</u>	<u>0.000</u>	<u>8</u>	<u>2.50</u>	<u>\$2</u>	<u>per unit</u>
<u>LED Nightlight (1W LED)</u>	<u>22</u>	<u>0.000</u>	<u>8</u>	<u>\$10</u>	<u>\$6</u>	<u>per unit</u>
<u>Faucet Aerator - Kitchen (with electric water heating)</u>	<u>175</u>	<u>0.000</u>	<u>10</u>	<u>\$10</u>	<u>\$3</u>	<u>per unit</u>
<u>Faucet Aerator - Bathroom (with electric water heating)</u>	<u>350</u>	<u>0.000</u>	<u>10</u>	<u>\$10</u>	<u>\$3</u>	<u>per unit</u>
<u>Shower Head (with electric water heating)</u>	<u>355</u>	<u>0.000</u>	<u>10</u>	<u>\$33</u>	<u>\$3</u>	<u>per unit</u>

<sup>14</sup>Protocols to be submitted to and approved by the SWE before moving forward.

### **3.2.6EE Program 6—Appliance Pickup**

#### **A. Program Title and Program Years**

Program Name: Appliance Pickup

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Appliance Pickup program is to eliminate a very inefficient usage of electricity in homes: the retention of refrigerators, freezers, and room air conditioners for use as secondary units. This is a two-pronged goal: to remove existing secondary units from operation and to prevent existing primary refrigerators, freezers, and room air conditioners from being retained and used as secondary units when customers purchase new units.

The program has several objectives:

- Transform attitudes about retaining older, less efficient refrigerators, freezers, and room air conditioners as secondary units.
- Accrue energy savings and demand reductions toward PECO's goals.
- Demonstrate PECO's commitment to good stewardship of the environment by sponsoring proper disposal of units.

Appliance Pickup is well-suited for accomplishing these objectives because: consumers are more willing than ever to help safeguard the environment and adopt behaviors that save energy without compromising their lifestyles. The program makes it convenient and cost-effective for customers to dispose of these older units, overcoming a past barrier to getting rid of them.

The focus groups conducted in preparation of this plan indicated that many residential customers, including low-income customers, would participate in this program, especially if they have assurance that the units will be disposed of properly and there are financial incentives.

#### **C. Target Market**

The eligible population for the Appliance Pickup program is all residential customers in PECO's service territory.

The target market of residential customers for the Appliance Pickup program has a short-term and a longer-term component. Respectively, these are residential customers who currently own and operate secondary refrigerator, freezer, or room air conditioning units and customers who are purchasing new replacement units.

#### **D. Program Description**

The Appliance Pickup program is designed to eliminate retention of old refrigeration equipment from operation as secondary units in homes and to provide safe disposal of these units. The program offers free pickup of units from residences plus customer incentives and education about the benefits of secondary unit disposal, to encourage their participation.

In addition to educating residential customers about the benefits of secondary unit disposal, the program provides services to enable disposal of the units. The two program components are:

- **Customer Incentives**—including complimentary removal of existing or potential secondary units from customer’s home, plus payment of a small incentive for each unit removed
- **Environmental Disposal of Units**—including removal of CFCs for the refrigerant, the preparation of the refrigerant for reclamation or recycling, and the recycling of other materials such as the metal and plastic components

#### Customer Incentives

- Pickup of units from homes will be by appointment directly with the service provider.
- CSP mails incentive checks to customers after units have been removed.
- To qualify, refrigerator, freezer, or room air conditioning units must be in working condition, meet minimum size requirements, and be readily accessible for removal.
- Households are eligible to receive rebates for up to two refrigerators and one freezer, per program year. Room air conditioners are eligible as part of refrigerator or freezer pick up.

#### Environmental Disposal of Units

- Units will be removed to a collection facility and disassembled for environmentally responsible disposal of CFCs and recycling of remaining components.

### **E. Implementation Strategy**

PECO will administer the Appliance Pickup program through a CSP implementation contractor. The selected CSP will have a demonstrated record of providing exactly the services to be offered in this program and responsibly disposing of the units.

#### Channels for Program Delivery

- PECO develops awareness through direct marketing—e.g., bill inserts, newsletters, website, broadcast and print media, direct mail; and pays the participant incentives.
- Appliance dealers are excellent channels to provide information about this program because they interact with the target market at the time of replacement purchase decisions. Since many dealers offer free removal of existing units to close a sale, utilizing the services of the program contractor to remove the old units can save them money.
- The CSP will implement the program on PECO’s behalf, including providing assistance with PECO’s direct marketing and advertising, providing consumer education, recruiting participants, providing rebate fulfillment services, tracking program activities, and reporting activities and achievements toward goals.
- The Appliance Pickup program will be also be promoted to participants of the Home Energy Incentives and the Whole Home Performance programs.
- PECO will look to partner with other EDCs for potential cost efficiencies.

#### Overview of Roles and Activities

The appliance dealer channels can provide information about and facilitate participation in the program. And instead of incurring the cost of removing the old units themselves, they can coordinate or help customers schedule appointments with the appliance removal contractor.

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of facilities and protocols for removal and disposal of qualifying units
- Program marketing and education: including development and distribution of program materials in collaboration with PECO; education and engagement of appliance dealers; and program promotion
- Scheduling of pickups from customer homes, verification of unit qualification for complimentary removal and incentive payment, pickup and proper disposal of units
- Rebate Processing: fulfillment house to receive, review and verify documentation; and either pay incentives or submit incentives to PECO for payment
- Program performance tracking and improvement: including tracking of unit qualification, removal and disposal; rebate submittals and payments; and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

## **F. Program Issues, Risks, and Risk Management Strategies**

The Appliance Pickup program is perhaps the simplest program to operate. PECO will select an implementation CSP with a demonstrated record of providing the services to be offered in this program and responsibly disposing of the units. It is likely that a single provider can be engaged to perform or subcontract for performance of all the necessary services.

Experience at other utilities and discussions with contractors, however, suggest that the cost effectiveness of this program hinges on volume. Unit disposal costs can be reduced by ensuring higher volumes. The implementation CSP will need to use extensive and effective marketing to obtain the volumes.

Removal of old units requires site-to-site pickups. If the distances involved in more remote pickups will significantly increase unit costs, the program can target particular urban regions and be marketed community by community with mailings and local newspaper and radio advertisements. Customer demographic data, such as the appliance saturation survey conducted in preparation of this plan, can be used determine if some areas have greater-than-average saturations of secondary refrigerators, freezers, and room air conditioners. If so, these areas would be effective places to initiate this component of the program.

## **G. Ramp Up Strategy**

While the Appliance Pickup program is relatively simple and readily understandable to customers, it will nonetheless take time for customers to gain comfort with and trust in the program. Participation targets for the first year of operation are low. Once the message is disseminated, it is anticipated that acceptance will grow rapidly and steadily.

## **H. Marketing Strategy**

PECO will select a CSP with experience providing appliance pickup as a fully turnkey program, including a marketing strategy. The implementation CSP will have already developed outreach

strategies and educational materials to market the program. This is a well-established type of program, operated by experienced CSPs whose ability to succeed rests on the volume of participants they can recruit.

### I. Eligible Measures and Incentives

#### Appliance Pickup Proposed Measures—Per-Unit Deemed Savings and Incentives

Unit Savings & Incentives	Annual kWh Savings per Unit	kW Savings per Unit	Incentive per Unit	Unit Definition
Room AC—removal of second unit	353	0.6395	\$10	per appliance
Refrigerator - removal of second unit	1,728659	0.2382057	\$35-up to \$35	per appliance
Freezer - removal of second unit	1,728659	0.2382057	\$35-up to \$35	per appliance
Refrigerator/Freezer – replacement	1,205	0.1494	up to \$35	per appliance

~~Room air conditioners are only eligible for pickup and rebates when a qualifying refrigerator or freezer is picked up at the same time.~~

In addition to cash incentives, customers receive the added benefit of no-cost removal of units from their homes. Often, consumers must pay an additional cost for removal and safe disposal when replacing old primary units.

## J. Program Schedule

The Appliance Pickup program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2, and rolled out to the public during PY 2009 Q3. The program will operate during PY 2009 through PY 2012. The following table provides a schedule of key milestones:

**Proposed Appliance Pickup Implementation Schedule**

<b>Key Milestone</b>	<b>Timing</b>
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	December 2009
Pre-rollout program development: Establish disposal site(s) and procedures CSP develop relationships with appliance retailers Develop procedures for tracking activities and documenting results	September – December 2009
Program rollout: Launch consumer marketing and outreach Pick up and dispose of units	January 2010 January 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP Reports to Commission	Monthly throughout program implementation period Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

The evaluation methodology and data collection proposed for the Appliance Pickup program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

- Number of existing secondary units removed
- Number of primary units replaced and prevented from operation as secondary units
- Energy savings associated with removed units
- Customer satisfaction with the program
- Program implementation costs incurred

- Increase in awareness and receptivity to secondary appliance turn-in

### Data Collection Approaches

Data for evaluating the program will come from the following sources:

- Engineering or TRM estimates of measure savings
- Local weather data
- Follow-up surveys of residential customers contacted from customer information provided on the rebate applications and from PECO customer information system (for nonparticipants)
- Tracking of dealers engaged in promoting the program and assisting customers with rebate application submittal
- Program implementer/PECO staff surveys

### Impact Evaluation Methodology

The program will use deemed per-unit savings estimates to determine savings. The impact evaluation can either accept these values or use engineering estimates to calculate the savings associated with the reduction in refrigerator, freezer load, and air conditioner loads that result from the program. Additional data will be obtained from program records and a survey of program participants. The additional data will include information on customer operating conditions before the units are recycled as part of the program.

Post-participation surveys with participating customers will be used to review and revise as necessary the net-to-gross ratio accounting for free-riders and free-drivers. Customers will be asked to provide information regarding whether they would have disposed of the qualifying units without the PECO incentives, and whether they subsequently disposed of additional units on their own.

The critical issue in the impact evaluation will be the acquisition of valid and reliable survey data. The process evaluation will be used to monitor the data-tracking system that the recycling contractor uses to ensure the validity of the impact evaluation calculations. This outline of the self-report methodology for the assessment of net impacts describes only the basic approach. The selected M&V contractor will develop the complete plan that ensures defensible measurement of savings in compliance with industry and state protocols.

### Process Evaluation Methodology

The process evaluation will focus on program delivery, administration, implementation and customer response. Key issues will include assessment of the marketing and promotional efforts, monitoring of the contractor data-tracking system, and implementation procedures to ensure that the program is being implemented as designed.

The data collection techniques for the process evaluation will include in-person interviews with utility staff and the recycling contractors, on-site inspection of a sample of participant homes, and a survey of sample of participant homes. The interviews will focus on program implementation and administrative procedures. Site visits will be used to review contractor implementation procedures.

The participant survey will include questions on customer characteristics, equipment operating conditions, reasons for participation, program satisfaction, and response to promotional efforts.

In the first year of the program, the focus of the process evaluation will be to assess if the program is operating as planned and if the contractor is carefully maintaining records on program-related equipment. In the second year, the process evaluation will assess how well any program recommendations from the first-year process evaluation are being implemented. In subsequent years, the evaluation will continue to monitor program implementation.

**L. Administrative Requirements**

PECO will administer the Appliance Pickup program through a CSP implementation contractor. PECO's role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program implementation contractor is expected to operate a complete turnkey program with minimal assistance from PECO staff. PECO staffing is limited to:

**Appliance Pickup Program – Proposed PECO/Contract Staffing**

Staff	Allocation
Program manager: Responsible for final design and launch of program, and administering and overseeing CSP.	0.375 FTE in PY 2009 (0.75 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

Estimated household participation is based on a combination of electric equipment saturation and demographic data from the saturation survey conducted in preparation of this plan, as well as the experience of other utilities that have offered this type of program.

Participation and measure adoption estimates were developed based on existing homes in PECO's service territory, an assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program. This includes information from experienced vendors, who confirmed that the estimates of units to be removed under the program are quite attainable.

**Appliance Pickup Program—Estimated Participation  
(number of units removed/year)**

	PY 2009	PY 2010	PY 2011	PY 2012	Total
Room AC units	500	1,500	1,500	1,500	5,000
Refrigerators	3,350	10,050	10,050	10,050	33,500
Freezers	1,700	5,100	5,100	5,100	17,000

## N. Estimated Program Budget

Each program year (PY) runs from June 1 of the year through May 31 of the following year. Approval of the plan is anticipated in PY 2009 Q2, with less than full year of program operation. The cost estimates reflect this timing.

### Appliance Pickup Program—Proposed Budget

	PY 2009	PY 2010	PY 2011	PY 2012	Total
PECO Admin Labor	\$56,250	\$77,250	\$79,568	\$81,955	\$295,022
Implementation Contractor	\$505,000	\$1,560,450	\$1,607,264	\$1,655,481	\$5,328,195
Umbrella Costs	\$62,576	\$87,138	\$89,752	\$92,445	\$331,911
Program-Specific Education	\$0	\$0	\$0	\$0	\$0
Promotion	\$101,000	\$312,090	\$321,453	\$331,096	\$1,065,639
M&V	\$27,797	\$79,810	\$82,204	\$84,670	\$274,482
Incentives	\$189,250	\$584,783	\$602,326	\$620,396	\$1,996,754
<b>Total</b>	<b>\$941,874</b>	<b>\$2,701,521</b>	<b>\$2,782,566</b>	<b>\$2,866,043</b>	<b>\$9,292,004</b>

The program costs were estimated using the following information and estimates:

- The figures in the table above include a cost escalation of 3% per year. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes customer and appliance dealer recruitment, education, rebate processing, unit pickup and recycling, program tracking and improvement, and reporting as described above.

Experience with other programs suggests that the average cost of all the above implementation activities is \$100 per refrigerator or freezer removed and \$25 per room air conditioner removed at the same time as refrigerator or freezer.

- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development, EE&C Plan development costs, and for residential on-line energy audit.
- Program-Specific Education—These are already included in the general education portion of the Umbrella Costs and the CSP Implementation costs noted above.
- Promotion—Implementation contractor will perform all required promotion. Experience with other programs suggests that the cost of promotion averages out to about \$20 per pickup, the value included in this budget.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs), at the low end of industry average because no metering or bill analysis will likely be required.

- Incentives—The total incentives are based on the estimated savings in each program year. Overall, the incentives represent 21% of the total program budget over the four program years.

**O. Projected Energy Savings and Demand Reduction**

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values indicated in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region. These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from appliances removed through the program in that year plus the impact of appliances removed from previous years.

**Appliance Pickup Program—Cumulative Energy and Peak Demand Savings Estimates**

	PY 2009	PY 2010	PY 2011	PY 2012
MWh Savings	7,494	29,977	52,460	74,944
Peak MW Reduction	1.441	5.764	10.087	14.410

**P. Cost-Effectiveness**

Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.122/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.124/kWh

Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.010/kWh
- Levelized Cost of Reduced Peak Demand: \$50/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Appliance Pickup	\$64	\$6	\$57	9.91

**Q. Re-filling Plan Adjustment 09/15/10**

Based on a review by the SWE, the kWh savings associated with a recycled room air conditioning ("A/C") unit changed from 1,147 kWh, which was utilized in PECO's approved Plan, to 353 kWh. Accordingly, PECO is proposing that the rebate amount for this measure be reduced to better align with the approved kWh savings.

***Proposed Changes to Recycled Window A/C Unit Rebate Amount***

<b>Measure</b>	<b>Current Incentive</b>	<b>Proposed Incentive</b>	<b>Approved Plan kWh savings</b>	<b>Revised kWh Savings</b>	<b>kW</b>
Appliance Recycling – Room Air Conditioner Pick up with refrigerator or freezer	\$25	\$10	1,147	353	0.6395

### **3.2.7 EE Program 7—Commercial/Industrial Equipment Incentives**

#### **A. Program Title and Program Years**

Program Name: Commercial & Industrial Equipment Incentives

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Commercial & Industrial Equipment Incentives program is to increase awareness of energy savings opportunities and assist customers in acting on those opportunities to decrease energy usage in commercial and industrial facilities and in master-metered multifamily residential buildings.

This program is designed for retrofit and replacement projects. (The Commercial & Industrial New Construction program addresses major renovation and new facility construction projects.)

The program has several objectives:

- Increase consumers' awareness and understanding of the breadth of energy efficiency opportunities in their facilities.
- Make it easier for customers to adopt more energy-efficient equipment and equipment maintenance.
- Make a significant contribution to attainment of PECO's energy savings goals.
- Demonstrate PECO's commitment to and confidence in the measures' performance and their ability to reduce business customer energy use.
- Strengthen customer trust in PECO as their partner in saving energy.
- Align incentives with other EDCs, where possible.

Results of focus groups conducted in preparation of the program plan indicate that commercial and industrial customers in general, and business customers in particular, are the most comfortable with this type of program and most said they would likely participate.

#### **C. Target Market**

The eligible customer population for the Commercial & Industrial Equipment Incentives program is all existing commercial and industrial accounts, including master-metered multifamily housing facilities, provided with electricity by PECO, except for government, public, and non-profit facilities (see the Government/Public/Non-Profit Facility Energy Savings program).

There are approximately 153,400 business accounts in this sector overall, with the following makeup:

- Small businesses—145,000 accounts with demand <100 kW
- Medium C&I facilities—6,500 accounts with demand 100-500 kW
- Large C&I facilities—1,900 accounts with demand >500 kW

Within the target market, the focus for this program is the equipment retrofit or change-out market; that is, customers with existing equipment that needs replacing or who can be persuaded to replace their equipment early.

#### **D. Program Description**

The Commercial & Industrial Equipment Incentives program is designed to encourage and assist nonresidential customers in improving the energy efficiency of their existing facilities through a broad range of energy efficiency options that address all major end uses and processes. This program offers incentives to customers who install high-efficiency electric equipment and engages equipment suppliers and contractors to promote the incentive-eligible equipment.

The program has the following components, to accommodate the variety of customer needs and facilities in this sector:

- Two types of financial incentives for installation of energy efficient equipment:
  - Prescriptive Incentives—deemed per-unit savings for itemized measures; easy and appropriate for relatively low-cost or simple measures
  - Custom Incentives—paid on fixed per kWh or kW basis; more complex process and appropriate for larger and more complex projects, often with multiple measures
- Measures and assistance for different types of commercial and industrial customers:
  - Small Business track—specialized outreach to promote and enable mostly prescriptive measures best suited to smaller facilities, with eligibility to install custom measures as well. In addition, PECO will offer each small business three CFLs free of charge
  - Medium and Large Commercial & Industrial tracks—emphasis on flexibility of custom projects to address variety of business and industrial process energy improvements, with availability of prescriptive measures
- Customer referrals to qualified audit providers who can help customers identify appropriate and cost-effective retrofit opportunities

#### **Prescriptive Measure Incentives**

- Quick and easy incentive application for measures with known and reliable energy savings. No pre-approval required.
- Customers purchase and install qualified products from retailers and/or contractors.
- Customers or their contractors submit incentive form to PECO with information that documents the qualifying sale/installation. The form allows customers to see the exact incentive they can receive. PECO mails rebate checks to customers or their contractors.
- The prescriptive incentives are cash-back rebates that generally cover a portion of the incremental cost of the qualifying models; that is, the cost premium of qualifying models over less-efficient models available.

### Custom Project Incentives

- Provides financial incentives on projects not suitable for prescriptive incentives because of size or multiple types of equipment involved.
- More complex offering, with the following services and requirements:
  - Review design/specification and savings estimates for completeness and applicability of incentives
  - Pre- and post-project inspections to estimate and verify savings
  - Incentives paid on a fixed \$/kWh basis
- Examples of custom projects include chiller replacements, air compressor improvements, ~~retro-commissioning projects~~, and experimental technologies.

### Drop Shipment of CFLs for Small Businesses

- Designed to promote awareness of the program, educate business customers on the ease and benefits of using CFLs, and encourage additional energy efficiency actions by small businesses.
- PECO will offer to provide each small business with three CFL bulbs, at no charge to the customer.
- Promote through direct mail about the offer with a mail-back coupon that allows customers to select from an array of standard and specialty lamps.
- Upon receipt of mail-back coupon, the three bulbs will be mailed directly to the customer.

## **E. Implementation Strategy**

PECO will administer the Commercial & Industrial Equipment Incentives program through a CSP implementation contractor.

### Channels for Program Delivery

Effective implementation of the program depends on all aspects of the delivery working effectively. This includes making qualifying products available, distributing information about the products and the program, promoting the program adequately, and educating those influential in making product selection and purchasing decisions.

- **Product Supply**
  - Equipment suppliers—Vendors are influential in equipment selection in commercial and industrial facilities. They can be and should be engaged to recommend rebate-eligible models of equipment for retrofit and replacement projects. As appropriate, the incentives for equipment purchased under the program can be split or directed to these vendors.
  - Other trade allies—Installation and maintenance contractors can provide services associated with some of the qualifying measures, such as HVAC diagnostic tune-ups, identifying and sealing air and duct leaks, and refrigeration system maintenance.

Again, as appropriate, incentives offered on qualifying measures can be directed to or split with these providers to encourage them to promote program participation.

- **Program and Product Information Distribution**
  - Trade allies—As both deliverers of program products and potential participants in the program, all vendors of the qualifying equipment and service measures should be engaged to receive and also provide to their public sector clients information about the program measure benefits, how the program works, and assistance with the incentive process.
  - Utility staff—While PECO will engage a CSP to implement the program, the staff has ongoing contact with all key account customers. The staff will provide information about the program benefits, measures, and process.
  - Conservation service providers—The implementation CSP will develop and distribute information about the qualifying products and participation assistance by establishing and leveraging existing relationships with the product and service suppliers.
- **Program Promotion**
  - Trade allies—All vendors of the qualifying equipment and service measures should be engaged to make their clients aware of the program and encourage their participation by recommending high-efficiency equipment models and diagnostic services.
  - Facility auditors—Part of auditors' services can and should include making customers aware of this program and the incentives available for installation of high-efficiency measures.
  - Bill inserts to all and direct mail to subsegments within this target market; e.g., small businesses.
  - CSP—A key responsibility of the implementation CSP is outreach and effective promotion of the program to the target market.
- **Education: Opportunities to educate both the trade allies, who themselves are potential participants and delivery channels, and facility managers include:**
  - Bill inserts and/or direct mail
  - Trade publication articles on the benefits of specific measures, technologies, and diagnostic tune-ups, as well as whole facility assessments
  - Trade industry meetings leveraged to include product and program education as part of them
  - Workshops provided by government agencies for commercial and industrial businesses to understand how to improve energy use in their facilities
  - Facility audit reports
  - CSPs (includes industry and technology experts) who meet individually with facility decision makers during outreach and project development

## Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of relationships with equipment and maintenance suppliers to make incentive-eligible equipment and services available and to promote their participation in the program
- Program marketing: including development and distribution of program materials and assistance with direct mail or other promotion in collaboration with other PECO contractors
- Participant recruitment and assistance: including assisting customers and contractors with selection of measures and incentive application submittal, assisting customers and contractors with development of estimates and documentation for approval of custom measure projects
- Rebate processing: including a fulfillment house to receive, review and verify applications; and either pay or submit the financial incentives to PECO for payment
- Program performance tracking and improvement: including tracking availability of qualifying products, rebate submittals and payments, and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, including progress toward program goals

#### Education Overview

The program will provide and leverage education provided by other groups to ensure that program channels and participants have the understanding and tools to make the program successful. These are mainly focused on educating equipment suppliers and contractors, and include:

- Training sessions for trade allies and other product supply and program and product distribution providers—these are to provide both technical information regarding the applicability and benefits of the measures promoted under the program, information about how the program works, and their role in and incentives for having their customers participate in the program.
- Since referrals to auditors who can help identify energy efficiency opportunities is part of the program, having trained and qualified auditors available is important. Many utility-sponsored programs rely upon outside training organizations to ensure that auditors are well-versed in building science principles and whole-building concepts for energy performance. The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET) have set widely-used standards for auditor training and already offer training sessions within Pennsylvania.

#### Applicable Collaborative Resources

Several other sources of technical and financial assistance are available to commercial and industrial energy users to enable energy efficiency improvements. Among them:

- Pennsylvania Department of Environmental Protection (DEP) offers workshops and other assistance to help small businesses improve energy efficiency at their facilities. The

services are sponsored by DEP's Office of the Small Business Ombudsman in partnership with the Electrotechnology Application Center, the Pennsylvania Technical Assistance Program and the PADEP Pollution Prevention/Energy Efficiency Roundtable. Funding for the Energy Management Workshop is provided through a U.S. Department of Energy grant.<sup>10</sup>

- **Energy Efficiency & Conservation Block Grants**—being made available under the American Recovery and Reinvestment Act of 2009 to fund or extend funding of energy improvements throughout the state. In particular, these funds may be used for the following activities relevant to this market and this program:<sup>11</sup>
  - Commercial building energy audits
  - Financial incentive programs and mechanisms for energy efficiency improvements such as energy savings performance contracting, on-bill financing, and revolving loan funds
  - Energy efficiency and conservation programs for buildings and facilities
  - Energy distribution technologies that significantly increase energy efficiency, including distributed resources, combined heat and power, and district heating and cooling systems

## **F. Program Issues, Risks, and Risk Management Strategies**

There are several issues associated with providing an energy efficiency program to commercial and industrial customers. Key ones are identified below, along with how the Commercial & Industrial Equipment Incentives can address them.

- This is a very diverse market sector, both in size and makeup. The inclusion of multiple tracks, for smaller businesses and for larger commercial and industrial customers, provides the structure to develop specific outreach activities and educational/promotional messages that resonate with each group. Such activities and measures need to be developed more explicitly during the final program design, for small businesses in particular.
- The energy uses of industrial customers are also diverse and often site-specific. The implementation contractor must have expertise to understand or engage the services of process experts to assist industrial customers in particular with project development as well as to perform pre- and post-installation inspections.
- Equipment vendors and installation contractors have considerable influence in equipment purchase decisions. This effectively makes these trade allies part of the participant target market. To engage them in promoting and having their clients' projects participate in the program, it may be necessary and appropriate to structure the incentive payments so that part or all the incentive is directed to them or split with the customer.

## **G. Ramp Up Strategy**

PECO will contract with an implementation CSP immediately upon approval of the program by the Commission. Since this program has several diverse components and addresses a complex

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<sup>10</sup> <http://www.depweb.state.pa.us/news>, April 2009.

<sup>11</sup> <http://www.eecbg.energy.gov/#1c1>, April, 2009.

and diverse market, a relatively long time is allocated to developing activity and incentive protocols, educational materials, and development of relationships with equipment vendors and contractors who supply this market. All the elements to encourage and support immediate participation will be in place prior to the program launch.

## H. Marketing Strategy

PECO will select an implementation CSP with experience in promoting commercial and industrial retrofit incentive programs. In particular, the CSP will have experience in working with equipment suppliers and contractors, ensuring that they are aware of and understand the program; in working with customers, ensuring they understand the program and measure benefits, and can advise them on project development; and in processing incentive applications, ensuring that payment is made for measures that meet the purchase, installation, and documentation requirements. And this experience needs to extend to all types of customers, from small businesses to large industrial process facilities.

## I. Eligible Measures and Incentives

### Measures

Both prescriptive and custom measures are eligible for incentives under this program. Prescriptive measures offered and associated rebates will be defined and listed for customers. Custom projects, consisting of energy-saving measures not listed or involving multiple systems are also eligible. The proposed measures for small business and general commercial and industrial customers are included in the tables below.

### Incentives

On average, incentive levels provided to customers/contractors under this program for installation of rebate-eligible prescriptive measures are about 33% of the incremental measure costs. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative. Custom measure incentive levels are set commensurate with other utility-sponsored programs, and are generally a lower percent of incremental costs.

### **Commercial & Industrial Equipment Incentives Proposed Measures—Per-Unit Savings, Costs, and Incentives**

Small Business Customers (< 100 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
SB - ENERGY STAR room AC	98	0.059	10	\$50	\$17	per RAC
SB - Small packaged and split system AC	127	0.099	14	\$118	\$39	per ton cooling
SB - Small air-source heat pump	348	0.099	12	\$283	\$94	per ton cooling
SB - High-efficiency cooling - packaged units - 11 EER - 10 tons	100	0.065	15	\$49	\$16	per ton cooling
SB - High-efficiency cooling - packaged units - 11.5 EER - 10 tons	149	0.097	15	\$76	\$25	per ton cooling
SB - High-efficiency cooling - packaged units - 12 EER - 10 tons	194	0.126	15	\$103	\$34	per ton cooling
SB - High-efficiency air-source HP - 11 EER - 10 tons	407	0.081	15	\$146	\$49	per ton cooling

Small Business Customers (< 100 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
SB - High-efficiency air-source HP - 11.8 EER - 10 tons	656	0.131	15	\$252	\$84	per ton cooling
SB - Ground-source heat pump	1503	0.300	30	\$1,238	\$413 40	per ton cooling
SB - HVAC tune-up	2600	1.622	5	\$2,650	\$883	per HVAC unit
SB - HVAC optimal start/stop	1142	0.159	15	\$1,125	\$375	per control point
SB - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
SB - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
SB - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
SB - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
SB - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
SB - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
SB - LED exit signs	307	0.035	15	\$104	\$34	per sign
SB - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
SB - White roofs	0.105	0.00003	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
SB - Premium-efficiency motors	90	0.011	20	\$5.00	\$1.70	per hp
SB - Custom measures	50,000 kWh per project	7 kW per project	15	\$0.75	\$0.08	per kWh saved or an equivalent based on the appropriate units
SB - CFL bulbs - drop ship package of 3 bulbs	459	0.109	3	\$10	\$10	per CFL package

Medium C&I Customers (> 100 kW, < 500 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
MC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
MC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	206	0.134	15	\$103	\$34	per ton cooling
MC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
MC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
MC&I - High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
MC&I - Ground-source heat pump	1503	0.300	30	\$1,238	\$413 40	per ton cooling
MC&I - HVAC tune-up	7800	4.866	5	\$7,950	\$2,650	per HVAC unit
MC&I - HVAC optimal start/stop	3427	0.478	15	\$1,500	\$500	per control point
MC&I - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
MC&I - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
MC&I - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
MC&I - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
MC&I - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
MC&I - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
MC&I - LED exit signs	307	0.035	15	\$104	\$34	per sign
MC&I - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
MC&I - White roofs	0.105	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
MC&I - Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
MC&I - Energy management control system	3.523	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
MC&I - Lighting control system	0.084	0.000	15	\$0.22	\$0.07	per bldg. ft <sup>2</sup>
MC&I - Custom measures	80,000 kWh per project	15 kW per project	15	\$0.50	\$0.08	per kWh saved or an equivalent based on the appropriate units

Large C&I Customers (> 500 kW)	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
LC&I - High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
LC&I - High-efficiency cooling - packaged units - 11 EER - 30 tons	206	0.134	15	\$103	\$34	per ton cooling
LC&I - High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
LC&I - High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
LC&I - High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
LC&I - Ground-source heat pump	1503	0.300	30	\$1,238	\$413 40	per ton cooling
LC&I - HVAC tune-up	7800	4.866	5	\$7,950	\$2,650	per HVAC unit
LC&I - HVAC optimal start/stop	3427	0.478	15	\$1,000	\$333	per control point
LC&I - CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
LC&I - CFL fixtures	276	0.066	6	\$100	\$50	per fixture
LC&I - High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
LC&I - High-efficiency lighting - T-8 U-tube	112	0.027	10	\$85	\$14	per fixture
LC&I - High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
LC&I - High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
LC&I - LED exit signs	307	0.035	15	\$104	\$34	per sign
LC&I - Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
LC&I - White roofs	0.105	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
LC&I - Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
LC&I - Variable speed drives	2137	0.514	20	\$485	\$75	per hp
LC&I - Energy management control system	4	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
LC&I - Lighting control system	0.084	0.000	15	\$0.22	\$0.07	per bldg. ft <sup>2</sup>
LC&I - Custom measures	240,000 kWh per project	40 kW per project	15	\$0.33	\$0.07	per kWh saved or an equivalent based on the appropriate units

## J. Program Schedule

The Commercial & Industrial Equipment Incentives program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2/Q3, and rolled out to the public during PY 2009 Q4. The program will operate from the latter part of program year PY 2009 through PY 2012. The following table provides a schedule of key milestones:

### Proposed Commercial & Industrial Equipment Incentives Implementation Schedule

Key Milestone	Timing
Assign PECO program manager and staff	July 2009
Start program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	February 2010
Pre-rollout program development: Prepare marketing materials and incentive applications Develop activity and incentive processing protocols Identify qualified auditors	September 2009 – February 2010
Program rollout: Launch consumer marketing and outreach All program services	March 2010 (PY 2009 Q4)
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

The evaluation methodology and data collection proposed for the program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

Primary:

- Number of program measures installed
- Energy savings associated with installed measures
- Customer satisfaction with the program and the products
- Program implementation costs incurred

## Secondary:

- Distribution of measure popularity and cost-effectiveness of program, to enable program improvement
- Number and variety of suppliers/contractors who stock qualified products

## Data Collection Approaches

Data for evaluating the program will come from the following sources:

- **Impact Evaluation**
  - Tracking system data for all projects
  - On-site inspection and metering of a sample of projects to verify operation as reported
  - PECO customer energy consumption data for engineering or statistical analyses of impacts
- **Process Evaluation**

Evaluation of program design and implementation process will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:

  - Follow-up surveys of C&I customers contacted from customer information provided on the incentive applications and from PECO customer information system (for nonparticipants)
  - Surveys of upstream suppliers engaged in promoting the program and assisting customers with project development and incentive application submittal
  - Interviews with the implementation CSP and PECO program staff
  - Review of program documents and tracking system data

## Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed. For prescriptive measures, recorded savings will use the per-unit deemed savings values. Because prescriptive measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing analyses or metering studies on these projects. However, some number of projects will be inspected for independent verification of installation and operation as reported.

For custom measure projects, the gross savings need to be estimated based on engineering models and estimates. The M&V assessment will necessarily require pre/post building simulation modeling, billing analyses and/or metering to verify the project savings. For program impact assessment, this can be accomplished through verification of a sample of projects that account for a large portion of the reported savings and are most representative of projects by the different target market segments.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Assessment of free-rider and

free-driver effects, if deemed appropriate, may be conducted using customer billing and survey data in conjunction with established M&V methodologies and procedures.

**Process Evaluation Methodology**

Evaluation of the program implementation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluation will be undertaken and conducted throughout the program by the implementation and the M&V contractor(s) selected by PECO.

Process evaluation will assess customer understanding of, attitudes about, and satisfaction with both the program and with PECO’s broader educational activities. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants. The diversity of customers in this target market, including small businesses, master-metered multifamily housing facilities, general office as well as specialty facilities, and factories, means that survey content and fielding will need to accommodate a wide variety of participation experiences.

Interviews with program service providers will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the educational materials, effectiveness of promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use sales and promotion data maintained by the implementation CSP, information provided by PECO, and customer survey data.

**L. Administrative Requirements**

PECO will administer the Commercial & Industrial Equipment Incentives program through a CSP implementation contractor. PECO’s role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO’s educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO staffing mix:

**Commercial & Industrial Equipment Incentives Program—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	0.75 FTE in PY 2009 (0.75 yr. @ 1.0 FTE), 1.0 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.5 FTE in PY 2009, 1.0 FTE in PY 2010 through PY 2012
Engineer: Provide assistance to customers,	0.5 FTE in PY 2009, 1.0 FTE in PY 2010

contractors, and implementation CSP to ensure proper estimation of project savings and review of audit results and recommendations.	through PY 2012
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### M. Estimated Participation

Participation and measure adoption estimates were developed based on the existing stock of commercial and industrial facilities in PECO's service territory and assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

#### Commercial & Industrial Equipment Incentives Program—Estimated Participation (number of installations/year)

	PY 2009	PY 2010	PY 2011	PY 2012	Total
<b>Small Business:</b>					
Prescriptive measures	10,875	91,821	56,821	56,821	<b>216,339</b>
Custom projects	20	135	135	135	<b>425</b>
<b>Medium C&amp;I:</b>					
Prescriptive measures	11,088	55,720	55,720	55,720	<b>178,248</b>
Custom projects	11	68	68	68	<b>215</b>
<b>Large C&amp;I:</b>					
Prescriptive measures	5,706	28,989	28,989	28,989	<b>92,672</b>
Custom projects	7	41	41	41	<b>130</b>

Notes about the above participation estimates:

- Small business prescriptive measures includes estimated participation by 20% of accounts, each receiving three CFL lamps, in PY 2010.
- Multiple prescriptive measures may be installed by the same customer; therefore the installation estimates do not equate to number of customers who will participate.

### N. Estimated Program Budget

Approval of the plan is anticipated in PY 2009 Q2, resulting in less than a full year of program operation in the first program year. The cost estimates reflect this timing.

**Commercial & Industrial Equipment Incentives Program—Proposed Budget**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
PECO Admin Labor	\$247,500	\$432,600	\$445,578	\$458,945	\$1,584,623
Implementation Contractor	\$737,238	\$4,141,285	\$7,387,460	\$10,806,332	\$23,072,316
Umbrella Costs	\$312,175	\$364,620	\$375,559	\$386,825	\$1,439,179
Program-Specific Education	\$150,000	\$309,000	\$318,270	\$327,818	\$1,105,088
IT Enablement Costs	\$20,872	\$21,498	\$22,143	\$22,808	\$87,322
Promotion	\$229,128	\$460,027	\$243,082	\$250,374	\$1,182,610
M&V	\$140,741	\$668,252	\$789,095	\$940,657	\$2,538,745
Incentives	\$1,842,479	\$10,998,767	\$10,957,415	\$11,286,138	\$35,084,800
<b>Total</b>	<b>\$3,680,134</b>	<b>\$17,396,050</b>	<b>\$20,538,602</b>	<b>\$24,479,898</b>	<b>\$66,094,683</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes cost of providing the following:
  - Participant recruitment and assistance—including customers as well as equipment suppliers and contractors, technical and incentive application assistance, and pre/post-installation inspections
  - Rebate processing and fulfillment
  - Program monitoring and tracking—including recording and reporting of activities, providing required data for PECO's tracking system and regulatory reporting, complaint resolution, and process tracking and improvements
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—Assumed education costs for this program are \$150,000 in PY 2009 and \$300,000 per full program year, using fact sheet bill inserts, additional mail and on-line materials, and articles in trade publications. This is a program that includes diverse and complex measures, processes, and customers.
- Promotion—This is a large program within the nonresidential sector. In addition to the attention given to it in the promotion of PECO's overall Energy Efficiency umbrella campaign, direct mail marketing will be utilized for both the education and acquisition of eligible customers to ensure maximum participation rates are achieved. This program-specific promotion is estimated at \$250,000 per program year, including PY 2009 (starting January 2010); plus direct mail of coupons to all small business customers to request CFLs in PY 2010.

- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 4% of total program budget (including incentives, excluding M&V costs).
- Incentives—The incentives budget is based on per-unit incentive allowances and estimated number of installations. Overall, the incentives represent 54% of the total program budget over the four program years.

## O. Projected Energy Savings and Demand Reduction

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values provided in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

Prescriptive measure per-unit values and customer per-project values were applied to the estimated number of installations rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers in that year plus the impact of measures still in operation from previous years.

### C&I Equip. Incentives—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
MWh - Small Business - Prescriptive	3,101	35,402	51,650	67,707
MWh - Small Business - Custom	1,000	7,750	14,500	21,250
MWh - Small Business - Total	<b>4,101</b>	<b>43,152</b>	<b>66,150</b>	<b>88,957</b>
MWh - Medium C&I - Prescriptive	5,060	32,128	59,196	86,072
MWh - Medium C&I - Custom	880	6,320	11,760	17,200
MWh - Medium C&I - Total	<b>5,940</b>	<b>38,448</b>	<b>70,956</b>	<b>103,272</b>
MWh - Large C&I - Prescriptive	3,024	21,756	40,488	59,122
MWh - Large C&I - Custom	1,680	11,520	21,360	31,200
MWh - Large C&I - Total	<b>4,704</b>	<b>33,276</b>	<b>61,848</b>	<b>90,322</b>
<b>MWh Total</b>	<b>14,745</b>	<b>114,876</b>	<b>198,954</b>	<b>282,552</b>

Peak MW - Small Business - Prescriptive	0.826	8.935	13.220	17.460
Peak MW - Small Business - Custom	0.140	1.085	2.030	2.975
Peak MW - Small Business - Total	<b>0.966</b>	<b>10.020</b>	<b>15.250</b>	<b>20.435</b>
Peak MW - Medium C&I - Prescriptive	1.208	7.553	13.899	20.199
Peak MW - Medium C&I - Custom	0.165	1.185	2.205	3.225
Peak MW - Medium C&I - Total	<b>1.373</b>	<b>8.738</b>	<b>16.104</b>	<b>23.424</b>
Peak MW - Large C&I - Prescriptive	0.772	5.577	10.383	15.166
Peak MW - Large C&I - Custom	0.280	1.920	3.560	5.200
Peak MW - Large C&I - Total	<b>1.052</b>	<b>7.497</b>	<b>13.943</b>	<b>20.366</b>
<b>MW Total</b>	<b>3.390</b>	<b>26.256</b>	<b>45.297</b>	<b>64.224</b>

**P. Cost-Effectiveness**

Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.183/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.234/kWh

Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.042/kWh
- Levelized Cost of Reduced Peak Demand: \$199/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
C&I Equipment Incentives	\$214	\$141	\$73	1.52

#### **Q. Plan Re-filing Adjustment 09/15/10**

Based on the analysis of, and PECO's consultation with its Conservation Service Provider, KEMA Services, Inc. ("KEMA"), PECO is proposing to add several measures, currently not in the Pennsylvania TRM, (outlined in the table below) to the Commercial/Industrial Equipment Incentives Program and the Government/Public/Non-Profit Facility Energy Savings Program. KEMA's experience in executing energy efficiency programs in other jurisdictions has shown that adding the proposed set of measures extends the reach of energy efficiency efforts and savings to grocery stores, food service establishments, small business customers, and non-profit institutions. The addition of these measures to the Plan will not impact the total cost of the programs as the incentives can be funded under the approved budget.

PECO is requesting to have the following measures added to the Plan. These measures are for C&I, as well as Governmental customers.

**Proposed Commercial/Industrial/Governmental/Non-Profit Measures:**

<u>Strip curtains on walk-in coolers/freezers</u>	<u>139</u>	<u>0.010</u>	<u>4</u>	<u>\$7.77</u>	<u>\$4</u>	<u>per sq-ft</u>
Anti-sweat heater controls	402	0.007	12	\$80	\$45	per linear foot
EC motor for walk-in coolers	401	0.044	15	\$250	\$50	per motor
EC motor for reach-in refrigerated cases	345	0.033	15	\$185	\$45	per motor
Evaporator fan controls	478	0.060	16	\$291.50	\$70	per motor
<u>Automatic door closers for walk-in coolers</u>	<u>960</u>	<u>0.139</u>	<u>8</u>	<u>\$156</u>	<u>\$70</u>	<u>per closer</u>
<u>Automatic door closers for walk-in freezers</u>	<u>2,360</u>	<u>0.322</u>	<u>8</u>	<u>\$156</u>	<u>\$100</u>	<u>per closer</u>
<u>Refrigerated display case night cover</u>	<u>105</u>	<u>0.000</u>	<u>5</u>	<u>\$35</u>	<u>\$5</u>	<u>per linear-foot</u>
LED refrigerated case lighting	375	0.061	16	\$266	\$50	per door
ENERGY STAR solid door freezer	1,725	0.057	12	\$805	\$150	per freezer
ENERGY STAR glass door freezer	5,923	0.676	12	\$1,000	\$400	per freezer
High efficiency ice maker 101-200 lbs/day	1,029	0.118	12	\$296	\$100	per ice maker
High efficiency ice maker 201-300 lbs/day	1,551	0.177	12	\$312	\$150	per ice maker
High efficiency ice maker 301-400 lbs/day	1,840	0.210	12	\$559	\$175	per ice maker
High efficiency ice maker 401-500 lbs/day	2,004	0.229	12	\$981	\$200	per ice maker
High efficiency ice maker 501-1000 lbs/day	3,176	0.363	12	\$1,485	\$300	per ice maker
High efficiency ice maker 1001-1500 lbs/day	5,019	0.573	12	\$1,821	\$400	per ice maker
High efficiency ice maker > 1500 lbs/day	5,585	0.638	12	\$2,194	\$500	per ice maker
<u>Hot food holding cabinet</u>	<u>3,299</u>	<u>0.603</u>	<u>12</u>	<u>\$1,783</u>	<u>\$200</u>	<u>per unit</u>
Beverage machine controls	1,612	0.000	10	\$180	\$100	per machine
Snack machine controls	387	0.000	10	\$80	\$30	per machine
ENERGY STAR refrigerated vending machine	1,576	0.180	14	\$900	\$150	per machine
<u>Barrel Wraps - Injection Molding &amp; Extruders</u>	<u>50</u>	<u>0.010</u>	<u>5</u>	<u>\$2</u>	<u>\$1</u>	<u>per ton</u>

## R. Plan Adjustments 07/15/11

### Establishment of an Application Waitlist

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.2.8 EE Program 8—Commercial/Industrial New Construction**

#### **A. Program Title and Program Years**

Program Name: Commercial & Industrial New Construction

Program Years: PY 2011 – PY 2012

#### **B. Objectives**

The purpose of the Commercial & Industrial New Construction program is to greatly improve the energy efficiency of all newly constructed facilities and facilities that are completely renovated or reconstructed in the PECO service territory.

The program has several objectives:

- Change building design and construction practices used by architects and engineers, contractors, and owners to include all cost-effective energy efficiency designs and equipment.
- Capture “lost opportunities” to reduce electric demand and energy usage in the commercial and industrial sector by providing participants with design assistance and custom rebates or performance contracting for the construction of energy-efficient buildings and facilities.

Results of focus groups conducted in preparation of the program plan indicate that commercial and industrial customers across the board are comfortable with this type of program and many said they would likely participate.

#### **C. Target Market**

The target market for the Commercial & Industrial New Construction program is decision makers for the design and/or construction of new facilities and renovation contractors and developers. This program will cover both new constructions and buildings/facilities undergoing “major renovation,” defined as buildings where multiple major systems are undergoing significant upgrades.

While the energy and peak load savings resulting from this program will be accrued by the building owners/tenants, the key target market of the program are the professionals most responsible for the design and equipment decisions—architects and engineers, design/builders, developers, and contractors.

#### **D. Program Description**

The Commercial & Industrial New Construction program is designed to instill and accelerate adoption of design and construction practices so that new commercial and industrial facilities are more energy efficient than the current stock. The program provides facility designers and builders with training, design assistance, and incentives to incorporate energy efficient systems and construction practices in newly constructed and renovated facilities.

The program has the following components, directed mainly to commercial and industrial design and construction community: training, design assistance, and financial incentives.

### Training

- General training in best practices—provides technical workshops and other technical developmental activities for the design and engineering community to familiarize and educate them on energy efficient design methods and new technologies.

### Design Assistance

- Directed to upstream providers of design and construction services—architects and engineers (A&E), designers/builders, and contractors.
- Project-specific assistance—will provide a participant with the services of a consulting engineer to evaluate the cost-effectiveness of energy-saving measures under consideration and to recommend measures that may have been overlooked.
- The program will also provide design and engineering consultants with validation of their prospective energy efficiency projects in presentations to clients.

### Incentives

- Directed to upstream providers of design and construction services but also available to facility owners.
- Custom rebates payable on a per kWh savings basis, compared with “standard” design and equipment installations.
- Participant must submit project energy savings generated by PECO-approved building energy modeling software (e.g., eQUEST) to be eligible for installation rebate

## **E. Implementation Strategy**

PECO will administer the Commercial & Industrial New Construction program through a CSP implementation contractor.

### Channels for Program Delivery

- Because they are the key decision makers in new commercial and industrial facility design, it will be advantageous for PECO to work “upstream”—with the design and construction community. For the program to be effective, PECO must educate these professionals on how and why to upgrade their building practices. Once convinced, these design and construction influencers can promote the program and the efficiency benefits to their clients as well as to their suppliers and subcontractors. These professionals are really both participants and delivery channels for the program.
- Articles and advertising in building design and engineering trade publications.
- Bill inserts to existing commercial and industrial customers to alert them to opportunities available for major renovations and expansions to their facilities.
- A conservation service provider (CSP) will implement the program on PECO’s behalf, including providing assistance with PECO’s direct marketing; recruiting and providing education to upstream channels; providing rebate fulfillment services; and tracking and reporting program activities and achievements toward goals.

## Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Identification and recruitment of upstream market actors for program participation and delivery channel activities
- Education: including development and operation of training seminars for A&Es, designers, builders, and developers; and development and distribution of educational publications
- Marketing: including development and distribution of program materials in collaboration with PECO and design and construction professionals who will be both program participants and promoters
- Design and Project Assistance: engineering and technical support for project development, and cost-effectiveness assessment, and estimation of financial incentives; design review and post-installation inspections
- Rebate Processing: fulfillment house to receive, review and verify applications; and either pay or submit rebates to PECO for payment
- Program Performance Tracking and Improvement: including project tracking and documentation of project measures, rebate submittals and payments, opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

## Education Overview

Education is a key component of the Commercial & Industrial New Construction program. The market will change through training, education and demonstration. The program will increase confidence in the performance and benefits of increased energy efficiency (better performance, lower fuel bills, increased comfort, reduced maintenance, etc.). Designers and builders will be encouraged to implement more energy-efficient strategies to increase energy efficiency through the program. Emphasis on the additional benefits of comprehensive energy efficiency improvements and continual maintenance to retain savings will demonstrate an overall cost-effectiveness that can be achieved without the need for financial incentives over the longer term. Ongoing deployment of these strategies will become "standard" practice by these same designers and builders in additional projects, affecting long-term market transformation.

To accomplish this, the program will offer several forms of education as noted above:

- Training seminars will be taught by experts in specific aspects of high-efficiency building design and construction. Many utilities offer these no-fee sessions on an ongoing basis. In addition to teaching key principles and an understanding of the program, they will provide PECO with an excellent opportunity to develop strong relationships and build trust with this influential group, which is also the key target market for the program.

PECO will consider linking the training activities with nationwide certification programs for builders, inspectors, lighting designers and with continuing education programs for architects and engineers.

- Publications with technical information, practical advice, and persuasive messages will be developed. These can be included in newsletters directed to design/build, published in trade journals, sent in direct mail, distributed at seminars, and made available on a PECO website page designed for this audience.

#### Applicable Collaborative Resources

- ENERGY STAR has considerable material on its website directed to commercial and industrial design and construction community, which this program should leverage. This includes Commercial Building Design guidelines and strategies, “Designed to Earn the ENERGY STAR” program and the “ENERGY STAR Challenge” for architecture firms, communications materials, many types of training opportunities, and an extensive tools and resources library.<sup>12</sup>
- ENERGY STAR also offers opportunity for buildings to gain EPA rating. By promoting practices and measures recommended by ENERGY STAR, the C&I New Construction program can have added credibility. Building types eligible for an EPA rating include: Office, Courthouse, Bank/Financial Institution, K-12 School, Supermarket/Grocery, Retail (big box), Hospital, Medical Office, Hotel, Residence Hall/Dormitory, and Warehouse (refrigerated/non-refrigerated).
- Sustainable Development Fund Financing—provides financing for the installation of solar PV and hot water heating systems.

#### **F. Program Issues, Risks, and Risk Management Strategies**

Currently, several market barriers inhibit the participation in new construction programs. Such barriers, which the program implementation activities will address, include:

- **Perception of Increased Cost:** Many designers and builders feel that increased building performance costs more, and that it is not cost-effective.
- **Risk Aversion:** Historically, the commercial design and engineering community has been particularly slow to adopt new technologies or solutions. A&Es prefer to design and install systems and buildings using familiar technologies and designs. Liability issues are also a concern.
- **First Cost vs. Lifecycle Cost Considerations:** Building developers are very concerned with first cost considerations as they often must build within a pre-determined budget. As such, they are reluctant to consider high-efficiency measures, which usually cost more.
- **Limited Technical Information:** Designers and owners have limited familiarity with new products, technologies and their applications, and their associated benefits that extend beyond energy savings (comfort, durability, health, productivity and maintenance). ENERGY STAR, AIA, and other available training programs are whittling away at this problem.
- **Inadequate Operational Procedures:** Building systems are usually not tested to ensure that they perform as designed. In addition, owners frequently fail to implement an ongoing maintenance and quality assurance procedure to properly operate the equipment.

<sup>12</sup> [http://www.energystar.gov/index.cfm?c=business.bus\\_index](http://www.energystar.gov/index.cfm?c=business.bus_index), May 2009.

## **G. Ramp Up Strategy**

Prior to program launch, considerable effort needs to go into preparing the ground for the success of the program, including:

- Need to develop relationships within the design/build community
- Need to develop and arrange training on best practices for design and construction of new commercial and industrial facilities

## **H. Marketing Strategy**

PECO will select a CSP with experience in promotion through trade allies associated with builders and design firms. The implementation CSP will utilize established trade ally channels for educating and developing stakeholder awareness of the benefits of designing, building and promoting energy efficient construction standards.

## **I. Eligible Measures and Incentives**

Participants will be encouraged to take a comprehensive approach to building/facility design. Custom rebates, which will be offered, best support this concept. Participants can design whole buildings/facilities with any combination of energy efficiency features and receive these financial incentives for the energy savings of the entire project compared with standard efficiency or basic code compliance.

**Commercial & Industrial New Construction Proposed Measures—Per-Unit Savings, Costs, and Incentives**

<b>Measure</b>	<b>Annual kWh Savings</b>	<b>kW Savings</b>	<b>Useful Life of Measure</b>	<b>Incremental Cost</b>	<b>Incentive per Unit</b>
Custom project	250,000 per project	30 per project	15 years	\$0.25 per kWh saved	\$0.07 per kWh saved or an equivalent based on the appropriate units

The proposed incentive level covers approximately 28% of the incremental cost and is consistent with actual project experience. Incremental cost is the additional cost of a high-efficiency measure beyond a standard-efficiency alternative.

**J. Program Schedule**

The following schedule identifies key milestones for the Commercial & Industrial New Construction program. The program will start in PY 2011 and continue services through PY 2012.

**Proposed Commercial & Industrial New Construction Implementation Schedule**

<b>Key Milestone</b>	<b>Timing</b>
Assign PECO program manager and staff	Anticipated January 2011
Start program design	June 2011
Select and contract with program implementation CSP	November 2009
Complete program design	August 2011
Pre-rollout program development: Build designer/builder network Develop designer/builder training curriculum and schedule Develop marketing strategies Develop procedures for tracking activities and documenting results	June 2011 (PY 2011 Q1)
Program rollout: Offer designer/builder education Offer design assistance and rebates	September 2011 (PY 2011 Q2) September 2011 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## **K. Evaluation, Measurement, and Verification Requirements**

The data collection guidelines proposed for the program reflect current measurement and verification (M&V) practices. The M&V requirements and methods used to evaluate this program will conform with State protocols, once they are published.

### Metrics for Gauging Program Success

- Number of projects completed
- Energy savings associated with facilities built through participation in the program
- Number of training seminar attendees and/or trades people certified in energy-efficient building principles
- Increase in receptivity/adoption of energy-efficient building practices by designers, builders, and developers to measure the effectiveness of the marketing and education activities

### Data Collection Approaches

The data required for evaluating the program will depend on the methodology chosen. They will likely include the following sources and information:

- Billing and/or metered use data
- Engineering estimates of measure savings
- Local weather data
- Program tracking system for measures installed, rebates paid, and building characteristics
- Upstream and building owner surveys regarding program awareness, satisfaction with the program and with the project results, understanding and perceived savings from measures, tenant characteristics, and program influence on design and construction decisions
- Program implementer/PECO staff surveys

### Impact Evaluation Methodology

The impact evaluation will likely use a variety of techniques to assess energy savings due to the program in new facilities/buildings. The analysis techniques will likely include performing engineering analyses and perhaps metering as well, to determine whether the participant facilities operate as designed and achieve the expected savings. Site visits will be conducted as part of the engineering and metering data collection; additional site visits may be added at a later date if any installation problems are identified. Site visits will be used to determine if measures were installed as expected and to gather data for the engineering analysis of the homes as built. For this program perhaps above all others, the understanding and availability of baseline values for facility consumption will be critical to an assessment of energy savings.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects, are not claimed by PECO under the program. Assessment of free-rider and

free-driver effects, if deemed appropriate, may be conducted using survey data in conjunction with established M&V methodologies and procedures.

**Process Evaluation Methodology**

Program participants, local inspectors, and program implementation staff will be interviewed for the process evaluation. These interviews will focus on the construction and inspection processes of facilities built to new standards. In addition to obtaining information on facility characteristics, the participant (builder and/or owner) survey will ask questions about the effectiveness of program promotional activities, participant and occupant satisfaction with the facility, and whether the occupants have encountered any problems with their new equipment.

During the first year, the process evaluation will focus on program implementation, administration, and delivery. Interviews will be used to determine if the program is encouraging new construction practices and if the upstream market stakeholders and facility owners are finding the education useful. If there are difficulties in obtaining participation during the first year, the evaluation may be expanded to include focus group interviews with a larger sample of designers, builders, developers, and facility owners. During the second year, the process evaluation will assess how well program changes recommended during the first-year process evaluation are being implemented.

**L. Administrative Requirements**

PECO will administer the Commercial & Industrial New Construction program through a CSP implementation contractor. PECO’s role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components of the program
- PECO’s educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize builder and customer satisfaction with the program

The program is expected to operate with the following PECO/Contract staffing mix:

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program, and administering and overseeing CSP.	0.5 FTE in PY 2011 and PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.25 FTE in PY 2011 and PY 2012
Engineer: Responsible for assisting and reviewing CSP and participant estimates of project cost and savings	0.5 FTE in PY 2011 and PY 2012

**M. Estimated Participation**

Participation estimates were developed based on projected new construction in PECO’s service territory, an assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

The current forecast for new commercial and industrial construction is extremely low in the next two years. As a result, the program will not launch until PY 2011 and, even then, low participation is expected.

**Commercial & Industrial New Construction Program—Estimated Participation  
(number of facilities/year)**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
Custom projects	0	0	35	65	100

**N. Estimated Program Budget**

Program development begins in PY 2011 and program launch is expected a few months into that program year. The following cost estimates reflect this timing.

**Commercial & Industrial New Construction Program—Proposed Budget**

<b>Budget</b>	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
PECO Admin Labor	\$0	\$0	\$190,962	\$196,691	\$387,653
Implementation Contractor	\$0	\$0	\$371,315	\$682,954	\$1,054,269
Umbrella Costs	\$15,609	\$18,231	\$18,778	\$19,341	\$71,959
Program-Specific Education	\$0	\$0	\$159,135	\$163,909	\$323,044
Promotion	\$0	\$0	\$106,090	\$109,273	\$215,363
M&V	\$0	\$0	\$149,608	\$241,515	\$391,123
Incentives	\$0	\$0	\$649,801	\$1,242,977	\$1,892,778
<b>Total</b>	<b>\$15,609</b>	<b>\$18,231</b>	<b>\$1,645,689</b>	<b>\$2,656,660</b>	<b>\$4,336,189</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes network development and recruitment, design assistance, rebate processing, program tracking and improvement, and reporting, as described above.
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—PECO education costs are assumed at \$150,000/year in PY 2011 and PY 2012.
- Promotion—Estimated costs are \$100,000 in each of the program years, PY 2011 and PY 2012.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 10% of total program budget (including incentives, excluding M&V

costs). New construction projects require inspection and review to ensure that savings estimates are reasonable and attained.

- Incentives—The incentives budget is based on per-unit incentive allowances and the estimated number of installations. Overall, the incentives represent 44% of the total program budget over the four program years.

### O. Projected Energy Savings and Demand Reduction

The savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region. These values were applied to the estimated number of measures rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers through the program in that year plus the impact of measures still in operation from previous years.

#### C&I New Construction Program—Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
MWh Savings	0	0	8,750	25,000
Peak MW Reduction	0.000	0.000	1.050	3.000

### P. Cost-Effectiveness

#### Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2011-PY 2012 timeframe (through May 2013):  
\$0.173/kWh

#### Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.023/kWh
- Levelized Cost of Reduced Peak Demand: \$188/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
C&I New Construction	\$18	\$8	\$10	2.35

## **Q. Plan Adjustments 07/15/11**

### Establishment of an Application Waitlist

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.2.9EE Program 9—Government/Public/Non-Profit Facility Energy Savings**

#### **A. Program Title and Program Years**

Program Name: Government/Public/Non-Profit Facility Energy Savings

Program Years: PY 2009 – PY 2012

#### **B. Objectives**

The purpose of the Government/Public/Non-Profit Facility Energy Savings program is to achieve savings in this sector equal to a minimum of 10% of PECO's total energy reduction goals.

The program has several objectives:

- Substantially improve the energy efficiency of government and public facilities.
- Facilitate the monitoring of energy efficiency projects toward the goal.
- Capture opportunities to reduce consumption by street lighting and traffic signal lights.
- Enable eligible customers to identify and implement cost effective energy saving opportunities.

This program provides all of the same services offered to commercial customers in other programs. Additionally, it provides assistance with obtaining facility audits. The key difference is that for the government/public/non-profit facility segment, all the energy efficiency related services are offered within a single program. This includes retrofits, and new construction, and projects employing renewable energy resources. This grouping will make it easier for PECO to demonstrate accomplishments toward meeting, at a minimum, the 10% energy use reduction goal for this customer segment as required by Act 129.

#### **C. Target Market**

The target market for the Government/Public/Non-Profit Facility Energy Savings program is all public facilities, including federal, state, and municipal buildings, and public schools, hospitals and other non-profits. There are approximately 11,000 such facilities and tens of thousands of street lights and traffic signals.

#### **D. Program Description**

The Government/Public/Non-Profit Facility Energy Savings program provides financial and technical assistance to achieve significant electricity savings in public sector facilities. This program offers the same financial incentives to reduce energy use in public sector facilities as in other nonresidential facilities, along with providing assistance in identifying key improvement opportunities and addressing the special planning and purchasing protocols of public and non-profit agencies.

The program has the following components:

- Street light replacements—includes incentives for retrofitting incandescent and mercury vapor lamps with high-pressure sodium, metal halide, or emerging energy-efficient technologies (e.g. LED or induction street lights).

- Traffic signal replacements—includes incentives for retrofitting incandescent traffic signals with LED. This includes red, green, yellow, and pedestrian signals. LED lamps save energy and also save on maintenance due to their longer lives.
- Prescriptive and custom measure rebates—includes rebates for installation of a full array of energy efficiency improvements. Prescriptive measures include lighting, HVAC, motors, and controls. Examples of custom measures include chillers, water/wastewater efficiency upgrades, solar photovoltaic systems, and very large or complex versions of any of the prescriptive measures listed above.
- Audits with cost reimbursement for installation of recommended measures—designed to assist facility operators to identify energy-saving opportunities and prioritize projects to fit with planning cycles and leverage other funding sources in addition to PECO incentives.

## **E. Implementation Strategy**

The program is designed to make it as easy as possible for government/public/non-profit facility customers and their contractors to obtain rebates for prescriptive measures, while also providing flexibility in accommodating the diversity of energy-savings opportunities and varying complexities of projects likely in this sector with custom measure incentives. The program provides something close to a one-stop shop for obtaining energy efficiency assistance through audits offered to help customers and their influential contractors in this target market identify and prioritize their energy-savings opportunities. PECO will administer the Government/Public/Non-Profit Facility Energy Savings program through a CSP implementation contractor.

### Channels for Program Delivery

Effective implementation of the program depends on all aspects of the delivery working effectively. This includes making qualifying products available, distributing information about the products and the program, promoting the program adequately, and educating those influential in making product selection and purchasing decisions. This program will engage the following channels for delivery of these key aspects the program:

- Product Supply
  - Equipment suppliers—public agencies often have contracts or standing agreements with equipment vendors. These vendors are influential in equipment selection. They should be educated about energy-efficient alternatives and incentives available to make these alternatives cost-competitive. Suppliers provide the most direct link between the program and the consumers in this sector's existing facilities. As appropriate, the incentives for equipment purchased under the program can be split or directed to these vendors.
  - Architects and engineers—for major renovations, expansions, and new building construction, the A&Es are most influential in the decisions that affect a facility's energy use. Properly educated and convinced to use building efficiency best practices, they can specify qualifying program measures to public sector construction projects.
  - Other trade allies—installation and maintenance contractors can provide services associated with some of the qualifying measures, such as HVAC diagnostic tune-ups, identifying and sealing air and duct leaks, and refrigeration system maintenance.

Again, as appropriate, incentives offered on qualifying measures can be directed to or split with these providers to encourage them to promote program participation.

- **Program and Product Information Distribution**
  - Trade allies & affinity groups—as both deliverers of program products and potential participants in the program, all vendors of the qualifying equipment and service measures should be engaged to receive and also provide to their public sector clients information about the program measure benefits, how the program works, and assistance with the incentive process.
  - Utility staff—while PECO will engage a CSP to implement the program, the staff (including Account Managers and County Affairs Managers) has ongoing contact with many of these customers. The staff will provide information about the program benefits, measures, and process.
  - Conservation service providers—the implementation CSP will develop and distribute information about the qualifying products and participation assistance by establishing and leveraging existing relationships with the product and service suppliers.
- **Program Promotion**
  - Energy Service Performance Contracting (ESPC)—the ESPC program in Pennsylvania provides energy services to state facilities, providing an avenue to promote the program through these existing relationships.
  - Trade allies & affinity groups—all vendors of the qualifying equipment and service measures should be engaged to make their public sector clients aware of the program and encourage their participation by recommending high-efficiency equipment models and diagnostic services.
  - Public agency news publications—leverage existing communication channels used by public agencies to make facility managers aware of the program opportunities.
  - Direct mail—this is a limited and known target market that PECO can reach by mail with specially crafted letters, program applications, and other promotional materials.
  - CSPs—a key responsibility of the implementation CSP is outreach and effective promotion of the program to the target market.
- **Education**

Opportunities to educate both the trade allies, who themselves are both potential participants and delivery channels, and public agency facility managers include:

  - Bill inserts and/or direct mail
  - Agency and industry training sessions (piggybacking program education on these meetings)
  - CSPs (includes industry and technology experts) who meet individually with facility decision makers and provide auditor training
  - Facility audit reports

## Overview of Roles and Activities

The implementation CSP will have full responsibility for delivery of all aspects of the program. Responsibilities fall into several activity areas:

- Development of relationships with government/public/non-profit facility equipment and maintenance suppliers to make incentive-eligible equipment and services available and to promote their participation in the program
- Auditor/contractor training: this can be provided directly or through arrangements with nationally recognized providers who conduct training and certification sessions in locations on request; CSP will maintain directory of qualified auditors
- Program marketing: including development and distribution of program materials and assistance with direct mail or other advertising in collaboration with other PECO contractors
- Participant recruitment and assistance: including scheduling audits with qualified auditors, assisting customers and contractors with incentive application submittal, assisting customers and contractors with the development of estimates and documentation for approval of custom measure projects, and providing information on applicable EECBG/ARRA funds and/or tax credits
- Rebate processing: fulfillment house to receive, review and verify applications; and either pay or submit rebates to PECO for payment
- Program performance tracking and improvement: including tracking of all program activities, rebate submittals and payments, and opportunities to improve the program
- Reporting: including reporting of program activities to meet regulatory and internal requirements, in particular progress toward program goals

## Education Overview

The program will provide and leverage education provided by other groups to ensure that program channels and participants have the understanding and tools to make the program successful. These include:

- Seminars for state and local government leaders—these can be independently arranged but can also be coordinated with seminars already in preparation in many localities as officials try to educate their staff about allocations of American Recovery and Reinvestment Act of 2009 (ARRA) funds. The implementation CSP will work to align the timing of ARRA funding requirements and Act 129 plan approval to best leverage both resources.
- PECO will offer a series of municipal forums designed to educate and inform municipalities about programs and incentives.
- Training sessions for trade allies and other product supply and program and product distribution providers—these are to provide both technical information regarding the applicability and benefits of the measures promoted under the program, and information about how the program works, customers' role in and incentives for participating, and issues related to government agency procurement practices.

- The audit component of the program will also provide one-on-one customer education about energy efficiency benefits in general and the recommended measure benefits more specifically, Pennsylvania's commitment to reducing energy use in public facilities, and the availability of resources designed to enable energy efficiency improvement projects.
- Training and qualification of auditors is important. Many utility-sponsored programs rely upon outside training organizations to ensure that auditors are well-versed in building science principles and whole-building concepts for energy performance. The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET®) have set widely-used standards for auditor training and already offer training sessions within Pennsylvania.

### Applicable Collaborative Resources

There are a number of resources that this program may be able to leverage to help in its successful operation. These include:

- Energy Service Performance Contracting (ESPC)—Pennsylvania already has an ESPC program for state facilities. This infrastructure can be used to extend the reach of the PECO program to an even greater number of government facilities.<sup>13</sup>
- Energy Efficiency & Conservation Block Grants (EECBG)—being made available to the state, cities, and counties through ARRA to fund or extend funding of energy improvements throughout the state. Of particular applicability to this program and government-owned facilities and infrastructure, these funds may be used for the following activities:<sup>14</sup>
  - Facility energy audits
  - Financial incentive programs and mechanisms for energy efficiency improvements such as energy savings performance contracting, on-bill financing, and revolving loan funds
  - Grants to governmental agencies for the purpose of performing energy efficiency retrofits
  - Energy efficiency and conservation programs for buildings and facilities
  - Building codes and inspections to promote building energy efficiency
  - Energy distribution technologies that significantly increase energy efficiency, including distributed resources and combined heat and power
  - Working with the Delaware Valley Regional Planning Commission (DVRPC) to train and educate municipalities about programs and how to work through the process to coordinate all sources of project funding.
- The Reinvestment Fund/Sustainable Development Fund (SDF) Financing—provides financing to companies and organizations for installation of solar PV and hot water

<sup>13</sup> *Potential for Energy Efficiency, Demand Response, and Onsite Solar Energy in Pennsylvania*, prepared by ACEEE, April 2009.

<sup>14</sup> <http://www.eecbg.energy.gov/#lc1>, April 23, 2009

heating systems and also has a lease-financing product for large nonprofit institutions (schools and hospitals) for energy conservation improvements.

- The Building Performance Institute (BPI) and Residential Energy Services Network (RESNET) training capabilities offer opportunities for PECO to ensure that auditors are properly trained and qualified to provide services under this program. Many utilities collaborate with these groups to bring training to their area so that a trained workforce is available to perform the work promoted under their programs.

## **F. Program Issues, Risks, and Risk Management Strategies**

There are several issues associated with providing an energy efficiency program to government, public, and non-profit customers. Key ones are identified below, along with how the Government/Public/Non-Profit Facility Energy Savings program can address them.

- Governmental agencies typically have more complex procurement practices than private businesses. For implementation of the program to be successful, the outreach, project scheduling, incentive fulfillment process, and trade ally involvement strategies used by the implementation contractor all need to reflect understanding and accommodation of these practices.
- Access to EECBG funds by the target market customers, while providing additional financial assistance to enable projects, may also impose additional steps in the project development cycle, possibly further increasing the lead time for projects. Close coordination with issuers of ARRA funds and assistance to participating customers will be important to ensuring successful project completion and participant satisfaction.
- Government and public agencies will need help identifying and prioritizing energy-saving opportunities. The audit component will directly address this need. But a commercial building audit often costs about \$20,000. While the program will provide at least partial reimbursement of this cost to customers who install recommended measures, the up-front cost will be borne by the customer unless “bought down” by the contractor who will perform the work.
- The program will require the availability of a sufficient number of qualified auditors. This means that training needs to be procured prior to the launch of other program components. This should not be difficult but needs immediate attention, well before program launch. Furthermore, the issue of how the training will be paid for needs to be worked out. In many areas with similar programs, contractors are fully responsible for the cost of their training, though the training provider or program sponsor may cover some or all of the cost if certain conditions are met; e.g., purchase of blower door or other diagnostic equipment, completion of a certain number of audits.
- Identifying whether a customer has non-profit status, and therefore whether it is eligible to participate in this program instead of taking advantage of Commercial & Industrial Equipment Incentives, may be confusing. This is particularly true of hospitals, which sometimes change status from public to private or vice-versa. The program addresses this potential problem by offering the same incentives on applicable measures in both programs and clearly defining eligibility criteria for audit rebates. This will avoid possible dissatisfaction among customers whose status changes during their participation in the program.

## G. Ramp Up Strategy

PECO will select an implementation CSP with experience in working with government, public, and non-profit customers; and with implementing energy efficiency programs. Since this is a relatively diverse market, with special contracting requirements, a relatively long time is allocated to developing the program prior to rollout. All the elements to encourage and support immediate participation, including availability of qualified facility auditors, will be in place prior to the program launch.

## H. Marketing Strategy

PECO will select an implementation CSP with experience in promoting commercial and industrial energy efficiency programs and in performing outreach to government, public, and non-profit customers in particular. The CSP will have experience in working with equipment suppliers and contractors who work with these customers and with facility auditors, ensuring that they are aware of and understand the program and measures that qualify for incentives. Notably, this experience needs to extend to all types of customers, from small non-profit businesses to hospitals, commercial buildings and large industrial process facilities to governmental agencies.

## I. Eligible Measures and Incentives

### Measures

Both prescriptive and custom measures are eligible for incentives under this program. Prescriptive measures offered and associated rebates will be defined and listed for customers. These include all the street lighting and traffic signal measures. Custom projects, consisting of energy-saving measures not listed or involving multiple systems are also eligible. The proposed measures are included in the table below.

### Incentives

On average, incentive levels provided to customers/contractors for installation of rebate-eligible measures are about 33% of the incremental measure costs. That is, the additional cost of a high-efficiency measure beyond a standard-efficiency alternative.

Additionally, it is assumed that each participating facility (not street lights or traffic signals) will have an audit performed, to identify energy-savings opportunities, at a cost of \$20,000 per facility. Customers/contractors who install measures recommended as part of the audit can receive reimbursement from PECO for part of their audit costs, up to \$10,000. The amount will be based on the customer/contractor cost of the improvements. For planning purposes, we assumed this reimbursement to be \$5,000 or 25% of the average audit cost.

**Government/Public/Non-Profit Facility Energy Savings Proposed Measures  
—Per-Unit Savings, Costs, and Incentives**

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
High-efficiency cooling - packaged units - 10.1 EER - 30 tons	105	0.068	15	\$49	\$16	per ton cooling
High-efficiency cooling - packaged units - 11 EER -	206	0.134	15	\$103	\$34	per ton cooling

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
30 tons						
High-efficiency cooling - packaged units - 11.5 EER - 30 tons	255	0.165	15	\$134	\$45	per ton cooling
High-efficiency air-source HP - 10.1 EER - 30 tons	590	0.118	15	\$146	\$49	per ton cooling
High-efficiency air-source HP - 11 EER - 30 tons	916	0.183	15	\$247	\$82	per ton cooling
Ground-source heat pump	1,503	0.300	30	\$1,238	\$413-40	per ton cooling
HVAC tune-up	7,800	4.866	5	\$7,950	\$2,650	per HVAC unit
HVAC optimal start/stop	3,427	0.478	15	\$1,500	\$500	per control point
CFL bulbs	153	0.036	3	\$5.00	\$2.50	per lamp
CFL fixtures	276	0.066	6	\$100	\$50	per fixture
High-efficiency lighting - T-8	112	0.027	10	\$85	\$14	per fixture
High-efficiency lighting - T-5	465	0.111	10	\$120	\$40	per fixture
High-efficiency lighting - HID	270	0.064	6	\$60	\$20	per fixture
LED exit signs	307	0.035	15	\$104	\$34	per sign
Occupancy sensors	35	0.008	8	\$60	\$20	per sensor
White roofs	0.11	0.00006	20	\$0.21	\$0.07	per roof ft <sup>2</sup>
Premium-efficiency motors	35	0.004	20	\$5.70	\$1.90	per hp
Energy management control system	3.52	0.000	15	\$0.62	\$0.21	per bldg. ft <sup>2</sup>
Lighting control system	0.08	0.000	15	\$0.22	\$0.07	per bldg. ft <sup>2</sup>
LED traffic lights - green 8"	226	0.060	10	\$145	\$48	per lamp
LED traffic lights - green 12"	520	0.138	10	\$155	\$52	per lamp
LED traffic lights - yellow 8"	10	0.059	10	\$145	\$48	per lamp
LED traffic lights - yellow 12"	24	0.070	10	\$155	\$52	per lamp
LED traffic lights - red 8"	299	0.062	10	\$145	\$48	per lamp
LED traffic lights - red 12"	694	0.144	10	\$155	\$52	per lamp
LED traffic lights-Walk/Don't Walk - 9"	491	0.056	10	\$145	\$48	per lamp
LED traffic lights-Walk/Don't Walk - 12"	946	0.108	10	\$155	\$52	per lamp
Metal halide streetlights	657	0.000	6	\$60	\$20	per lamp

Measure	Annual kWh Savings per Unit	kW Savings per Unit	Useful Life of Measure (years)	Increm. Cost per Unit	Incentive per Unit	Unit Definition
High pressure sodium streetlights	657	0.000	15	\$30	\$10	per lamp
LED streetlights	548	0.000	20	\$400	\$133	per lamp
Induction fluorescent streetlights	569	0.000	20	\$200	\$67	per lamp
Custom measures	240,000 kWh per project	40 kW per project	15	\$0.33	\$0.07	per kWh saved or an equivalent based on the appropriate units
Energy Audit	0	0.000	0	\$20,000	\$5,000	per audit

**Note: PECO will offer a 10% incentive increase for LED traffic light replacements of 20,000 or more when installations are completed before 5/31/12.**

## J. Program Schedule

The Government/Public/Non-Profit Facility Energy Savings program will be submitted for approval by the Commission in PY 2009 Q1, prepared for operation during PY 2009 Q2/Q3, and rolled out to the public during PY 2009 Q4. The program will operate from the latter part of program year PY 2009 through PY 2012. The following table provides a schedule of key milestones:

### Proposed Government/Public/Non-Profit Facility Energy Savings Implementation Schedule

Key Milestone	Timing
Assign PECO program manager and staff	July 2009
Begin final program design	September 2009
Select and contract with program implementation CSP	November 2009
Complete program design	February 2010
Pre-rollout program development: Conduct auditor/contractor training and recruitment Develop protocols for working with public agency customers	September 2009 – February 2010
Program rollout	March 2010 (PY 2009 Q4)
Prepare reports: Documentation of program activities and progress toward goals by CSP	Monthly throughout program implementation period

Reports to Commission	Quarterly, and annually each July 15th
Conclude program operation for this planning cycle	May 2013

## **K. Evaluation, Measurement, and Verification Requirements**

The evaluation methodology and data collection proposed for the program are guidelines that reflect current measurement and verification (M&V) practices. The ultimate M&V requirements for this program will conform with the state protocols, once they are published.

### Metrics for Gauging Program Success

- Energy savings from completed projects (toward goal of achieving 10% of the plan savings through projects in this sector)
- Number of participating facilities or projects
- Number of facility audits requested/completed
- The percent of recommended measures installed per completed audit
- Understanding of and satisfaction with the program by target market customer and upstream providers/participants

### Data Collection Approaches

Data for evaluating the program will come from the following sources:

- Impact Evaluation
  - Tracking system data for all projects
  - On-site inspection and sub-metering of a sample of custom projects to verify operation as reported
  - PECO customer energy consumption data for engineering or statistical analyses of impacts
- Process Evaluation
 

Evaluation of program design and implementation performance will be conducted by gathering and analyzing data through a variety of surveys and interviews, including:

  - Surveys of target market customers (participants and nonparticipants)
  - Surveys of public facility equipment suppliers and service providers who participate and/or promote the program
  - Interviews with the implementation CSP and PECO program staff
  - Review of program documents and tracking system data

### Impact Evaluation Methodology

The program will record energy savings and peak load reductions from the rebate applications processed. For prescriptive measures, recorded savings will use the per-unit deemed savings

values. Because prescriptive measures are established technologies and data are available demonstrating the reliability of savings, it will not be necessary to conduct customer-level billing analyses or metering studies on these projects. However, some projects will be inspected for independent verification of installation and operation as reported.

For custom measure projects, the gross savings need to be estimated based on engineering models and estimates. The M&V assessment will necessarily require pre/post building simulation modeling, billing analyses and/or sub-metering of select projects to verify savings.

PECO will credit toward the program only savings from rebated measures. This means that any additional purchases that may be induced by the program but not rebated—that is, spillover or free-driver effects—are not claimed by PECO under the program. Assessment of free-rider and free-driver effects, if deemed appropriate, may be conducted using customer billing and survey data in conjunction with established M&V methodologies and procedures.

#### Process Evaluation Methodology

Evaluation of the program implementation is important to ensure that the program is operating as intended and to provide information that can enable improvements in both the program design and implementation. Process evaluations will be undertaken and conducted throughout the program by the implementation and the M&V contractor(s) selected by PECO.

Process evaluations will assess customer understanding, attitudes about, and satisfaction with both the program and with PECO's broader educational activities. The evaluations will make use of survey data collected by the implementation and M&V contractors. These surveys will include both customers known to have participated in the program and eligible nonparticipants. The diversity of customers in this target market, including large and small government agencies, traffic signal and street light operators, local schools and public colleges, public health facilities, and other non-profit agencies means that survey content and fielding will need to accommodate a wide variety of participation experiences.

Interviews with program service providers, including auditors, will be conducted to assess satisfaction with the program and to identify problems and possible program services/implementation improvements.

The M&V contractor will also help PECO assess the performance of the program design and delivery of the products and services featured in the program, including effectiveness of the marketing and educational materials, effectiveness of advertising and promotional campaigns and messages, effectiveness of the trade ally involvement, and whether implementation milestones are met adequately and on schedule. These evaluations will use data maintained by the implementation CSP, information provided by PECO, and customer survey data.

#### **L. Administrative Requirements**

PECO will administer the Government/Public/Non-Profit Facility Energy Savings program through a CSP implementation contractor. PECO's role will be to ensure that

- the CSP performs all activities associated with delivery of all components of the program, and
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The program is expected to operate with the following PECO/Contract staffing mix:  
**Government/Public/Non-Profit Facility Energy Savings—Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager: Responsible for final design and launch of program.	0.75 FTE in PY 2009 (0.75 yr. @ 1.0 FTE), 1.0 FTE in PY 2010 through PY 2012
Analyst/contract administrator: Responsible for administering and overseeing CSP and providing other back-office support to the program manager.	0.25 FTE in PY 2009 (0.5 yr. @ .5 FTE), 0.5 FTE in PY 2010 through PY 2012
Engineer: Provide assistance to customers, contractors, and implementation CSP to ensure proper estimation of project savings and review of audit results and recommendations.	0.25 FTE in PY 2009 (0.5 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012
Business analyst: Responsible for coordinating with other collaborative resource agencies to assist customers in this market.	0.25 FTE in PY 2009 (0.5 yr. @ 0.5 FTE), 0.5 FTE in PY 2010 through PY 2012

### **M. Estimated Participation**

Participation and measure adoption estimates were developed based on the size a makeup of government and public facilities in PECO's service territory on assessment of the attainable market potential in the area, and the experience of other organizations that have offered this type of program.

### **Government/Public/Non-Profit Facility Energy Savings Program—Estimated Participation by May 2013**

	<b>Adoption</b>	<b>Installations</b>
Street light replacements	Replace 5% of current incandescent and mercury vapor stock	2,590 lamps
Traffic signal replacements	Replace 90% of incandescent stock in city; replace 72% of incandescent stock in suburbs	76,234 lamps
Prescriptive measures		99,799 installations
Custom measures		275 projects
Energy Audits	All custom projects plus about half participants with prescriptive measures	612 audits

### **N. Estimated Program Budget**

Approval of the plan is anticipated in PY 2009 Q2, with program launch in the latter part of that program year. The following cost estimates reflect this timing.

**Government/Public/Non-Profit Facility Energy Savings—Proposed Budget**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
PECO Admin Labor	\$217,500	\$370,800	\$381,924	\$393,382	\$1,363,606
Implementation Contractor	\$496,020	\$1,770,130	\$3,383,354	\$5,098,959	\$10,748,462
Umbrella Costs	\$202,914	\$237,003	\$244,113	\$251,436	\$935,467
Program-Specific Education	\$37,500	\$77,250	\$79,568	\$81,955	\$276,272
Promotion	\$100,000	\$51,500	\$53,045	\$54,636	\$259,181
M&V	\$72,806	\$319,195	\$375,574	\$439,248	\$1,206,823
Incentives	\$1,372,930	\$8,133,146	\$8,377,141	\$8,761,221	\$26,644,438
<b>Total</b>	<b>\$2,499,671</b>	<b>\$10,959,024</b>	<b>\$12,894,718</b>	<b>\$15,080,837</b>	<b>\$43,564,598</b>

The program costs were estimated using the following information and estimates:

- The values in the budget table include an escalation rate of 3% per year after PY 2009. The escalation applies to PECO admin labor, implementation, umbrella costs, education, promotion and M&V costs.
- PECO Administration (Staffing)—see above
- CSP Implementation—Includes cost of providing the following:
  - Coordination of and with relevant collaborative resources
  - Participant recruitment and assistance—including qualified auditors, contractors, and customers; scheduling audit appointments
  - Rebate processing and fulfillment
  - Program monitoring and tracking—including recording and reporting of activities, providing required data for PECO’s tracking system and regulatory reporting, complaint resolution, and process tracking and improvements
- Umbrella Costs—Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.
- Program-Specific Education—Estimated costs of education are \$75,000 in PY 2009, to ensure adequate training of auditors and program understanding by trade allies and affinity groups.
- Promotion—Including multiple direct mail and bill inserts to the target market, with an especially large effort in PY 2009 to make these customers and their contractors aware of the program and activities to help them access ARRA funds.
- Measurement and Verification (M&V)—Including impact and process evaluation activities conducted by a contractor other than the implementation CSP; costs are anticipated to equal 3% of total program budget (including incentives, excluding M&V costs).

- Incentives—The incentives budget is based on per-unit incentive allowances and estimated number of installations. Overall, the incentives represent 61% of the total program budget over all four program years.

**O. Projected Energy Savings and Demand Reduction**

The estimated energy savings and demand reduction are based on annual per-unit kWh and kW values and effective useful life values provided in the TRM, where available. For the remainder, savings estimates were developed using information and the savings calculator in the ENERGY STAR website, other secondary data such as Commonwealth Edison Company's 2008-2010 Energy Efficiency and Demand Response Plan, and Global Energy Partner's Database of Energy Efficiency Measures for the Northeast region.

Prescriptive measure per-unit values and customer per-project values were applied to the estimated number of installations rebated under the program each year. The savings noted in each year reflect the savings from measures installed by customers in that year plus the impact of measures still in operation from previous years.

Since the planning years run June 1 through May 31 each year, the program will be in operation during PY 2009 for only 7 months and PY 2012 runs through May 2013. The participation estimates reflect this timing.

**Government/Public/Non-Profit Facility—Cumulative Energy and Peak Demand Savings Estimates**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>
Energy Savings (MWh)	9,920	68,743	127,565	186,651
Peak Demand Reduction (MW)	2.335	15.693	29.050	42.556

**P. Cost-Effectiveness**

Program Savings Acquisition Cost Calculation

This is the total program budget divided by estimated energy savings at key points during the program during this planning cycle.

- Savings Cost over the PY 2009-PY 2010 timeframe (through May 2011): \$0.196/kWh
- Savings Cost over the PY 2009-PY 2012 timeframe (through May 2013): \$0.222/kWh

Levelized Savings Cost Calculation

This is the lifetime cost of the program divided by the lifetime savings of the installed measures.

- Levelized Savings Cost of Energy Saved: \$0.038/kWh
- Levelized Cost of Reduced Peak Demand: \$176/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
Government/Public /Non-Profit Facility Energy Savings	\$155	\$93	\$62	1.67

**Q. Plan Adjustments 07/15/11**

Establishment of an Application Waitlist

PECO proposes to establish a waitlist for incentive applications under this Program as soon as the Company receives Commission approval. The waitlist will allow the Company to meet Portfolio savings targets and also manage customer expectations regarding incentive availability under this Program. If the Commission approves the waitlist proposal, the Company will place applications in the waitlist based on the date they were received. Applicants will be notified that they are on the waitlist and will be contacted if they are eligible for an incentive. In the event that: (1) a pre-waitlist application drops out of a Program queue; or (2) the energy savings for the Program is projected to fall short of targets, the Company will process and pay incentives for applications in the Program waitlist on a first-come, first-served basis. The Company will continue to process and pay incentives on the applications that it received before the waitlist was established.

### **3.3.7 DR Program 7—Permanent Load Reduction**

#### **A. Program Title and Program Years**

Program Name: Permanent Load Reduction

Program Years: Development: PY 2009; Operation: PY 2010-PY 2012

#### **B. Objectives**

The objective of this program is to realize energy savings and peak demand reductions from eligible commercial/industrial customers in PECO's service territory during the top 100 hours. The targeted net system peak demand reduction from this program is set at about 15 MW by the end of PY 2012.

#### **C. Target Market**

This program will be targeted toward all eligible commercial/industrial customers in PECO's service territory.

#### **D. Program Description**

This program is designed to encourage customers to permanently move electricity usage from peak periods to off-peak periods on an ongoing basis. Energy storage systems or any other technologies that permanently shift or eliminate load from peak to off-peak periods that are deployed at customer sites would be eligible for the program. Examples of such systems may include technologies like Gas Absorption chillers and Thermal Energy Storage (ice building for cooling) systems. The program is not restricted to offering incentives for any specific technology and encompasses any measure option that enables permanent load shifting, like an energy efficiency lighting upgrade, or process equipment modernization in which a reduction in energy consumption can be verified. ~~Also Retro-commissioning activities are eligible to receive incentives under this program.~~ This program would be designed in the same manner as the Custom Rebate portion of the C&I Equipment Incentives program.

#### **E. Implementation Strategy**

PECO will implement the Permanent Load Reduction (PLR) program through one or more CSP implementation contractors, directly with end use customers, and architectural, mechanical and electrical engineering/design firms. PECO's role will be to ensure that:

- the CSP performs all the activities associated with delivery of all components or the program
- PECO's educational and program messages are delivered accurately and clearly to ensure the effectiveness of program delivery and maximize customer satisfaction with the program.

The key elements in the implementation strategy are:

- Program staff assignment- PECO will select and assign a program manager and an engineer for developing this program, following approval by the Commission.
- Contract with outside implementation contractor- PECO will select and contract program implementation with an outside CSP.

- Customer Recruitment and Assistance- Eligible commercial/industrial customers who can install permanent load shifting technologies will be recruited to participate in the program. The contractor will be responsible for customer recruitment, as well as assisting customers with development of estimates and documentation for approval of custom measure projects.
- Program marketing- PECO staff along with the contractor will be responsible for distribution of program materials to eligible participants. PECO's account representatives will have primary responsibility for establishing direct communication with the customers in order to promote the program. Direct mail can also be used for program promotion.
- Customer education- The contractor will be responsible for educating participants about the program through one-on-one contacts and through training workshops, lectures, and seminars.
- Incentive processing- The contractor will be responsible for receiving, review and verifying incentive applications. Incentives can be paid directly by the contractor or submitted to PECO for payment.
- Reporting- This will involve reporting of program activities to meet regulatory and internal requirements, including progress toward program goals
- Program performance tracking and improvement- This will involve tracking performance of the technologies used for load reduction, incentive submittals and payments, and identification of areas for program improvement.

## **F. Program Issues, Risks, and Risk Management Strategies**

Unlike the other DR measures, most projects designed for permanent load shift exhibit a documentable reduction in demand for energy. As such once verified, the demand reduction is by definition, permanent. The demand reductions from this program will be realized during the top 100 hours annually.

## **G. Ramp Up Strategy**

Program participant recruitment activity starts in PY 2009, even though program impacts are not realized in that year since PY 2009 ends May 31, 2010, which is prior to the start of the 2010 DR season.

## **H. Marketing Strategy**

The marketing strategy for the PLR program will be based on a business to business approach through PECO's account management, in addition to equipment manufactures, trade allies, and engineering & design firms. The implementation contractor(s) will be responsible for distributing information about qualifying technologies and with assisting customers in program participation.

## **I. Eligible Measures and Incentives**

Examples of technologies that lead to permanent load reduction are:

- Gas Absorption Chiller System
- Thermal Energy Storage System
- ~~Retro-commissioning projects~~

Incentives are administered, similar to custom rebates in energy efficiency programs, at a level of 21% of per participant cost. For the three measures mentioned here, that effectively translates into incentive levels indicated in the table below.

Measures	Per Participant Annual Incentives (\$/kW)
a. Gas absorption chiller system	\$343
b. Thermal energy storage system	\$350
e. Retro-commissioning	\$227

## J. Program Schedule

### Proposed Permanent Load Reduction Program Schedule

Key Milestone	Timing
Assign PECO program manager and staff	October 2009
Begin final program design	October 2009
Select and contract with program implementation CSP(s)	November 2009
Complete program design	March 2010
Pre-rollout program development: Conduct contractor recruitment and training	October 2009
Program rollout: Launch marketing and outreach Undertake customer education Perform verifications and improvements	April 2010 April 2010 June 2010 – May 2013
Prepare reports: Documentation of program activities and progress toward goals by CSP  Reports to Commission	Monthly throughout program implementation period  Quarterly, and annually each July 15
Conclude program operation for this planning cycle	May 2013

## K. Evaluation, Measurement, and Verification Requirements

PECO will work with a third party M&V contractor to design and execute appropriate analyses of a statistically valid set of sites to verify load reductions at individual sites as well as aggregate load reductions achieved.

## L. Administrative Requirements

PECO will administer the program through one or more CSP implementation contractors. PECO's role will be to ensure that the CSP performs all implementation activities related to the program

The program is expected to operate with the following PECO/Contract staffing mix:

**Permanent Load Reduction Program – Proposed PECO/Contract Staffing**

<b>Staff</b>	<b>Allocation</b>
Program manager	0.38 FTE in PY 2009 0.5 FTE in PY 2010 through PY 2012
Engineer	0.25 FTE in PY 2009 0.5 FTE in PY 2010 through PY 2012

**M. Estimated Participation**

**Permanent Load Reduction—Estimated Participation ('number of participants' or 'units installed' per year)**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>
a. Gas absorption chiller system	2	10	15	15
b. Thermal energy storage system	2	3	5	5
e. Retro-commissioning	5	15	30	30
<b>Total no. of participants/units installed</b>	<b>9</b>	<b>28</b>	<b>50</b>	<b>50</b>

\*The proposed adjustment will not impact the total cost of the Program as incentives can be offered for other qualifying technologies.

**N. Estimated Program Budget**

The table below gives the estimated budget for the PLR Program.

**Permanent Load Reduction—Estimated Budget**

	<b>PY 2009</b>	<b>PY 2010</b>	<b>PY 2011</b>	<b>PY 2012</b>	<b>Total</b>
<b>Customer-Specific Costs</b>					
Incentive Costs	\$223,428	\$747,372	\$1,190,037	\$1,233,180	\$3,394,017
<b>Sub-Total</b>	<b>\$223,428</b>	<b>\$747,372</b>	<b>\$1,190,037</b>	<b>\$1,233,180</b>	<b>\$3,394,017</b>
<b>Direct Labor Costs</b>					

Program Manager	\$56,250	\$77,250	\$79,568	\$81,955	\$295,022
Engineer	\$37,500	\$77,250	\$79,568	\$81,955	\$276,272
<b>Sub-Total</b>	<b>\$93,750</b>	<b>\$154,500</b>	<b>\$159,135</b>	<b>\$163,909</b>	<b>\$571,294</b>
<b>Other Program Services</b>					
Implementation Contractor (CSP) <sup>52</sup>	\$0	\$198,296	\$493,021	\$805,252	\$1,496,569
Umbrella Costs <sup>53</sup>	\$31,218	\$36,462	\$37,556	\$38,683	\$143,918
Evaluation <sup>54</sup>	\$7,639	\$29,464	\$51,618	\$62,313	\$151,035
Education <sup>55</sup>	\$0	\$0	\$0	\$0	\$0
IT System enablement costs	\$0	\$0	\$0	\$0	\$0
Promotion <sup>56</sup>	\$0	\$0	\$0	\$0	\$0
<b>Sub-Total</b>	<b>\$38,857</b>	<b>\$264,221</b>	<b>\$582,196</b>	<b>\$906,248</b>	<b>\$1,791,522</b>
<b>Grand Total</b>	<b>\$356,035</b>	<b>\$1,166,093</b>	<b>\$1,931,368</b>	<b>\$2,303,338</b>	<b>\$5,756,833</b>

## O. Projected Energy Savings and Demand Reduction

### Cumulative Energy and Peak Demand Savings Estimates

	PY 2009	PY 2010	PY 2011	PY 2012
Energy Savings (MWh)	451	6,325	17,607	28,888
Peak Demand Reduction (MW)	0.0	3.9	9.3	14.7

## P. Cost-Effectiveness

- Levelized Cost of saved energy: \$0.045/kWh
- Levelized Cost of saved capacity: \$89/kW-yr

Program	Dollars (Millions)			TRC
	Lifetime Benefits	Lifetime Costs	Net Benefits	
PLR Program	\$29	\$19	\$10	1.56

<sup>52</sup> Assume \$50/kW costs for all four program years

<sup>53</sup> Each program in the plan will pay a proportional share of costs PECO will incur to build infrastructure and support the programs. This includes additional PECO staff for program and M&V oversight, general energy efficiency education, tracking database development and EE&C Plan development costs.

<sup>54</sup> Evaluation costs are assumed to be 3% of program implementation costs

<sup>55</sup> This is the contractor's responsibility, so no costs are incurred by PECO.

<sup>56</sup> This is the contractor's responsibility, so no costs are incurred by PECO.

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