Exelon Business Services Company
Legal Department
2301 Market Street/S23-1
Philadelphia, PA 19103
215 568 3389 Fax
www.exeloncorp.com

Direct Dial: 215.841.5974

February 22, 2013

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, Second Floor
Harrisburg, PA 17120

RE: Petition of PECO Energy Company for Expedited Approval of Certain Revisions to its Initial Dynamic Pricing and Customer Acceptance Plan
Docket No. P-2012-2297304

Dear Ms. Chiavetta:

Enclosed for filing is the Petition of PECO Energy Company for Expedited Approval of Certain Revisions to its Initial Dynamic Pricing and Customer Acceptance Plan. Please also find enclosed a Certificate of Service, indicating that a copy has been served on the parties of record.

Sincerely,

Craig Williams
Assistant General Counsel
Exelon Business Services Company
Counsel for PECO Energy Company

/adz

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PETITION OF PECO ENERGY COMPANY FOR EXPEDITED APPROVAL OF ITS DYNAMIC PRICING PLAN VENDOR SELECTION AND DYNAMIC PRICING PLAN SUPPLEMENT	:	**DOCKET NO. P-2012-2297304**

CERTIFICATE OF SERVICE

I hereby certify and affirm that I have this day served a copy of the following **Petition of PECO Energy Company for Expedited Approval of Certain Revisions to its Initial Dynamic Pricing and Customer Acceptance Plan** upon the following persons in the manner specified in accordance with the requirements of 52 Pa. Code § 1.54:

VIA FEDERAL EXPRESS & ELECTRONIC MAIL

Tanya J. McCloskey
Acting Consumer Advocate
Jennedy S. Johnson
Assistant Consumer Advocate
Office of Consumer Advocate
555 Walnut Street
5th Floor, Forum Place
Harrisburg, PA 17101-1923
tmccloskey@paoca.org
jjohnson@paoca.org

Sharon E. Webb
Assistant Small Business Advocate
Office of Small Business Advocate
Suite 1102, Commerce Building
300 North Second Street
Harrisburg, PA 17101
swebb@pa.gov

Richard A. Kanaskie
Pennsylvania Public Utility Commission
Bureau of Investigation & Enforcement
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120
rkanaskie@pa.gov

Daniel Clearfield
Deanne M. O'Dell
Eckert Seamans Cherin & Mellott, LLC
213 Market Street, 8th Floor
Harrisburg, PA 17108-1248
dclearfield@eckertseamans.com
dodell@eckertseamans.com

Counsel for Direct Energy Services, LLC and Direct Energy Business, LLC

Charis Mincavage
Adeolu A. Bakare
McNees Wallace & Nurick LLC
100 Pine Street
P.O. Box 1166
Harrisburg, PA 17108-1166
cmincavage@mwn.com
abakare@mwn.com

Counsel for the Philadelphia Area Industrial Energy Users Group

Carl R. Shultz
Eckert Seamans Cherin & Mellott, LLC
213 Market Street, 8th Floor
Harrisburg, PA 17108-1248
cshultz@eckertseamans.com

Counsel for Reliant Energy Northeast LLC

Respectfully submitted,

Anthony E. Gay (Pa. No. 74624)
W. Craig Williams (Pa. No. 306405)
Exelon Business Services Company
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101-8699
Phone: 215.841.4635
Fax: 215.568.3389
E-mail: anthony.gay@exeloncorp.com
craig.williams@exeloncorp.com

Thomas P. Gadsden (Pa. No. 28478)
Catherine G. Vasudevan (Pa. No. 210254)
Morgan, Lewis & Bockius LLP
1701 Market Street
Philadelphia, PA 19103-2921
Phone: 215.963.5234
Fax: 215.963.5001
E-mail: tgadsden@morganlewis.com
cvasudevan@morganlewis.com
Counsel for PECO Energy Company

February 22, 2013

3081179

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

PETITION OF PECO ENERGY COMPANY FOR EXPEDITED APPROVAL OF ITS DYNAMIC PRICING PLAN VENDOR SELECTION AND DYNAMIC PRICING PLAN SUPPLEMENT	:	**DOCKET NO. P-2012-2297304**

PETITION OF PECO ENERGY COMPANY FOR EXPEDITED APPROVAL OF CERTAIN REVISIONS TO ITS INITIAL DYNAMIC PRICING AND CUSTOMER ACCEPTANCE PLAN

PECO Energy Company ("PECO" or the "Company") hereby petitions the Pennsylvania Public Utility Commission (the "Commission") to approve certain revisions to the Company's Initial Dynamic Pricing and Customer Acceptance Plan (the "Dynamic Pricing Plan" or "Plan").[1] The proposed revisions, which are set forth in the amended Plan attached hereto as Exhibit No. 1, provide a more focused and productive approach to investigating the core components of a dynamic rate offering and facilitating a pilot of such an offering supplied by an electric generation supplier ("EGS"). By this Petition, PECO requests that the Commission, on an expedited basis: (1) find that the Plan, as revised herein, satisfies the dynamic rate requirements of Act 129; and (2) reaffirm its prior approval of PECO's proposed recovery of Plan costs through Generation Supply Adjustment ("GSA") filings.

---

[1] As discussed hereinafter, the Company's Dynamic Pricing Plan was first approved by Commission Order entered April 15, 2011 at Docket No. M-2009-2123944 and was then later amended by Commission Order entered September 26, 2012 at Docket No. P-2012-2297304.

I. BACKGROUND

A. Act 129 Smart Meter Provisions

1. PECO is a corporation duly organized 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, Governor Edward G. Rendell signed Act 129 into law, and it was subsequently codified in the Pennsylvania Public Utility Code. On June 24, 2009, the Commission entered an order providing standards and guidance for implementing the smart meter requirements of Act 129. *See Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Order entered June 24, 2009).

3. Act 129's smart meter provisions require each electric distribution company ("EDC") with at least 100,000 customers to submit, for Commission approval, a smart meter technology procurement and installation plan. 66 Pa. C.S. § 2807(f). Each plan must describe the smart meter technologies the EDC proposes to install upon customer request at the customer's expense, in new building construction and in accordance with a depreciation schedule not to exceed 15 years. *Id.* The Act further defines minimum smart meter technology capabilities, including enabling time-of-use rates and real-time price programs, and provides for full recovery of all prudent and reasonable costs. 66 Pa. C.S. § 2807(f)-(g).

4. Act 129 also requires that specific kinds of rates be offered to customers who have been provided with smart meter technology. In particular, EDCs were directed to submit

"one or more proposed time-of-use rates and real-time price plans" by January 1, 2010, or at the end of the applicable generation rate cap period, whichever was later.[2] 66 Pa. C.S. § 2807(f)(5).

5. A time-of-use ("TOU") rate is defined as a rate that reflects the costs of serving customers during different time periods, including off-peak and on-peak periods, but not as frequently as each hour. *See* 66 Pa. C.S. § 2806.1(m). A real-time price is defined as a rate that directly reflects the different cost of energy during each hour. *Id.*

B. PECO's Smart Meter and Dynamic Pricing Plans

6. On August 14, 2009, the Company filed its proposed Smart Meter Technology Procurement and Installation Plan ("Smart Meter Plan"). Subsequently, a settlement was achieved whereby most issues in the proceeding were resolved. The Commission approved PECO's Smart Meter Plan by Order entered May 6, 2010, including the Company's plans to procure and install certain smart meter infrastructure, to initially deploy 600,000 smart meters, and to implement appropriate cost recovery mechanisms. *See Petition of PECO Energy Company for Approval of its Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123944 (Order entered May 6, 2010).

7. The Smart Meter Plan details a two-phase strategy for the deployment of smart meter technology. The first phase comprises the selection, testing and validation of the smart meter technology to be deployed; the deployment of the advanced metering infrastructure communication network; the initial deployment of 600,000 smart meters; and the development of

[2] PECO's generation rate cap period ended on December 31, 2010.

a program to test customer acceptance of initial dynamic pricing options. The second phase will complete the deployment of smart meters across PECO's service territory.[3]

8. On October 27, 2009, while the Smart Meter Plan was pending, PECO was notified that its application to obtain a $200 million Smart Grid Investment Grant from the Department of Energy ("DOE") to offset certain smart meter and smart grid costs was successful.

9. On October 28, 2010, the Company filed its proposed Dynamic Pricing Plan. Subsequently, a settlement was achieved whereby most issues in the proceeding were resolved. The Commission approved PECO's Dynamic Pricing Plan by Order entered April 15, 2011. *See Petition for Approval of PECO Energy Company's Initial Dynamic Pricing and Customer Acceptance Plan*, Docket No. M-2009-2123944 (the "*2011 Dynamic Pricing Order*").

10. The Plan included the implementation of a multi-staged "test and learn" approach to determine effective combinations of dynamic rate design, technology, marketing and educational strategies. The "test and learn" program was designed to target approximately 200,000 customers and utilize two different dynamic rate structures: TOU and Critical Peak Pricing ("CPP").[4]

11. On April 29, 2011, the Commission initiated a state-wide investigation with the goal of "making improvements to ensure that a properly functioning and workable competitive

---

[3] On January 18, 2013, PECO filed its proposed Smart Meter Universal Deployment Plan. The plan is currently pending before the Commission. *See* Docket No. M-2009-2123944.

[4] The CPP rate featured a discounted flat rate for all kWh's consumed other than on those occasions when a critical day is called (critical days would be called 15 days per summer).

retail electricity market exists in the state."[5] As part of the investigation, the Commission issued an order recommending that "EDCs contemplate contracting with an EGS in order to satisfy their [Act 129] TOU requirement." *See Investigation of Pennsylvania's Retail Electricity Market: Recommendations Regarding Upcoming Default Service Plans,* Docket No. I-2011-2237952 (Order entered December 16, 2011).

12. In response to this recommendation, on April 2, 2012, PECO filed a petition seeking approval of: (1) a Dynamic Pricing Plan supplement reflecting changes to facilitate the new EGS role; and (2) the selection of Reliant Energy Northeast LLC ("Reliant") to provide TOU service. The Plan supplement detailed changes to: (1) the provision of commodity supply (Reliant instead of PECO); (2) the dynamic rate structure (TOU instead of CPP and TOU); and (3) the pilot size and term (a single solicitation of 140,000 customers for a one-year pilot instead of multiple solicitations of 200,000 customers for a two-year pilot). The Company estimated that its proposed changes would reduce the overall cost of the Dynamic Pricing Plan from $11.6 million to $7.4 million. No changes were proposed to the cost recovery and allocation methodologies established in the *2011 Dynamic Pricing Order.* All other requirements, protections and commitments made in the original Dynamic Pricing Plan remained the same.

13. On September 26, 2012, the Commission entered an order approving the vendor selection and Plan supplement, subject to limited revisions to the terms and condition of the TOU pilot. *See Petition of PECO Energy Company for Expedited Approval of its Dynamic Pricing Plan Vendor Selection and Dynamic Pricing Plan Supplement,* Docket No. P-2012-2297304 (the "*2012 Dynamic Pricing Order*"). In particular, the Commission found that customers enrolled in

---

[5] *See Investigation of Pennsylvania's Retail Electricity Market,* Docket No. I-2011-2237952 (Order entered April 29, 2011).

the TOU pilot "should remain with Reliant unless they affirmatively choose to receive service from an alternative EGS or to return to PECO's default service offering." *2012 Dynamic Pricing Order* at p. 12.

II. PROPOSED PLAN REVISIONS

14. Through this filing, PECO is proposing certain revisions to its previously approved Dynamic Pricing Plan to provide a more focused and productive approach to investigating the core components of a dynamic rate offering by facilitating a pilot of a dynamic rate offering supplied by an EGS. As detailed below, the recommended Plan modifications would: (1) reduce the complexity of the TOU pilot and increase the use of customer focus groups; (2) assign Reliant both the commodity supply and program management tasks for the TOU pilot; and (3) separately test and analyze Home Area Network ("HAN")[6] devices in anticipation of their usage by customers and authorized third parties. In addition, the Company has prepared a summary chart of the revised Plan, which is attached as Exhibit No. 2.

A. TOU Pilot and Customer Focus Groups

15. PECO's existing Plan provides for the investigation of the TOU rate in concert with different combinations of technology (HAN devices), marketing strategies and customer education materials. The Plan includes six test cells for residential customers and a single test cell for small and medium commercial & industrial ("SMC&I") customers. In addition, there is a test cell for customers enrolled in the Company's Customer Assistance Program ("CAP") who

[6] Smartgrid.gov defines HAN as "a communication network within the home of a residential electricity customer that allows transfer of information between electronic devices, including, but not limited to, in-home displays, computers, energy management devices, direct load control devices, distributed energy resources, and smart meters."

will not be solicited for the TOU rate, but will receive in-home displays ("IHDs") and related educational materials.

16. Through this filing, the Company proposes to investigate the HAN devices outside of the TOU pilot. In particular, the Company will: (1) utilize customer focus groups to test and refine different marketing and customer education strategies before soliciting customers for the TOU pilot; (2) utilize recent research to infer the load impact of HAN devices on TOU customers; and (3) perform a separate Technology Demonstration and Test Plan, described in Section III.C. *infra*, to prepare for the use of HAN devices by customers and authorized third parties.

17. Customer focus groups will allow the Company to test a variety of educational and marketing materials in a less costly manner, receive customer feedback in real time, and refine those materials before proceeding with the TOU pilot. The Company further believes that it is appropriate to rely on recent research regarding the impact of HAN devices, which has found load reductions of approximately five to ten percent in response to peak prices versus similarly situated customers without such technology. These aspects of the Plan have helped to lower the overall cost to customers.

18. The more focused TOU pilot will employ a single residential test cell and maintain single test cells for SMC&I customers and CAP customers. Residential and SMC&I customers will receive a standardized offer package: a TOU rate structured by Reliant; customer education; benefits explanation; and first-year bill protection. The offer delivery method and content of marketing and educational materials will vary between the two test cells, each of which will be investigated as part of the customer focus group process. No changes have been made to the CAP test cell, wherein a sampling of CAP customers will be provided with IHDs

and related educational materials in order to evaluate the effect of near real time information feedback on their energy usage.

19. The Company still intends to solicit approximately 140,000 default service customers (120,000 residential, 10,000 SMC&I, and 10,000 CAP). PECO expects to send out offers in the fourth quarter of 2013 and to run the pilot for approximately one year. Because all residential solicitations will refer to the standardized offer (instead of being divided into six test cells with different offers), pilot results are more likely to be statistically significant, and the measurement and evaluation of those results will be less complex.

20. Finally, PECO will keep stakeholders and the Commission informed about Plan implementation through periodic stakeholder meetings, an interim report focusing on pilot enrollment, and a final report once the pilot is completed. The final report will provide load impact data for the pilot participants, summarize customer preferences for the standardized TOU rate offer and evaluate the marketing and customer education strategies tested in the focus groups.

B. Role of Reliant in the TOU Pilot

21. As noted above, the Dynamic Pricing Plan facilitates a pilot of a dynamic rate offering supplied by an EGS. Under its existing Dynamic Pricing Plan, the commodity supply task was assigned to Reliant and the program management task to an expert consulting firm, Freeman, Sullivan & Company ("FSC").

22. As commodity supplier, and consistent with the *2012 Dynamic Pricing Order*, Reliant will be identified as the supplier on the bills for customers who enroll in the TOU pilot. In addition, the structure of Reliant's TOU rate, including the definitions of peak and off-peak

periods, will remain the same as what was previously proposed and approved in the *2012 Dynamic Pricing Order.*

23. In light of the reduced scope and complexity of the TOU pilot, PECO proposes to utilize Reliant for both commodity supply and program management. PECO believes that the expertise of FSC is no longer required to implement pilot test cells and provide meaningful analysis of pilot data.[7] In addition, the selection of Reliant for the program management task contributed to the overall reduction in Plan costs from $7.4 million to $7.0 million.

24. Reliant will be responsible for tasks such as: developing customer education and marketing materials; developing and hosting a pilot website; providing a customer call center; providing bill protection checks; and tracking pilot data.

C. Technology Demonstration and Test Plan

25. Separate from the TOU pilot, the Technology Demonstration and Test Plan ("Technology Plan") will address the practical, on-the-ground aspects of HAN technology use in PECO's service territory. PECO proposes to conduct a sequential series of tests and demonstrations of HAN devices such as IHDs and programmable communicating thermostats ("PCTs") to prepare the Company to support the use of these devices by customers and authorized third parties (including EGSs).

26. The Technology Plan will be implemented in two parts. The first part is focused on the performance of HAN devices. In particular, the Company will: (1) conduct lab testing to verify that selected HAN devices meet PECO's performance requirements and are compatible with PECO's smart meters and smart meter network; (2) conduct limited customer premises

[7]The Company has discussed its decision with FSC, and FSC had no objections.

testing (approximately 100 participants) of the selected HAN devices in areas where smart meters are being deployed and involving a variety of building materials; and (3) conduct lab testing to determine the functionality and interoperability of the selected devices with broadband internet. Upon completion of the first part, which is projected to last between eighteen and twenty-four months, the Company will issue an interim report outlining lessons learned and recommendations for the second part.

27. In the second part, the Company will focus on its role to support the use of HAN devices by customers and authorized third parties. PECO will develop and test back office processes and IT functionality required to enable a customer, EGS or other third party to gain access to near real-time meter usage data, including the use of broadband internet for data and messages. Once this part is complete, the Company will issue a final report summarizing the results of the Technology Plan.

28. Overall, the Technology Plan will allow the Company to better define its role in supporting initial HAN device setup and customer and third-party access to near real-time smart meter data. PECO expects that these results will also be beneficial as Commission working groups develop statewide processes and standards for customer access to usage data.

29. The modifications proposed in Exhibit No. 1 do not alter existing provisions regarding customer eligibility and customer protections. In particular, and consistent with the *2011 Dynamic Pricing Order* and *2012 Dynamic Pricing Order*:

- Any eligible customer that has a smart meter installed and is not part of the pilot solicitation may request to be placed on the TOU rate.[8]

[8] In addition, if a customer does not yet have a smart meter, PECO will install a meter upon customer request.

- Residential customers (PECO Procurement Class 1) that are not enrolled on CAP will be eligible for the TOU rate.
- Residential customers who are currently in default on a payment arrangement or who currently are making payments subject to a payment arrangement will not be eligible to enroll in the Plan's TOU rate.
- SMC&I customers (which comprise PECO's Default Service Procurement Classes 2 and 3) will also be eligible for the TOU rate.
- Customers enrolled in the TOU pilot will remain with Reliant unless they affirmatively choose to receive service from an alternative EGS or to return to PECO's default service offering.

III. COST RECOVERY AND PLAN BUDGET

30. PECO is not proposing any changes to the cost allocation and recovery methodologies established in the *2011 Dynamic Pricing Order* and affirmed in the *2012 Dynamic Pricing Order*. In short, Dynamic Pricing Plan costs will be recovered from PECO's default service customers through its GSA mechanism. No costs will be assigned to Default Service Procurement Class 4 (large commercial and industrial customers), because those customers will not be eligible to participate in the Dynamic Pricing Plan.[9] Readily attributable Plan costs will be directly assigned to the Default Service Class for which such costs are incurred. All other costs, which cannot be directly assigned, will be allocated to Default Service Classes 1, 2, and 3 in proportion to each class's default service load. *See 2011 Dynamic Pricing Order* at pp. 16-21; *2012 Dynamic Pricing Order* at p. 10.

31. The Company estimates that its proposed revisions will reduce the overall cost of the Plan from $7.4 million to $7.0 million.

---

[9] Consistent with the original Plan, no additional dynamic pricing options are being proposed for large commercial and industrial customers because, pursuant to PECO's approved Default Service Plan, those customers have been offered a dynamic rate structure since January 1, 2011 - hourly pricing. *See Petition of PECO Energy Company for Approval Of Its Default Service Program And Rate Mitigation Plan*, Docket No. P-2008-2062739 (Order entered June 2, 2009). This hourly pricing offering satisfies Act 129's "real-time price" definition by reflecting the different cost of energy during each hour.

32. As noted earlier, PECO has been awarded a $200 million matching grant under the DOE's Smart Grid Investment Grant Program. Dynamic Pricing Plan costs incurred through April 11, 2014 will be eligible for reimbursement for allowable costs under the matching grants. The Company estimates that $2.2 million of Plan costs will be eligible for this reimbursement.

IV. REQUEST FOR EXPEDITED CONSIDERATION

33. The Company's Dynamic Pricing Plan is designed to benefit customers and other stakeholders by: (1) gathering and sharing information about customer preference, load impact, and enabling technology during the universal deployment period[10]; and (2) maximizing application of DOE matching funds. To that end, the Company proposes to immediately begin its Technology Plan and to launch the TOU pilot in the fourth quarter of 2013.

34. Expedited consideration is required because: (1) the customer premises testing component of the Technology Plan must be completed before CAP customers in the pilot can receive their IHDs; and (2) a wide range of administrative, marketing and IT projects must be completed before customers may be solicited to enroll in the pilot's TOU rate offer.

35. In light of its request for expedited approval, PECO proposes the following schedule for this proceeding:

February 22, 2013	Filing of the Petition
March 15, 2013	Other Parties' Comments Due
March 22, 2013	Reply Comments Due
May 9, 2013	Commission Order

[10] In the Company's January 18, 2013 filing, it proposed to substantially complete the universal deployment of smart meters by the end of 2014.

V. NOTICE

36. PECO is serving copies of this filing on the Pennsylvania Office of Consumer Advocate, the Pennsylvania Office of Small Business Advocate, the Commission's Bureau of Investigation and Enforcement, and all other parties to the Company's Dynamic Pricing Plan proceeding.

37. Should the Commission conclude that further notice of this filing is appropriate, PECO will provide such additional notice as directed by the Commission.

VI. CONCLUSION

Based upon the foregoing, including the attached Exhibit No. 1, PECO respectfully requests that the Commission grant this Petition and enter an Order: (1) finding that the Dynamic Pricing Plan as revised satisfies the dynamic rate requirements of Act 129; and (2) approving the recovery of Dynamic Pricing Plan costs through the Company's GSA.

Respectfully submitted,

Anthony E. Gay (Pa. No. 74624)
W. Craig Williams (Pa No. 306405)
Exelon Business Services Company
2301 Market Street
P.O. Box 8699
Philadelphia, PA 19101-8699
Phone: 215.841.4635
Fax: 215.568.3389
E-mail: anthony.gay@exeloncorp.com
craig.williams@exeloncorp.com

Thomas P. Gadsden (Pa. No. 28478)
Catherine G. Vasudevan (Pa. No. 210254
Morgan, Lewis & Bockius LLP
1701 Market Street
Philadelphia, PA 19103-2921
Phone: 215.963.5234
Fax: 215.963.5001
E-mail: tgadsden@morganlewis.com

February 22, 2013

For PECO Energy Company

Exhibit No. 1

Supplement to:

PECO Energy Company's Initial Dynamic Pricing and Customer Acceptance Plan

February 22, 2013

Table of Contents

EXECUTIVE SUMMARY

PECO Energy Company ("PECO" or the "Company") herein submits modifications to its Initial Dynamic Pricing and Customer Acceptance Plan (the "Plan"), previously approved by Pennsylvania Public Utility Commission's ("PUC" or "Commission") Orders entered April 15, 2011 and September 26, 2012 at Docket Nos. M-2009-2123944 and P-2012-2297304. The Plan is designed to fulfill (1) PECO's obligations under Act 129 of 2008 (the "Act") with respect to offering a dynamic pricing option to customers with smart meters; (2) PECO's commitments under the provisions of its Department of Energy ("DOE") American Recovery and Reinvestment Act of 2009 ("ARRA") grant; and (3) the PUC's Retail Market Investigation recommendations regarding the use of electric generation suppliers ("EGSs") in fulfilling Act 129 requirements. The Plan's objectives are essentially unchanged regarding customer acceptance of a Time-of-Use ("TOU") rate. The principal change in the Plan design is that PECO proposes to conduct an independent technology demonstration and testing process.

PECO's strategy for the dynamic rate offering ("PECO Smart Time Pricing" or "Pilot") incorporates a PECO branded product, under PECO's Smart Ideas suite, with a commodity supplied by an EGS. The Pilot will run for one year, solicit a target population of up to 140,000 default service customers, and employ a standard-offer package, including a TOU rate, customer education, and first year bill protection. Offers, which are expected to go out in October 2013, will be extended to customers who have been provided smart meters. Customer enrollment and load-response data will be collected and evaluated. The Pilot is expected to generate useful information extensible to PECO's entire population, regarding the following: (1) customer interest in a TOU rate and propensity to switch to an EGS within the context of the overall offer; and (2) customer behavior changes associated with being on a TOU rate. PECO will have a Customer Assistance Program ("CAP") test cell for up to 200 low-income customers who will be offered the use of in-home displays ("IHDs") to assess if real time usage information impacts total monthly usage.

PECO proposes to separate technology testing from the Smart Time Pricing offerings so that practical applications for Home Area Network ("HAN") device provisioning and performance within the context of PECO's installed smart grid network can be more thoroughly evaluated. The expected outcomes include an enhanced understanding of PECO's future role in supporting customer and third-party access to smart-meter based information, plus a process for customers and third parties to access near real-time smart meter based information.

Rates: PECO is proposing to utilize a TOU rate supplied by an EGS. Conceptually, under the TOU rate, each weekday is divided into peak and off-peak periods, with customers

paying a discounted rate for off-peak usage and a higher rate for peak-period usage relative to a standard, non-time-differentiated rate. Advanced Meter Infrastructure ("AMI") enabled residential customers who are not enrolled in PECO's CAP will be eligible for the TOU rate, as will small and medium-sized commercial and industrial ("S/MC&I") customers.

Technology: PECO will perform alternate pathway testing (PECO's smart grid network and broadband) for data and messaging and will evaluate how construction materials and building configurations impact connectivity. In the process, PECO will define the role of these factors in supporting initial HAN setup, and providing maintenance, technical and call center support. PECO will define the processes that customers and third parties will follow for access to near real-time smart meter based information.

Promotion: Comprehensive focus group sessions will be conducted with appropriate customer segments to develop the promotional message, educational content, promotional channels, and modes of communication needed to maximize both participation and performance.

Education: PECO will develop customer education information for inclusion on the Program Website, in the post-enrollment welcome package and in other relevant customer correspondence. Such information will include tips on how customers can maximize their benefits from TOU pricing. Content will be specific to the customer class.

Evaluation data analysis will include load and customer energy cost impact assessments and choice modeling based on an evaluation of actual data and surveys to determine the level of customer understanding and customer experiences over the course of the Smart Time Pricing Pilot. The technology evaluation will include a presentation and analysis of the findings.

1 OVERVIEW OF PECO ENERGY COMPANY'S DYNAMIC PRICING AND CUSTOMER ACCEPTANCE PLAN

PECO's Smart Meter Plan, which was approved by Commission Order entered May 6, 2010[1], detailed the Company's two-phase strategy for the deployment of smart meter technology throughout its service territory, per Act 129 and the Commission's Implementation Order[2] The first phase comprised the selection, testing, and validation of the smart meter technology to be deployed, the deployment of the advanced metering infrastructure communication network, the initial deployment of up to 600,000 smart meters, and the development of a program to educate customers and implement initial dynamic pricing options. The second phase will complete the deployment of smart meters across PECO's service territory.[3] The cost of deployment of smart meters is being partially offset through a $200 million grant from the DOE's Smart Grid Investment Grant program ("SGIG"), per the ARRA.

In addition to the deployment of smart meters, the Act requires that specific rates be offered to customers that have been provided with smart meter technology. In particular, the Act requires EDCs to submit "one or more proposed time-of-use rates and real-time price plans" by January 1, 2010, or at the end of the applicable generation rate cap period, whichever is later.[4] The Commission approved PECO's Dynamic Pricing Plan by Order entered April 15, 2011.[5] On April 29, 2011, the PUC initiated an investigation into Pennsylvania's retail electricity market.[6] As part of that proceeding, an Order was issued on December 15, 2011, wherein the Commission recommended that EDCs meet their obligation to offer time of use rates by contracting with an EGS. In response to the retail markets investigation, PECO revised its approved dynamic pricing plan so as to partner with an EGS to offer a time-of-use rate in conjunction with PECO's marketing, education and outreach to learn how to effectively promote these types of rates to PECO's customers. PECO has since decided to de-couple the technology aspects of the Plan from the time-of-use rate offering. This will enable a simplification to the pricing plan and allow for a more practical and useful approach for the technology implementation.

---

[1] See Petition of PECO Energy Company for Approval of its Smart Meter Technology Procurement and Installation Plan, Docket No. M-2009-2123944.

[2] *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Order entered June 24, 2009) ("Implementation Order").

[3] On January 18, 2013, PECO filed its proposed Smart Meter Universal Deployment Plan. This Plan is currently pending before the PUC.

[4] 66 Pa.C.S.§ 2807(f)(5) PECO's generation rate cap period ended on December 31, 2010.

[5] *See Petition for Approval of PECO Energy Company's Initial Dynamic Pricing and Customer Acceptance Plan*, Docket No. M-2009-2123944 (the "*2011 Dynamic Pricing Order*").

[6] See Investigation of Pennsylvania's Retail Electricity Market, Docket No. I-2011-2237952.

Key terms used in the Plan have the following meanings:

- Dynamic Pricing and Customer Acceptance Plan, Dynamic Pricing Plan, Plan, or Program all refer to the overall project.
- PECO Smart Time Pricing, Smart Time Pricing, or Pilot all refer to the pricing aspects of the Dynamic Pricing Plan.
- Technology Demonstration & Test Plan, or Technology Plan refer to the technology aspects of the Dynamic Pricing Plan.

1.1 Plan Objectives

The Plan is designed to achieve the following objectives:

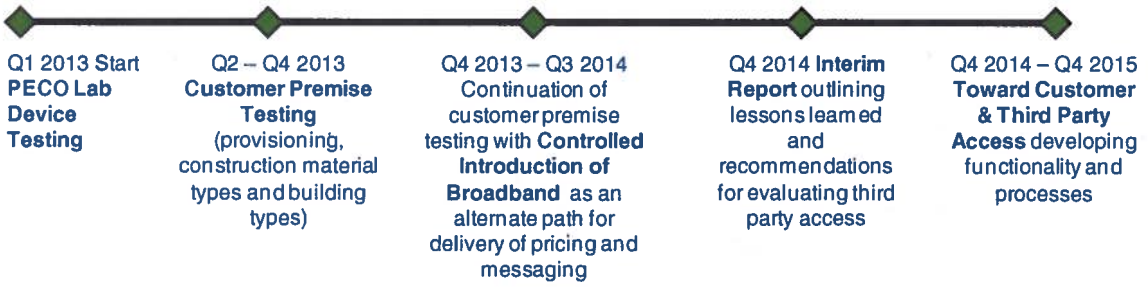
- Comply with Act 129 requirements and DOE commitments;
- Align with the PUC's Retail Market Investigation concerning the offering of TOU rates;
- Understand how to educate and communicate with customers about new rate options enabled by PECO's smart grid network;
- Understand the impact of PECO's smart grid network enabled TOU rate on customer load profiles and energy costs;
- Understand how CAP customers respond to having an IHD to indicate usage in near real time;
- Evaluate how selected current HAN technology performs in various construction types and building configurations within PECO's service territory;
- Understand PECO's role in supporting customer and third-party access to near real-time smart meter based information; and
- Understand the process for customers and third parties to access near real-time smart meter based information on PECO's smart grid network.

1.2 Conceptual Approach to the Plan

PECO's Smart Time Pricing will be branded as a PECO product, but will clearly identify the EGS as the commodity provider. A customer who enrolls in dynamic pricing will also be switched to the EGS supplying the TOU service. Marketing and educational materials will be vetted through customer focus groups. PECO expects the Pilot will yield useful information in two important areas: (1) customer interest in a TOU rate and propensity to switch to a supplier within the context of the overall offer; and (2) customer behavior changes associated with being on a TOU rate. The target population size (140,000) and selected demographic will enable analysis, which should be applicable to PECO's entire service population.

PECO plans to launch the Pilot in October of 2013. Pilot implementation details are discussed further in the Plan. Following are the major milestones for PECO Smart Time Pricing:

PECO's Technology Demonstration and Test Plan ("Testing Plan") is designed to understand how certain building materials and construction types in PECO's service territory combine with PECO's installed smart grid network to enable HAN access to near real-time usage data. This testing is essential to creating a positive customer experience, based on discussions with similarly-situated utilities with smart-grid enabled technology. The Technology Demonstration and Test Plan will run concurrently with, but independent from, Smart Time Pricing. The following timeline displays the major activities of the Testing Plan:



1.3 Expected Outcomes of the Plan

PECO expects the Smart Time Pricing Plan will lead to important analysis in the following areas:

- Residential and S/MC&I customer preferences for dynamic rates as offered by an EGS vs. default service offered by PECO;
- The impact of access to near real-time usage information on the monthly energy consumption of low income (CAP) customers;
- The average load impacts and customer cost impacts associated with a PECO Smart Grid Network enabled TOU rate by customer segment; and
- Key insights (and predictive models) for EGSs who are interested in targeting consumers with dynamic rates.

PECO expects the Technology Demonstration & Test Plan will lead to important analysis in the following areas:

- Appropriate procedures for PECO to provision HAN devices on PECO's smart grid network;
- An understanding of where technology is easily utilized and where it needs further support (e.g. signal booster or improved technology) to work properly, including a consideration of
    - Construction materials and building types
    - Physical distances between the smart meter and the HAN device
    - Sources of potential signal interference;
- An understanding of how to provide customers and third parties with access to near real-time smart meter based information, and
- An understanding of the security requirements associated with connecting HAN devices to PECO's Smart Grid Network.

1.4 Plan Organization

The remainder of the Plan is organized as follows:

- Section 2 contains an overview of the TOU rate structure that will be offered by the EGS and the reasons why that rate structure was selected over other rate options
- Section 3 describes PECO's Smart Time Pricing Plan
    - Plan Design Principles
    - Timing and Meter Deployment Schedule
    - Customer Education
    - Rate Structure
    - The Customer Acceptance Plan including the summary of offers and promotional strategies
    - Customer Communication Strategy
- Section 4 describes PECO's Technology Demonstration & Test Plan
    - Plan Description
    - Part 1 Overview
        - In-House Device Testing
        - Customer Premises Testing
        - PECO Controlled Internet Access
    - Part 2 Description
        - Toward Customer and Third Party Access
    - Summary of Expected Learnings

- Section 5 describes the measurement and evaluation activities for Smart Time Pricing. It also describes the Key Findings that are expected for the Technology Demonstration and Test Plan.
- Section 6 describes the budget and spending plan for the Plan

2 DESIGNING DYNAMIC RATES AND SIMULATING CUSTOMER IMPACTS

2.1 Designing the Dynamic Rates

PECO has decided to contract with an EGS to offer dynamic rates. PECO has also determined that a single rate structure satisfies the requirements of Act 129 in the most cost-effective manner. Therefore, due to the ease of customer understanding, the relatively low customer risk and overall Pilot cost, PECO proposes a single TOU rate for eligible customer segments. The concept of a single TOU rate was vetted with stakeholders in two webinars in November 2011 without objection. The discussion below provides context on qualitative and quantitative aspects of a TOU rate and tracks PECO's original filing; however, this is for illustrative purposes only since the actual rate will be supplied by an EGS - not PECO.

Historical PECO system load and energy prices were used to determine the appropriate peak period and seasonal definition for the dynamic rates. The peak period was designed to balance the tradeoff between customer convenience (i.e., a shorter peak period) with the likelihood of the peak period to capture the highest price and load hours (i.e., a longer peak period).

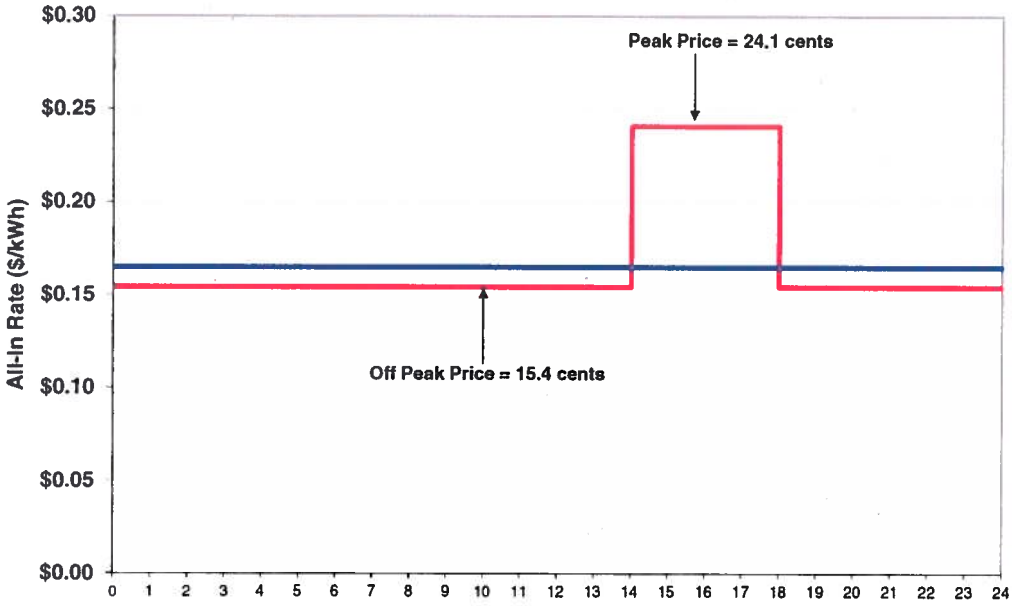
2.1.1 Illustrative TOU Rate

The TOU rate structure as originally filed is illustrated in Figure 2-1 and is composed of a illustrative all-in peak rate of approximately $0.241/kWh during 1,044 hours of the year and an illustrative all-in off-peak rate of approximately $0.0154/kWh during the remaining hours of the year. The peak hours were all non-holiday weekdays throughout the year, and the off-peak hours were all other hours.

Note: the energy supply will be offered by an EGS utilizing the peak and off-peak structure shown; however, the prices shown below are illustrative only, the actual prices will be set by the EGS.

Figure 2-1

Illustrative TOU Rate for Residential Class - Year-Round

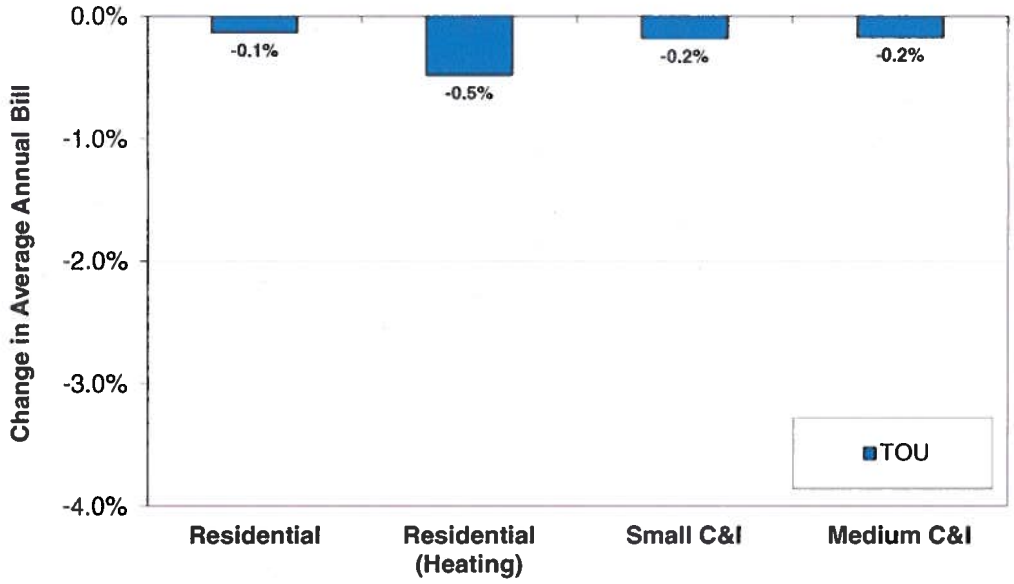


2.2 Understanding Customer Bill Impacts

When presented with a TOU rate option, it is expected that customers will shift load to save money on their bill. For the residential class, the TOU rates as originally filed by PECO were expected to produce annual bill reductions of roughly 0.1%. Residential heating customers, in turn, were expected to see greater annual decreases due to their higher usage during the winter months and off-peak hours. For S/MC&I customers, average annual bill reductions of 0.2% were expected. The estimated annual savings for each class, as initially developed by PECO, are shown in Figure 2-2.

Figure 2-2

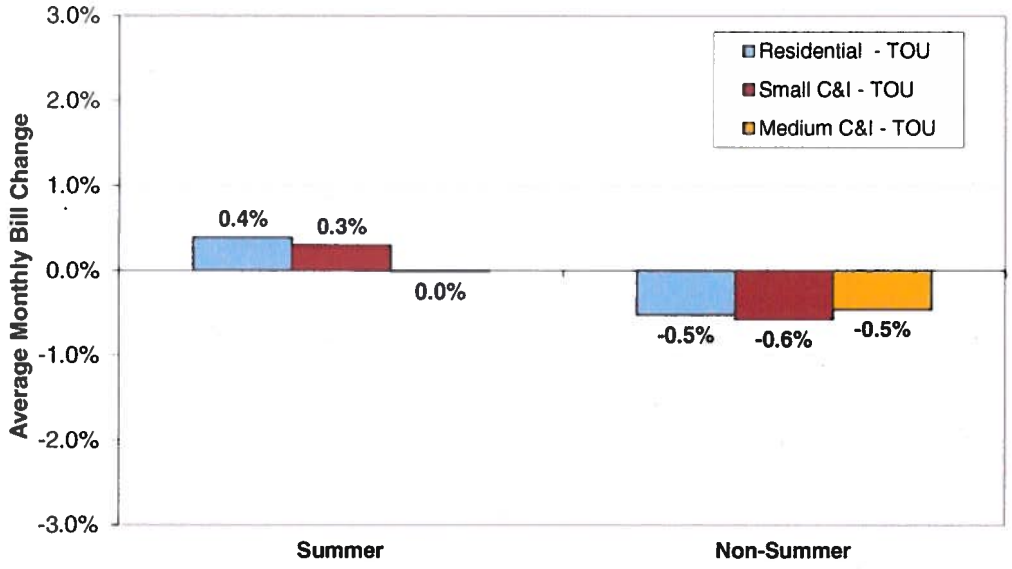
Projected Change in Average Annual Bill



Because usage varies throughout the year, bill impacts will similarly vary from month to month. In broad terms, however, TOU customers could expect an increase in the four summer months and a decrease in the eight non-summer months, averaging to the annual bill reductions discussed above. As shown by Figure 2-3, PECO originally estimated that the average four-month summer bill increase would be about 0.4% for the residential class, balanced by a bill decrease of 0.5% during the eight non-summer months. For S/MC&I customers, PECO estimated that the summer bill increase could be as high as 0.3%, balanced by bill decreases during the non-summer months of approximately 0.6%.

Figure 2-3

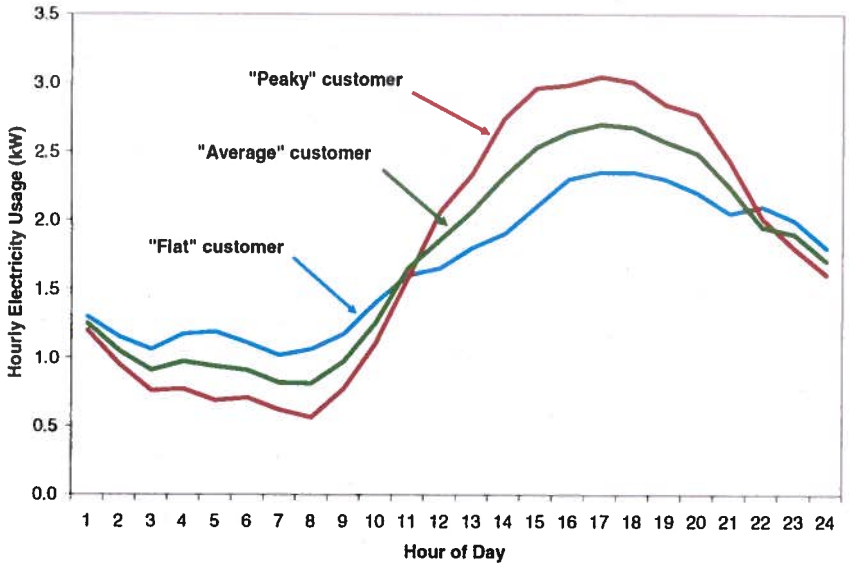
Average Seasonal Bill Impacts After Customer Response



*Summer months include June through September; non-summer months include October through May

Analyzing expected bill impacts for the average customer is only part of the story. Due to the intended revenue-neutral design of dynamic rates, the average customer likely will experience modest bill changes. However, load profiles vary significantly across customers. Some customers tend to be "peaky," with higher consumption during the peak hours of the day, while other customers tend to have flatter load shapes. These different load shapes are illustrated in Figure 2-4.

Figure 2-4
Average, Flat, and Peaky Load Profiles

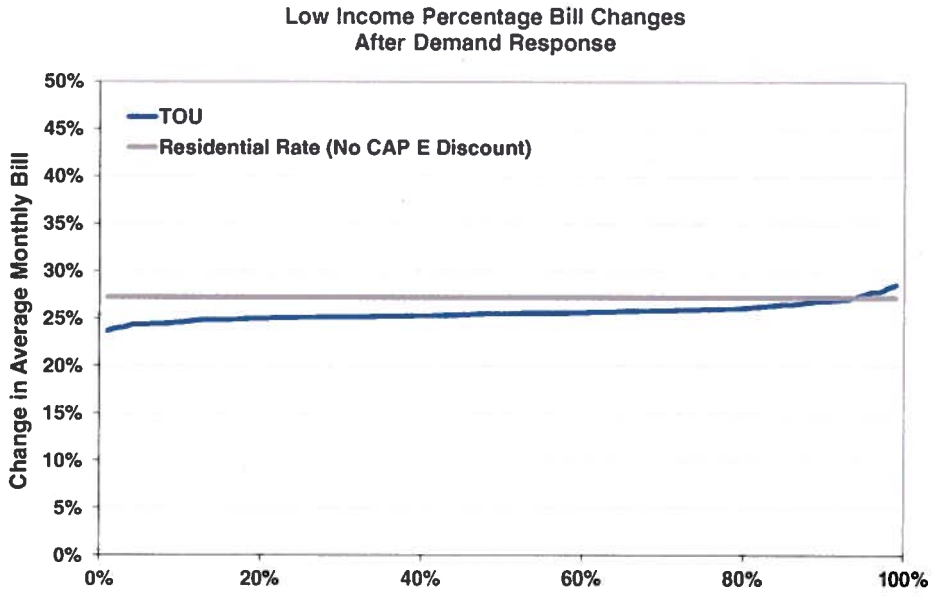


The bill impact of a dynamic rate on an individual customer is partly a function of the customer's load profile and its response to the rate. Assuming no behavioral or usage changes, under a TOU rate structure, customers with higher-than-average consumption in the peak hours will tend to experience bill increases, while customers with flatter load shapes will tend to experience bill decreases. On an annual basis, the likely maximum average bill savings for residential customers with advantageous load profiles is approximately 3%. Also, it is estimated that 60% of all customers on the TOU rate (as originally filed by PECO), would have lower bills than they would on the existing flat rate. For S/MC&I customers, the maximum average bill savings on the TOU rate could be approximately 5%, and almost 60% of those customers are expected to experience a bill decrease.

Another important issue in the Pilot is the impact that time-varying rates could have on low-income customers. Recent pilot studies have shown that low-income customers respond to dynamic rates, although typically less than other residential customers. PECO has a strong CAP program for the lowest income customers in its territory. Analysis shows that there are no customers currently on any of the CAP rates that would experience a bill savings if they were moved from the discounted CAP rate to an un-discounted dynamic price. In other words, the discounts provided to PECO CAP customers far exceed any potential savings that CAP customers could achieve under dynamic pricing rates. An example is shown in Figure 2-5 where CAP E customers (those who qualify for the smallest discount), would experience an average bill increase of 26%

with PECO's originally filed TOU rate, even after shifting their load.[7] In light of this analysis, PECO has decided that CAP customers will not be eligible for the Plan's dynamic rates.

Figure 2-5
Distribution of Dynamic Bill Impacts:



[7] These estimates assume that a CAP customer would be moved from the CAP rate to the regular residential rate and then the dynamic rate applied to their load.

3 PECO'S SMART TIME PRICING OFFERS

This section provides a brief overview that describes the approach PECO will use to carry out the Pilot. It is divided into seven sections: (1) Plan Design Principles (2) Timing and Meter Deployment Schedule (3) Customer Education (4) Rate Structure (5) The Customer Acceptance Plan (6) Customer Communication Strategy and (7) Plan Closeout Activities. The principal changes to the Smart Time Pricing Pilot are decoupling the technology testing from the customer acceptance testing and offering all enrolled customers bill protection, which have the impact of reducing the residential test cells from six to one. The CAP customer cell remains effectively unchanged.

As noted previously, offers will be made to residential and S/MC&I customers. There will be a single offer made to residential and S/MC&I customers that includes a marketing message (value proposition), customer education (how they can make this work financially for them), and an explanation of bill protection that will last for the one-year duration of the Pilot. The customer education and marketing materials will be developed through comprehensive customer focus groups to determine effective messages for residential and commercial customers. Customer enrollment rates and load-response data will be collected and evaluated. Insights gained from analyzing the results of the enrollments will be included in an interim report due in April of 2014. Insights gained from analyzing customer performance, assessing customer experience and making recommendations for the EGS community will be included in the final report due in April of 2015. Marketing and customer education messages for CAP customers will also be developed through focus groups. Participating CAP customers will receive an IHD but will not be eligible for the TOU rate.

3.1 Plan Design Principles

The primary objective of the research design underlying this Pilot is to develop internally valid, unbiased estimates of the impact of TOU rates and IHDs. This means that if PECO observes a change in usage by customers who accept the TOU rate or IHD, PECO is confident that such a change will be the result of the TOU rate or IHD and not some other input, such as normal fluctuations in usage over time or differences between customers who accept or rejects an offer that existed prior to when the offers were made (e.g., selection effects).

3.2 Timing and Meter Deployment Schedule

The residential customers selected for the target population will have been provided a smart meter by June 1, 2013. The availability of pre-solicitation usage data will improve PECO's ability to detect small impacts in customers usage patterns.

Offers will be made to residential customers using direct mail and to S/MC&I customers using telemarketing beginning in the fourth quarter of 2013 for delivery of the commodity nominally in calendar year 2014. Outreach to CAP customers will be through community groups beginning in Q1 2014.

PECO's dynamic pricing offerings will follow meter deployment as indicated in Table 3-1 below. PECO anticipates that the mix of customers who will have smart meters by the indicated selection dates will be representative of the broader population of customers who will ultimately receive smart meters.

Table 3-1
Timing of Target Population Sampling

Customer Segment	Timing for Selection of Target Population Sample
Residential including former Rate R, RH, and OP	Q2 2013
S/MC&I	Q4 2013
CAP	Q1 2014

- The CAP customer samples will be drawn in Q1 of 2014 following completion of the Customer Premise Testing phase of the Technology Demonstration & Test Plan (see section 4.2 of the Plan below) PECO will solicit enough CAP customers to install 200 IHD units (the estimate is 10,000 solicitations).

3.3 Customer Education

All customers will receive education about how the TOU rate works and how they can take advantage of load shifting to maximize cost savings. These savings tips will be included in the post-enrollment customer welcome package and on the program website. Since many customers may not have a good idea of what activities use the most energy generally or during peak periods, the intent is to show customers how they can control their energy usage with actions which may maximize bill savings.

3.4 Rate Structure

As discussed in Section 2, PECO has elected to contract with an EGS through a competitive bid process to supply commodity service using a TOU rate structure to all eligible customers who enroll in the Pilot. The EGS will utilize the TOU structure initially filed by PECO. The dynamic rate will not be offered to CAP customers as described in section 2.3 above.

3.5 The Customer Acceptance Plan

This section summarizes the tests that will be conducted in the Pilot. PECO will utilize comprehensive focus groups to develop the messaging and will likely evaluate:

- Promotional message (e.g., energy savings, environmental responsibility, reliability, control, etc.);
- Educational content of material (e.g., understanding and utiizing time-based pricing); and
- Format of promotional material (e.g., business letter, three-fold glossy brochure, etc.).

Recent research by Freeman Sullivan Company ("FSC") indicates that several of these factors can significantly influence enrollment rates.[8] PECO will utilize this background information when conducting its focus groups.

3.5.1 Summary of Offers

As shown in Table 3-2 below, PECO will solicit 130,000 customers for Smart Time Pricing and will solicit approximately 10,000 CAP customers for an IHD installation. The size of the residential customer test cell will ensure statistical significance for both enrollment and performance analysis. Offers will be extended per Table 3-2 below.

Table 3-2
Target Solicitation and Enrollments.

Description	Solicitations	Enrollments
Residential customers all receive the same offer: customer education, benefits explanation, and first year bill protection; outreach via first class mail	~120,000	No target and no maximum enrollment limit (any eligible customer shall be enrolled)
S/MC&I customers all receive the same offer: customer education, benefits explanation and first year bill protection; outreach via telephone, phone numbers used in this outreach will be provided by PECO	~10,000	No target and no maximum enrollment limit (any eligible customer shall be enrolled)
CAP outreach to customers through community groups. Customers will be offered IHDs, but no TOU rate	~ 10,000	Target of ~200 IHD installations

[8] Stephen S. George, Josh Bode, Mike Perry & Andrew Goett, *2009 Load Impact Evaluation for Pacific Gas and Electric Company's Residential SmartRate™–Peak Day Pricing and TOU Tariffs and SmartAC Program in VOLUME 2: EX ANTE LOAD IMPACTS*, (Freeman, Sullivan & Co., 2009).

Customers who have previously enrolled in PECO's direct load control program will be permitted in the Pilot but will be tracked separately to evaluate differences in enrollment rates and performance. These are self-selected customers, all of whom have central air conditioning and who already have expressed an interest in managing their energy costs. Enrollment rates for these customers will be compared with the enrollment rate for the group as a whole.

CAP customers will not be eligible to enroll in a dynamic rate, but PECO will offer a limited number of these customers an IHD in order to further understand the impact of providing such customers near real time usage information. This will be accomplished through community outreach efforts targeted at low-income communities. PECO will work closely with these groups to educate them about the offer of an IHD and to provide them with relevant materials on how to effectively utilize the technology. All IHDs will be installed by the vendor selected for the Technology Demonstration & Test Plan. The vendor will reinforce the customer education on how to use the IHD to save energy and on energy saving tips in general.

3.5.2 Promotional Strategy

Understanding how to best attract customers to the TOU rates can be assessed rather quickly if comprehensive focus group analyses are performed prior to developing the material. PECO will use first class mail as the primary form of outreach to residential customers and will use the focus groups to determine the potential effectiveness of other modes (telephone, email, etc.).

The standard offer strategy for S/MC&I customers will differ from that of residential customers, because direct mail solicitation has been shown to be largely ineffective with business customers. Given this, the plan is to use telephone solicitation as part of the standard promotional package.

3.5.3 Settlement Agreement Activities[9]

- The list of customers that PECO provides for enrollment will be screened for eligibility criteria. This includes, but is not limited to, removing residential customers who are currently in default of an existing payment or who currently are making payments subject to a payment arrangement.

- For a customer that has enrolled in the Pilot and subsequently experiences difficulty making timely bill payments, PECO will offer to put the customer on a payment plan and will counsel the customer regarding their total energy costs on

[9] The Settlement Agreement Activities are those that remain in light of changes to the plan.

the TOU rate versus what they would have paid on PECO's Comparison PTC. Further action could also include de-enrolling the customer[10] from the Pilot. PECO will also track the fact that the customer is having payment difficulties for data analysis and reporting purposes.

- At the end of the enrollment period, a sample of targeted customers who do not enroll in the Pilot will be surveyed to determine the reasons they chose not to participate. The results will be summarized in the interim report.

- PECO will identify a group of customers considered "vulnerable," including customers with low to moderate incomes, customers of advanced age, and customers with disability, for this purpose. PECO will survey at least three focus groups of vulnerable customers in the Program to learn their experiences and their reaction to the Program. Information will be collected about the customers' efforts or strategies to respond to the Program rates.

3.6 Customer Communication Strategy

PECO's communication strategy will adhere to the following guidelines:

- The offers extended as part of the Plan will be consistent with other messages and formats that PECO is using at the time. This is important so customers do not distinguish between similar messages or programs such as energy efficiency, demand response, or direct load control.
- Enrolled customers will access the Pilot website via PECO.com to ensure brand content alignment.

3.7 Plan Closeout Activities

At the conclusion of the Program, customer contracts will be continued, renewed, or transitioned pursuant to the Commission's Order entered on September 13, 2012, in Docket No. P-2012-2297304.

[10] Customers participating in the Pilot may only de-enroll via the program call center.

4 TECHNOLOGY DEMONSTRATION & TEST PLAN

Decoupling the technology testing from the Smart Time Pricing rate offering is the primary change in the Dynamic Pricing Plan, and focuses on practically useful results. Immediate analysis is needed in the following areas: (1) how emerging HAN technology communicates with PECO's installed smart grid network; (2) the impact of local construction materials and configurations on this communication; (3) what PECO's future role should be in supporting customer and third party access to smart meter based information; and (4) what process should customers and third parties use to gain access to near real-time energy usage. This section describes PECO's plans to address these key topics.

4.1 DESCRIPTION

PECO will conduct a sequential series of lab tests, field tests, and demonstrations, organized into a combination of PECO lab device tests and customer premise demonstrations. The Technology Plan involves testing and demonstration of ZigBee[11]-compatible wireless communications between smart meters and customer premise devices and verifying the functionality of customer premise devices against PECO-defined requirements. Each phase is intended to build upon the results of the previous phase. Check points are included at the end of each phase to evaluate the results of testing to date, and to provide input into the next phase.

4.2 PART 1 OVERVIEW

- **PECO Lab Device Testing:** The purpose of the PECO Lab Device Testing is to verify that selected devices (IHDs and PCTs) meet PECO-specified performance requirements and can be enabled via the Sensus FlexNet network to communicate with ZigBee wireless communications. The results of these tests will be used to select devices which will be used in the Customer Premises Testing.

- **Phase 1 - Customer Premises Testing:** Customer Premises testing will involve approximately 100 "friendly" participants. (Friendly primarily refers to an employee who is particularly interested in being involved with implementation of new technologies.) Participants will receive either an IHD or PCT, with PCTs limited to customers with central air conditioning. Participants will be selected based on building materials and configurations that are commonly found in PECO's service territory. The primary focus of Phase 1 is to identify which of these building materials and configurations are most likely to be compatible with ZigBee wireless

[11] ZigBee is a trademark of the ZigBee Alliance and refers to the communications protocol adopted by most major meter manufacturers to provide wireless communications between smart meters and HAN devices such as IHDs and Programmable Communicating Thermostats ("PCTs").

communications, as well as those that are less likely to facilitate ZigBee wireless communications. Participants selected for Phase 1 will be asked to remain in the program for the duration of the Technology Demonstration & Test Plan. Phase 1 is estimated to last seven months. CAP customer selection for IHD installation will follow analysis of Phase 1 results.

- **Phase 2 – Controlled Introduction of Broadband:** Starting in the Lab, Phase 2 introduces testing of Internet access to the customer's Home Area Network via broadband gateway[12] devices. Gateway devices will be selected and tested based on their ability to connect with the devices used in Phase 1. Gateway devices will communicate directly with the smart meter and be required to communicate separately with IHD and PCT devices. Phase 2 is expected to begin at the end of Phase 1 testing and last approximately nine months.

- **Part 1 Interim Report:** A thorough evaluation of Phase 1 and Phase 2 test results will be conducted to determine the best approach for Part 2. Therefore, the Part 2 activities listed below are based on best estimates of how Part 1 will proceed.

4.3 PART 2 OVERVIEW

- **Toward Customer & Third Party Access:** In Part 2 of the project, the focus shifts from HAN device interoperability to integration with third-party access. Part 2 evaluates how third parties will be supported and how third parties will perform provisioning[13] of customer's devices. During the initial stages of Part 2, PECO will act as the third party and simulate the processes and functionality required to enable a customer and EGS (or other third party) to gain access to near real-time energy usage data, including internet/broadband communication for data and messages.

[12] A gateway device is a multiple-radio device that provides the ability to integrate ZigBee networks into the IP network structure. The gateway will receive text and data messages from third parties via the broadband connection, consumption data from the meter via ZigBee communications, and provide this information to the selected IHDs and PCTs.

[13] Provisioning is the establishment of a communication between a smart meter and a HAN device. The connection is unique to the meter and HAN device and can be thought of as analogous to a Bluetooth® connection for a phone.

4.4 SUMMARY OF EXPECTED LEARNINGS

PECO's expected learnings fall into three basic categories: 1) initial physical issues involved with qualifying devices and evaluating customer premise characteristics that affect ZigBee wireless communications; 2) customer reaction in terms of ease of use and usefulness of the information provided; and 3) based on lessons learned in categories 1 and 2, what are the devices and processes required to effectively provide EGS and third party access to the HAN devices.

1. Physical Issues
    a. Development of test methodologies for qualifying HAN device performance against PECO requirements
    b. Development and documentation of installation and operational procedures for remote provisioning of customer premise HAN devices via the FlexNet AMI network
    c. Development of test methodologies for evaluating customer premise suitability for ZigBee communications between the meter and associated HAN devices:
        i. Signal propagation as a function of construction materials and physical distances
        ii. Effects of RF interference from other wireless devices including WiFi, cordless phones, baby monitors and garage door openers
        iii. Development of solutions (e.g., use of repeaters or other technology) for problem sites where practical
2. Customer Issues
    a. Understanding of participant perception of the HAN devices in terms of usefulness, ease of use, etc.
    b. Determination of the level of support required at the call center/head end
    c. Development of input to help select the CAP customers for the IHD project associated with PECO's Smart Time Pricing pilot (avoid circumstances that will lead to a frustrating customer experience)
3. EGS and Third Party Access
    a. Understanding the functionality and interoperability of the selected ZigBee gateway devices
    b. Determination of which gateway devices are best suited to meet PECO's needs for enabling third party access, based on functionality and interoperability

c. Confirmation and demonstration that specific pricing information and messages can be downloaded through gateway devices to other HAN devices via Internet access.

d. Development of processes and procedures for third party access to HAN device communications

5 MEASUREMENT & EVALUATION AND KEY DELIVERABLES

A brief summary of how the measurement and evaluation ("M&E") activities will be conducted is provided below. PECO intends to contract out the M&E work and to allow bidders to propose alternative methods to determining the evaluation constructs identified below. PECO has designed the Pilot to generate useful information regarding customer acceptance of TOU rates, experiences with being on the rate, and estimates of load impacts. PECO has designed the Technology Plan to provide useful and practical information regarding customer, EGS and third party access to near real-time usage data.

5.1 PECO Smart Time Pricing

This section describes the M&E activities that may be used to estimate the load impacts and cost-effectiveness of the pricing offers. The M&E plan is comprised of the following primary work streams:

- Load impact evaluations for each group being tested;
- Preparation of an interim report outlining the results of the enrollment analysis including customer characteristics of customers that are likely to enroll on a TOU rate;
- Surveys to determine customer understanding of and satisfaction with the rate and the actions customers take in response to such rates; and
- Reporting activities that include holding periodic stakeholder meetings and preparing a final report to discuss Plan findings and recommendations for next steps.

5.1.1 Load Impact Evaluation

The evaluation plan will estimate load impacts for the three target population combinations, as summarized below:

A. A TOU tariff offered to residential customers by an EGS, with promotional material and customer education developed via focus groups;

B. An IHD offered to CAP customers (with no time-varying rate); and

C. A TOU rate offered to S/MC&I customers with promotion and education offered via telephone.

5.1.2 Differential Enrollment Rates and Choice Analysis

Customer acceptance and enrollment rates are an important focus of this study. The acceptance rate is the number of customers who accept a rate offer or IHD divided by the number of customers solicited. It is a measure of marketing effectiveness and customer interest prior to experiencing the rate or technology.

The simple calculation of acceptance and enrollment rates will be used for assessing customer preferences for offers and determining if certain groups (e.g., load control participants such as former PECO AC Saver customers, electric space heat customers, or other demographically identifiable sub-groups) have significantly different acceptance rates. PECO will use both comparative statistics and choice modeling to analyze acceptance and enrollment rates to help evaluate the drivers of customer acceptance.[14] The results of such analyses can be used to project future enrollment and, importantly, to determine how enrollment might vary based on differences in customer characteristics, which information could be quite useful for developing targeting strategies for future promotional campaigns.

5.1.3 Customer Surveys

Surveys will be utilized to assess satisfaction with the Pilot, determine actions taken by customers in response to the pricing and information provided, monitor customer perceptions of comfort and/or inconvenience associated with higher pricing during peak hours. Surveys may also be used to assess the effectiveness of the marketing and educational efforts by assessing whether customers actually understand the concepts of time varying pricing and load response.

The survey methods chosen will be consistent with best practices for the information being sought. PECO's current assumption is that surveys will be used appropriately on subsets of customers to minimize the risk of influencing the behavior that the surveys are designed to measure.

[14] For an example of this type of analysis related to dynamic rates for residential customers, see Stephen S. George, Josh Bode, Mike Perry & Andrew Goett, *2009 Load Impact Evaluation for Pacific Gas and Electric Company's Residential SmartRate™–Peak Day Pricing and TOU Tariffs and SmartAC Program In VOLUME 2: EX ANTE LOAD IMPACTS* (Freeman, Sullivan & Co., 2009).

5.1.4 Reporting

PECO proposes to keep stakeholders and the Commission informed of its progress through periodic meetings, an interim report and a final report. PECO will continue the stakeholder update and feedback sessions on a mutually agreed upon schedule to report progress and provide any important customer feedback. The interim report will focus on enrollment analysis. PECO's final report for the Commission will present Pilot results and key findings for both the Smart Time Pricing and Technology Demonstration & Test Plans. Consistent with Act 129, the report will discuss "the efficacy of the programs in affecting energy demand and consumption and the effect on wholesale market prices."[15] Finally, the report will present PECO's recommendations to the EGS community for making time-varying pricing offers to the remaining customers in PECO's service territory.

5.2 Technology Demonstration & Test Plan – Key Deliverables

5.2.1 In-House Lab Testing

- List of devices PECO will use during Phase 1 Customer Premises Testing
- Preliminary test requirements, test cases and test procedures that could be used by an independent testing facility to certify IHD and PCT HAN devices for installation in PECO's AMI network
- Report documenting methodology, results and conclusions from in-house testing, plus recommendations and rationale for moving forward with Phase 1

5.2.2 Customer Premise Testing

- Testing methodology that includes a detailed description of what PECO will be doing in the customers' homes (include what PECO will not be doing)
- Description of each construction type encountered and its effect on performance
- Results and conclusions from friendly testing, including an analysis of customer attitudes toward IHD and PCT devices
- Recommendations and rationale for moving forward with Phase 2

5.2.3 Controlled Introduction of Broadband

- Initial test requirements, test cases and test procedures that could be used by an independent testing facility to certify HAN Gateway devices for installation in PECO's AMI network
- HAN device functional testing results (IHD, PCT and Gateway devices)
- Report documenting methodology, results, conclusions, and learnings from Part 1 outlining recommendations and rationale for how to proceed through Part 2

[15] 66 Pa.C.S.§ 2807(f)(5)

5.2.4 Toward Customer & Third Party Access

- Detailed report documenting methodology, results and conclusions from Part 2 testing, plus recommendations and rationale for moving forward
- Test requirements, test cases and test procedures that could be used by an independent testing facility to certify all types of HAN devices (IHDs, PCTs, Gateways, etc.) which may be provisioned via PECO's AMI network for direct communication with PECO smart meters
- Define PECO's role in supporting third parties in their use of technology
- Cost implications
- Level of Call Center and Maintenance support needed and where that support should reside
- Recommended process for enabling customer and third party access to near real-time energy usage data from PECO's smart grid network

6 BUDGET AND COST RECOVERY PLAN

In PECO's initial Plan, the cost of customer acceptance programs was projected to be $13 million. PECO's current estimate, based upon its revised approach detailed in this Plan is $7 million, as set forth in Table 6-1 below.

The Plan costs comprise the following major categories:

- Plan Preparation and Filing – costs include consultant support for Plan preparation, testimony and ongoing regulatory support;
- Plan Development and Design – costs include consultants/contractors to help refine the Plan following approval and provide expertise developing Requests for Proposals for sourcing equipment and plan implementation;
- Smart Time Pricing Plan Execution – costs include marketing, customer education, communications, call center for enrollment and maintenance, and development of web applications supporting programs, plus cost associated with engaging an EGS to provide commodity and associated administrative support;
- Technology Demonstration & Test Plan – costs include in-home technology, enabling technology (IHDs, PCTs, and diagnostic equipment), and costs associated with the Technology Installation & Test Lead Vendor;
- Measurement and Evaluation – costs include vendor supported evaluation of the effectiveness of programs including load impact analysis, enrollment analysis, customer surveys, technology testing, and preparing reports; and
- PECO Oversight – costs include the incremental labor or contractor support to provide overall project management.

PECO spent approximately $1.3M through December of 2012 in support of the Dynamic Pricing Plan. Dynamic pricing costs are included in PECO's DOE SGIG, which means certain costs through April 2014 are eligible for reimbursement through the grant. The effect of the DOE SGIG grant is to reduce the overall program costs to be recovered from customers from $7.0 million to $4.7 million, a reduction of approximately 33% of expected costs. This budget is, however, preliminary and will be further refined after the programs are designed and approved.

PECO will recover the costs of the proposed dynamic pricing programs through its Generation Supply Adjustment (GSA) mechanisms for Procurement Class 1, 2 and 3 (residential and S/MC&I customers). Procurement Class 4 (customers with registered demands greater than 500kW) will not be assigned any costs because they are not eligible to participate in dynamic pricing programs. Common costs will be allocated to the appropriate procurement class based on the proportion of the associated procurement class projected sales to the total projected sales for all classes. To the extent that certain costs are readily identifiable to a particular class, those costs will be directly assigned.

Table 6-1
Overview of Actual and Budgeted Dynamic Pricing Program Costs for 2010 through 2015

	2010			2011			2012			2013			2014			2015			Total		
Category	O&M	Capital	Total	O&M	Capital	Total	O&M	Capital	Total	O&M	Capital	Total	O&M	Capital	Total	O&M	Capital	Total	O&M	Capital	Total
Plan Preparation & Filing	$ 425	$ -	$ 425	$ 24	$ -	$ 24	$ -	$ -	$ -	$ 5	$ -	$ 5	$ -	$ -	$ -	$ -	$ -	$ -	$ 454	$ -	$ 454
Plan Development & Design	-	-	-	47	-	47	342	-	342	30	-	30	-	-	-	-	-	-	$ 419	-	419
Plan Execution (EGS and Implementation Vendor)	-	-	-	-	-	-	148	-	148	1,335	-	1,335	600	-	600	200	-	200	$ 2,283	-	2,283
Technology (IHD, PCT, DRMS and Installation and Test Lead Vendor)	-	-	-	-	-	-	-	-	-	650	-	650	420	-	420	150	-	150	$ 1,220	-	1,220
Measurement & Evaluation	-	-	-	-	-	-	-	-	-	150	-	150	150	-	150	350	-	350	$ 650	-	650
PECO Oversight (PM) + Change Mgmt. Communications and Training	-	-	-	134	-	134	233	-	233	820	-	820	527	-	527	260	-	260	$ 1,974	-	1,974
Total Program Costs	$ 425	$ -	$ 425	$ 205	$ 1	$ 205	$ 723	$ 1	$ 723	$ 2,990	$ 1	$ 2,990	$ 1,697	$ 1	$ 1,697	$ 960	$ 1	$ 960	$ 7,000	$ -	$ 7,000
Estimated Stimulus Grant Funding *	$ (201)	$ -	$ (201)	$ (97)	$ -	$ (97)	$ (341)	$ -	$ (341)	$ (1,411)	$ -	$ (1,411)	$ (222)	$ -	$ (222)	$ -	$ -	$ -	$ (2,272)	$ -	$ (2,272)
Total, Net PECO Program Costs	$ 224	$ -	$ 224	$ 108	$ 1	$ 108	$ 382	$ 1	$ 382	$ 1,579	$ 1	$ 1,579	$ 1,475	$ 1	$ 1,475	$ 960	$ 1	$ 960	$ 4,728	$ -	$ 4,728

Exhibit No. 2

PECO
An Exelon Company

Dynamic Pricing Plan Changes		
Description of area impacted	**Approved Plan (as of Sept. 13, 2012)**	**Revised Plan**
Plan Approach	▪ Utilize focus groups to refine the marketing message, communication channels, educational messages, etc. and test among a group of *8 test cells* to achieve a statistically valid result for both enrollment and performance	▪ Utilize focus groups to refine the marketing message, communication channels, educational messages, etc.; ▪ ***Test one residential cell and one small/medium commercial cell***; ▪ Continue with the planned CAP customer test with IHDs within the technology demonstration and test plan
Plan objectives	▪ Understand customer preferences for rate and technology options and identify a *combination of rates and technologies* that will help them better manage their energy costs; and ▪ Identify combinations of rates, *technologies*, education and marketing strategies that are effective.	▪ Understand customer preferences for a TOU rate vs. a default service flat rate; and ▪ Identify rates, customer education and marketing strategies that are effective.
Technology Demonstration & Test Plan	▪ Utilize technology in *5 of the 8 test cells* to observe the impact of technology on customer's usage and patterns of usage	▪ ***Decouple technology from the dynamic rate price plan; utilize a demonstration approach to attempt to understand provisioning, construction materials and building types, message pathways, to enable technology at a customer's premises and access near real-time smart meter-based information***

Description of area impacted	Approved Plan (as of 9/13/12)	Revised Plan
Expected Outcomes: essentially the same with minor exceptions and the addition of the Technology Demonstration & Test Plan	▪ *The effect of first year bill protection*; ▪ The *relative* effectiveness of various messages concerning the benefits of time-varying pricing via focus groups; ▪ The *relative* effectiveness of direct mail, telemarketing, and community-based marketing for residential customers via focus groups; ▪ *For S/MC&I customers, the impact of combining PCTs with a dynamic rate*, ▪ The average load impacts associated with *alternative* rate options by customer segment, *with and without selected enabling technologies*; and ▪ Key insights (and predictive models) for targeting consumers with future tariff *and technology* promotions.	▪ The effectiveness of a marketing and customer education messages concerning the benefits of time-of-use via focus groups; ▪ The effectiveness of direct mail, telemarketing, and community-based marketing for residential customers via focus groups; , ▪ The average load impacts associated with a TOU rate option by customer segment; and ▪ Key insights (and predictive models) for targeting consumers with future dynamic pricing promotions; ▪ ***The Technology Demonstration & Test Plan is designed to help PECO begin to understand:*** o ***PECO's role in supporting enabling technology provisioning and providing customers and 3rd parties with access to near real-time Smart Meter Based Information*** o ***The more common construction types and material types where meter provisioning to HAN devices is more easily accomplished and where additional measures need to be taken to provide this information*** o ***A procedure for customers and 3rd parties to provision HAN devices to a meter***

Description of area impacted	Approved Plan (as of 9/13/12)	Revised Plan
Measurement and Evaluation Plan	▪ Statistically valid approach to understand differences in the test vs. the control groups in each area of understanding	▪ To the extent that sufficient customers enroll in the pilot, use a statistically valid approach to understand enrollment preferences and impacts of a TOU rate vs. a flat rate
Pilot length	▪ One (1) year study (Jan. 2013 – Dec. 2013), followed by analysis and reporting (Apr. 2014); attempting to complete a simpler pilot within PECO's DOE reimbursement window	▪ One (1) year study (nominally Jan. 2014 – Dec. 2014), followed by analysis and reporting (Apr. 2015); DOE reimbursement will continue on work performed through Apr. 11, 2014
Proposed cost	▪ Proposed budget is $7.4M	▪ Proposed budget is $7.0M
EGS handling of Customers at the Pilot Conclusion	▪ Customers who take no action to choose to stay with Reliant or go to another supplier or to return to PECO *will default to PECO*	▪ Customers who take no action to choose to stay with Reliant or go to another supplier or return to PECO ***will remain with Reliant on a month to month TOU rate***

Aspects of the Approved Plan not found in the Revised Plan
Modifications new to the Revised Plan