**BEFORE THE**

**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of West Penn Power Company :

d/b/a Allegheny Power for Expedited Approval : M-2009-2123951

of its Smart Meter Technology Procurement :

and Installation Plan :

**INITIAL DECISION**

Before

Mark A. Hoyer

Administrative Law Judge

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I. HISTORY OF THE PROCEEDING

On August 14, 2009, West Penn Power Company d/b/a Allegheny Power (“Allegheny Power” or “the Company”) filed its Smart Meter Procurement and Installation Plan (“SMIP” or “Smart Meter Plan”) pursuant to Section 2807(f) of the Public Utility Code, 66 Pa. C.S. §2807(f), and the Smart Meter Implementation Order entered by the Pennsylvania Public Utility Commission (“Commission”) on June 24, 2009, at Docket No. M-2009-2092655 (“Implementation Order”). Allegheny Power is seeking Commission approval of its Smart Meter Plan, including expedited approval of the initial phase of its Smart Meter Plan, and its Smart Meter Technology (“SMT”) rates.

 On August 18, 2009, Notice of the initial prehearing conference on the above‑captioned case was issued. On September 3, 2009, the undersigned issued a Prehearing Conference Order which, *inter alia*, set forth the date and time of the prehearing conference, the deadline for filing petitions to intervene and requirements to become a party to this case, and the date of the technical conference to be held on October 5, 2009. On September 10, 2009, a Notice of Technical Conference was issued scheduling the technical conference for Monday, October 5, 2009, at 10:00 a.m. in Harrisburg, Pennsylvania.

 The Commission’s Office of Trial Staff (“OTS”) filed its Notice of Appearance on August 20, 2009. OTS subsequently filed Comments of the Office of Trial Staff on September 25, 2009. On September 1, 2009, the Office of Consumer Advocate (“OCA”) filed its Notice of Intervention and Public Statement in this matter. The OCA subsequently filed Comments of the Office of Consumer Advocate on September 25, 2009. The West Penn Power Industrial Intervenors (“WPPII”) filed a Petition to Intervene dated September 16, 2009. The Pennsylvania Department of Environmental Protection (“DEP”) filed a Petition to Intervene dated September 18, 2009. The Office of Small Business Advocate (“OSBA”) filed a Notice of Intervention and Comments and a Public Statement on September 25, 2009. Constellation NewEnergy, Inc. and Constellation Energy Commodities Group, Inc. (collectively, “Constellation”) filed a Petition to Intervene on September 25, 2009. Citizen Power, Inc. (“Citizen Power”) filed a Petition to Intervene on September 25, 2009. The Pennsylvania Association of Community Organizations for Reform Now (“ACORN”) filed a Petition to Intervene and Comments on September 25, 2009.

 The initial prehearing conference was held as scheduled on Wednesday, September 30, 2009. The Company, OTS, OCA and OSBA, as well as all entities listed in the preceding paragraph that filed petitions to intervene, were represented by counsel. With the exception of Citizen Power, all others represented at the prehearing conference filed prehearing memoranda. During the conference, the undersigned orally denied Allegheny Power’s request, made in its Prehearing Memorandum, to certify a material question to the Commission regarding certification of the record without decision on SMIP Initial Phase Issue. *See* 66 Pa. C.S. §331(e). The undersigned directed that if Allegheny Power intended to file a petition directed to the Commission requesting review and answer to a material question that it do so on or before Thursday, October 1, 2009. *See* 52 Pa. Code §5.302 and §5.303. Allegheny Power filed a Petition for Interlocutory Review and Answer to a Material Question with the Commission’s Secretary’s Bureau on September 30, 2009. On October 2, 2009, Allegheny Power filed Answer of the West Penn Power Company d/b/a Allegheny Power in Opposition to the Petition to Intervene of Citizen Power, Inc. A technical conference was held on October 5, 2009 before Administrative Law Judge Kandace F. Melillo. Also on October 5, 2009, a Prehearing Order was issued to confirm the agreements and determinations made at the prehearing conference with respect to the future conduct of this proceeding. The following petitioners’ petitions to intervene in this proceeding, which were not opposed by Allegheny Power, were granted: DEP, Constellation, WPPII and ACORN. The Petition to Intervene filed by Citizen Power was denied. The Prehearing Order established a litigation schedule that required briefs to be filed on December 3, 2009, reply briefs to be filed on December 18, 2009, and the issuance of the undersigned’s Initial Decision by January 29, 2010. On October 13, 2009, briefs in Opposition to the Petition for Interlocutory Review and Answer to a Material Question were filed. On October 22, 2009, the Commission denied Allegheny Power’s request for an expedited schedule. On November 2, 2009, a Protective Order was issued by the undersigned.

 An evidentiary hearing was held in Hearing Room 2 in the Commonwealth Keystone Building, Harrisburg, Pennsylvania, on November 9, 2009. At the hearing, numerous written statements and exhibits, specifically identified in the transcript, were admitted into the hearing record. On November 24, 2009, the undersigned issued a First Interim Order Modifying the Litigation Schedule and Admitting into Evidence Allegheny Power Exhibit No. 6, Stipulations of Fact. The litigation schedule was modified by this Order to require main briefs from the parties on December 18, 2009, and reply briefs on January 5, 2010. Also on November 24, 2009, counsel for Allegheny Power filed a Request for Transcript Corrections. The proposed corrections were granted by operation of 52 Pa. Code §5.253(f)(2).

 On December 17, 2009, Allegheny Power filed a Motion to Reopen the Evidentiary Record. On December 18, 2009, Allegheny Power filed a letter seeking to withdraw the Motion to Reopen the Evidentiary Record.[[1]](#footnote-1) Also on December 18, 2009, Allegheny Power filed a Petition to Modify a Prior Commission Order and to Reopen the Evidentiary Record. OCA, OTS, OSBA and ACORN filed answers to the Petition.[[2]](#footnote-2)

 In accordance with the revised litigation schedule set forth in the Interim Order dated November 24, 2009, the following parties filed main briefs by December 18, 2009: Allegheny Power, OTS, OCA, OSBA, DEP, WPPII, ACORN and Constellation. By January 5, 2010, Allegheny Power, OTS, OCA, OSBA, WPPII and ACORN filed reply briefs. Neither DEP nor Constellation filed a reply brief.

 On January 13, 2010, Allegheny Power’s Petition to Modify a Prior Commission Order and to Reopen the Evidentiary Record was granted by Secretarial Letter. The Commission waived the requirement that an initial decision be rendered in this matter on or before January 29, 2010, and remanded the remaining issues in the Petition for disposition by the undersigned.

 A Further Conference was held on January 26, 2010, and a Further Conference Order was issued by the undersigned later that same day. The Further Conference Order established, *inter alia*, a revised litigation schedule for the submission of supplemental direct and rebuttal testimony and exhibits; scheduled a further evidentiary hearing for March 16, 2010; and required filing and service of supplemental main briefs on or before March 26, 2010.

 A Further Hearing was held as scheduled on March 16, 2010. The parties waived the right to cross-examination of the witnesses who prepared supplemental written statements and exhibits, and stipulated to the admission of certain supplemental statements and exhibits offered by the Company, the OCA and the OSBA. These supplemental statements and exhibits are identified in the transcript of the hearing of March 16, 2010. The undersigned admitted the aforementioned written statements and exhibits into the hearing record. Tr. pp. 336, 339, 342, and 345. The undersigned also admitted a written stipulation between the OSBA and the OCA into evidence. Tr. p. 344. Also at the hearing, Allegheny Power requested leave to withdraw its motion to strike portions of the supplemental direct testimony of the OCA filed on March 11, 2010. No objections to said motion to withdraw were made at the Supplemental Hearing on March 16, 2010. The request to withdraw the motion to strike is granted in the ordering paragraphs to follow.

 Supplemental main briefs were due on March 26, 2010. The following parties filed supplemental main briefs: Allegheny Power, the OCA, the OSBA and the DEP.

 On April 7, 2010, counsel for ACORN filed and served a request to withdraw ACORN’s appearance in this proceeding. No responses to said request were filed.

II. FINDINGS OF FACT

A. Background

1. West Penn Power Company d/b/a Allegheny Power (“Allegheny Power” or the “Company”) is a Pennsylvania public utility and Pennsylvania corporation authorized to provide electric service in southwestern, south-central and northern Pennsylvania (AP Ex. 1, SMIP, p. 5).
2. The Company serves approximately 715,000 customers in Pennsylvania in an area of about 10,400 square miles with a population of approximately 1.5 million (AP Ex. 1, SMIP, p. 5).
3. The Company is a wholly-owned subsidiary of Allegheny Energy, Inc. Allegheny Power and Allegheny Energy, Inc., have their corporate headquarters in the City of Greensburg, Westmoreland County, Pennsylvania (AP Ex. 1, SMIP, p. 5).
4. Act 129 of 2008(“Act 129”), effective November 14, 2008, requires electric distribution companies (“EDCs”) with at least 100,000 customers in Pennsylvania to adopt a plan to reduce energy consumption and demand in their service territories.
5. Allegheny Power filed its Energy Efficiency and Conservation and Demand Response (“EE&C/DR”) Plan with the Pennsylvania Public Utility Commission (“Commission”) on June 30, 2009 (AP Ex. 1, SMIP, p. 5).
6. The EE&C/DR Plan programs, measures, and rate offerings are intended to enable Allegheny Power customers to adjust their energy usage with the aim of reducing overall consumption and decreasing peak demand for electricity (AP Ex. 1, SMIP, p. 5).
7. Allegheny Power’s EE&C/DR Plan was approved by the Commission, with modifications, on October 23, 2009 at Docket No. M-2009-2093218.
8. Act 129 requires Allegheny Power, as an EDC with at least 100,000 customers in Pennsylvania, to file a smart meter implementation plan with the Commission to address the installation of smart meters and associated smart meter technology.
9. The Commission issued its Smart Meter Implementation Order on June 24, 2009 at Docket No. M-2009-2092655 (“Implementation Order”).
10. On August 14, 2009, Allegheny Power filed its Smart Meter Technology Procurement and Installation Plan (“SMIP”) with the Commission (AP Exs. 1 and 2, SMIP).

B. SMIP Contents and Development Process

1. There are six basic components of Allegheny Power’s SMIP; (1) In-Home Technologies; (2) Smart Meters; (3) Communications Network; (4) Back Office Systems; (5) Customer Interface; and (6) System and Security Management (AP St. 2, p. 6).
2. In-Home Technologieswill provide customers with near real-time information about electricity consumption and price. IHDs are intended to allow customers to make informed decisions on consumption that will, in turn, allow them to conserve energy and save money (AP Ex. 1, SMIP, p. 55).
3. Smart metersconnect the home to the electric system. Smart meters identify consumption in far greater detail than conventional meters and also communicate the information back to the utility. Currently, the Company has no smart meters in place (AP Ex. 1, SMIP, p. 57).
4. The Communications Networkconnects the smart meters to a central data collection point in the utility’s operations center. The network is bi-directional and uses wired and wireless communications for retrieving usage data many times a day, plus outage, restoration, theft and power quality alarms in near real-time. The Company’s Communications Network will not support smart meter data traffic without an upgrade (AP Ex. 1, SMIP, p. 64).
5. Back-Office Systemsinclude the Customer Information System (“CIS”) that is a necessary component to utilize smart meters. These systems collect, store, process, and manage information generated by users. The Company’s current CIS is not capable of supporting smart meters (AP Ex. 1, SMIP, p. 71).
6. The Customer Interfaceconsists of the hardware, software, and security required to provide near real-time energy consumption information to customers and authorized third parties. The interface will occur via IHDs, an Interactive Voice Response System (“IVR”), or a Web Portal (AP Ex. 1, SMIP, p. 82).
7. System and Security Management encompasses a large set of systems, protocols, and processes to keep the utility’s system secure. Smart meters will require the Company to implement new security systems (AP Ex. 1, SMIP, p. 85).
8. Nine of the 22 programs/rate offerings in Allegheny Power’s EE&C/DR filing depend on the installation of smart meters and smart meter infrastructure. The programs are: (i) Residential Efficiency Rewards Rate; (ii) Programmable Controllable Thermostat (PCT) Program; (iii) Pay Ahead (Smart) Service Rate; (iv) Customer Load Response Program; (v) Distributed Generation Program; (vi) Contracted Demand Response Program; (vii) Critical Peak Rebate (CPR); (viii) Time of Use (TOU) with Critical Peak Pricing Rate; and (ix) Hourly Pricing Option (HPO) Rate. The Contracted Demand Response Program was a to‑be-deployed program if such a program were needed (AP Ex. 1, SMIP, pp. 20-26).
9. With the exception of the Contract Demand Response Program, which the Commission directed to be implemented, and the Distributed Generation Program, which is currently in the process of being revised, these EE&C/DR Plan programs have already been approved by the Commission.
10. Allegheny Power’s Customer Management Group was responsible for the development of the SMIP and submission of the SMIP for regulatory approval (AP St. 1, pp. 4‑5).
11. Allegheny Power’s Customer Management Group will also be responsible for the measurement and evaluation of the plan (AP St. 1, p. 4).
12. Implementation of the SMIP is the responsibility of the Distribution Operations group that reports to the Vice President, Distribution (AP St. 1, p. 4).
13. Allegheny Power, through a competitive bid process, engaged EDS, an HP Company, to assist in research and analysis to develop a smart metering infrastructure plan that would meet the Act 129 requirements (AP St. 2, p. 5; AP Ex. 1, SMIP, p. 15).
14. EDS is a technology and consulting firm with a dedicated smart metering practice (AP St. 2, p. 5; AP Ex. 1, SMIP, p. 15).
15. Allegheny Power held 14 stakeholder meetings at various locations from Camp Hill, Pennsylvania to Greensburg, Pennsylvania from April 8, 2009 through August 6, 2009 (AP St. 1, pp. 5-7).
16. Smart Meter Technology and Infrastructure Deployment
17. 450,000 Meter Plan (Company’s Original Proposal)
18. Under Allegheny Power’s original proposed SMIP, smart meter installations are proposed to begin in early 2010 and be completed by the end of 2014 (AP St. 2, p. 6).
19. After retention of a system integrator to support Company implementation efforts, Allegheny Power plans for smart meter trial installations to evaluate field technology, including detailed design of the Local Area Network (“LAN”) and the Wide Area Network (“WAN”), which are types of communications networks (AP St. 2, pp. 8-9).
20. Allegheny Power plans to commence work on the Meter Data Management System (“MDMS”), the Enterprise Service Bus (“ESB”) and the Customer Information System (“CIS”) (AP St. 2, pp. 8-9).
21. The ESB allows different portions of the smart meter system to effectively communicate with each other, while MDMS, among other things, is a “universal translator” that supports consumption measurement and various rate structures such as time of use, real time and critical peak pricing (AP Ex. 1, SMIP, p. 48).
22. The new CIS system will allow implementation of required tasks in the areas of bill calculations and production, rates management, usage management, meter management, work management and customer account management (AP Ex. 1, SMIP, p. 116).
23. Under the original SMIP Plan, installation of smart meters is proposed to commence in 2010 with 90,000 smart meters deployed by the end of the year; another 310,000 smart meters deployed in 2011; and another 231,000 smart meters installed in 2012 (AP St. 2, p. 9).
24. This installation schedule through 2012 is intended to complement and implement the EE&C/DR Plan programs approved by the Commission that require the availability of smart meters (AP St. 2, p. 10).
25. After 2012, the original SMIP proposes continued installation of smart meters with 703,603 smart meters installed by the end of 2013, and deployment completed in 2014 with a total of 725,248 smart meters installed (AP St. 3, p. 25).
26. The sequence of the proposed deployment in the original SMIP proposal is based on customer density. Smart meter deployment will focus first on areas of highest customer density, to ensure that the largest number of customers can be connected to the communications network as early as possible. The Company’s customer meter density map and SMIP Table 8, which classifies the Company’s service territory in terms of concentrations of customers from above 500 per square mile to under 10 per square mile, illustrates how installation will move from higher concentrations of customers to lower concentrations under the original SMIP (AP Ex. 1, SMIP, pp. 42-43).
27. For the deployment of In Home Devices (“IHDs”), Allegheny Power chose a “proactive inclusion” approach in its original SMIP (distribution to all service territory customers unless they opt out of receiving one) to ensure that all customers have access to their usage data and pricing information, even if they do not make use of the Internet and the associated Web Portal that the Company intends to establish for customers (AP Ex. 1, SMIP, p. 44).
28. The term IHDs includes three types of technologies: (1) the in-home display; (2) the programmable thermostat; and (3) the load control device (AP St. 5‑RJ, p. 9; AP Ex. 1, SMIP, p. 56).
29. Programmable Communicating Thermostats (“PCTs”) are necessary to implement the Commission-approved PCT Program that is part of the EE&C/DR Plan. These devices automate demand response through direct load control of central air conditioners for residential, small commercial and industrial and governmental/non-profit customers. Smart metering and associated equipment will provide communications to the thermostat, providing direct load control, and customer response to energy prices can be either automated or manual (AP Ex. 1, SMIP, pp. 21, 44).
30. The PCT-based demand response program targets 13 percent of residential customers (AP Ex. 1, SMIP, p. 44).
31. The original SMIP plans for deployment of the Communications Network necessary to enable smart metering in the highest density areas initially, where the greatest cost efficiency and EE&C/DR results are expected (AP Ex. 1, SMIP, p. 46).
32. Allegheny Power’s Back Office Systems and Customer Facing Systems must be upgraded to properly manage and process data flows from smart meters. These systems, which have the capability to manage pricing information, include Automated Data Collection Systems (“ADCS”), CIS, MDMS, and an upgraded Outage Management System and Work Order Management System (which must be integrated with MDMS) (AP St. 3, pp. 23-25; AP Ex. 1, SMIP, p. 48).
33. The original SMIP requires deployment of the Customer Interface. This provides customers and third parties such as curtailment service providers (“CSPs”) with access to smart meter information (AP Ex. 1, SMIP, p. 49).
34. The original SMIP requires Internet and telephone upgrades, as well as Electronic Data Interface (“EDI”) to provide authorized commercial operators such as CSPs access to smart meter data (AP Ex. 1, p. 49).
35. Allegheny Power’s SMIP plans for upgrading the Company’s existing Interactive Voice Response System (“IVR”) (AP Ex. 1, p. 49).
36. Allegheny Power plans to implement a Web Portal system to provide customers, CSPs and other authorized parties access to usage data from smart meters (AP Ex. 1, p. 49).
37. Smart meter usage data will be stored in the new MDMS system (which also manages communication to and from the smart meters) and acts as a new data “warehouse” that customers can access through the Web Portal or the IVR system (AP Ex. 1, SMIP, p. 49).
38. Allegheny Power plans to install a new Identity Management System that will ensure that only recognized customers and authorized third parties, such as CSPs, can access smart meter usage data (AP Ex. 1, SMIP, p. 49).
39. By February 2011, under the original SMIP, the Company hopes to have implemented its new CIS and integrated it with the MDMS, a Data Warehouse and with Web Portal, IVR and EDI access to smart meter usage data for customers and authorized third parties (AP St. 3, p. 24).
40. Company’s 375,000 Meter Plan
41. Under the first alternative plan presented by the Company in the supplemental phase of this proceeding, approximately 375,000 smart meters would be deployed by mid-2012 (AP St. 1-SDT, p. 5).
42. Smart meters would be provided to customers without their having elected to receive a smart meter or participate in a smart meter program. The overall deployment would begin in 2010 and continue through 2017 in a progressive and controlled manner. Smart meters would also be installed for all customers requesting service for new construction (AP St. 1-SDT, pp. 5-6).
43. The 375,000 deployment plan targets 60,000 IHDs for only those customers that request one or to those customers for whom installation of an IHD is essential to participate in a relevant EE&C/DR program, including Residential Efficiency Rewards, Critical Peak Rebate, Time of Use with Critical Peak Pricing, Hourly Pricing Option, and Pay Ahead Smart Service. The 375,000 meter schedule also targets a deployment of approximately 30,000 PCTs to those customers that participate in the PCT demand response program (AP St. 1-SDT, pp. 5-6).
44. With the exception of the deployment timetable, the other tasks and milestones required to be completed by the Company would be completed in the same order and timeframes as indicated in the original SMIP. This is because in order to have functional smart meters, the other tasks and milestones of the original SMIP still need to be completed during the initial deployment period, regardless of the number of smart meters deployed (AP St. 1-SDT, p. 12).
45. The back office systems, either new or upgraded, are necessary to enable smart meter technology under any of the three deployment schedules proposed by Allegheny Power (original, 375,000 Plan, 100,000 Plan) and cannot be partially installed in phases so that they are fully built over the same time it takes to deploy all the smart meters (AP St. 1-SRT, pp. 5‑11).
46. Company’s 100,000 Meter Plan
47. Under the second alternative deployment schedule proposed by the Company, 100,000 smart meters would be deployed to residential, small C & I, and large C & I customers by mid-2012 (AP St. 1-SDT, p. 6).
48. The 100,000 deployment through 2012 is set up to support the approved EE&C/DR programs and to achieve the mandated energy and demand reduction goals of Act 129. To maximize customer participation, the opt-in deployment through 2012 would be targeted in higher customer density areas of the Company’s service territory. Initially, the targeted areas would be in western Pennsylvania near Pittsburgh where customer density is greatest (AP St. 1-SDT, pp. 7-8).
49. Smart meters would be deployed to all 715,000 Company customers over a ten‑year period. But, for the first 5-year period (through the end of 2014), smart meters would be deployed only to customers that request a smart meter, request to participate in a smart meter program or rate offering (“opt-in” customers), or to customers that request service due to new construction (AP St. 1-SDT, p. 6).
50. For the second 5-year period (through the end of 2019), smart meters would be deployed on a planned and controlled basis to all remaining customers in the Company’s service territory and to those that request service due to new construction (AP St. 1‑SDT, pp. 6-7).
51. The 100,000 deployment option targets 100,000 IHDs for only those customers that request one or to those customers for whom installation of an IHD is essential to participate in a relevant EE&C/DR program including Residential Efficiency Rewards, Critical Peak Rebate, Time of Use with Critical Peak Pricing, Hourly Pricing Option, and Pay Ahead Smart Service. The 100,000 meter schedule also targets a deployment of 30,000 PCTs to those customers that participate in the PCT demand response program (AP St. 1-SDT, p. 9).
52. Compared to Allegheny Power’s original proposal and the 375,000 Plan, the 100,000 Plan adds risk to the Company’s ability to obtain sufficient customer participation levels in EE&C/DR programs and rate offerings that are necessary to meet the Act 129 energy reduction goals (AP St. 2-SDT, pp. 6-7).
53. With the exception of the deployment timetable, the other tasks and milestones required to be completed by the Company would be completed in the same order and timeframes as indicated in the original SMIP. This is because in order to have functional smart meters, the other tasks and milestones of the original SMIP still need to be completed during the initial deployment period, regardless of the number of smart meters deployed (AP St. 1-SDT, p. 12).
54. The back office systems, either new or upgraded, are necessary to enable smart meter technology under any of the three alternative deployment schedules (original, 375,000 Plan, 100,000 Plan) and cannot be partially installed in phases so that they are fully built over the same time it takes to deploy all the smart meters (AP St. 1-SRT, pp. 5-11).
55. Smart Meter Capabilities
56. The Company’s SMIP proposals support the provision of the 14 required smart meter capabilities (AP St. 3-R, pp. 3-5).
57. The Company’s current systems, including its CIS, are not capable of supporting 13 of the 14 smart meter capability requirements. The remaining capability, on-board meter storage of data, is not dependent on the systems because the functionality resides in the meters (AP St. 3-R, pp. 3-5).
58. The Company’s smart meters will support remote disconnection and reconnection functionalities, as required by the Commission’s Implementation Order (AP St. 3‑R, p. 3).
59. Allegheny Power will use remote disconnection for voluntary disconnection of service only. A voluntary disconnection occurs when the customer requests disconnection such as when the customer is moving. In any event, if Allegheny Power pursues remote disconnection for nonpayment, it will not implement such a program without first conducting a pilot program and/or obtaining approval from the Commission (AP St. 8-R, pp. 12-13).
60. Prior to using remote disconnection, the Company will review the process to ensure that a property is vacant and will obtain appropriate information from the customer to minimize the possibility of disconnections occurring in error (AP St. 8-R, p. 13).
61. The Company’s smart meters will support prepayment service, as permitted under the Commission’s Implementation Order. Allegheny Power’s proposed pre-payment service program has already been approved by the Commission as part of its approval of Allegheny Power’s EE&C/DR Plan. Participation in Allegheny Power’s prepayment service program is completely voluntary on the customer’s part (AP St. 8-R, p. 14).
62. Smart Meter Data Access, Security, and Privacy
63. Allegheny Power’s SMIP affords customers and authorized third parties direct but secure access to consumption and pricing information via IHDs, the IVR, or from the Internet via a Web Portal. Additionally, Allegheny Power intends to provide access via EDI transaction capability for authorized commercial entities that will allow them to better manage and conserve their energy with a concomitant opportunity to save money with their electric bills (AP Ex. 1, SMIP, pp. 82-85).
64. Allegheny Power’s SMIP proposals provide 15-minute data for any customer that desires it, on an hourly or daily basis for the previous 24-hour period (AP St. 2-R, p. 7; AP Ex. 1, SMIP, pp. 83, 111).
65. Allegheny Power’s SMIP proposals require smart meter infrastructure components to meet or exceed industry and North American Electric Reliability Council Critical Infrastructure Protection (“NERC/CIP”) requirements, and be adaptable (AP St. 3-R, pp. 12‑14).
66. Allegheny Power’s SMIP and smart meter architecture are designed to allow for the incorporation of developing security standards and products, as necessary (AP St. 3-R, pp. 12-14, 19-21).
67. Costs and Benefits
68. Through 2014, total SMIP costs are projected to be $620 million, with the portion applicable to Pennsylvania being $580 million (AP St. 4, p. 4).
69. This amount consists of approximately $444 million in capital expenditures, $111 million in operation and maintenance (“O&M”) expenses and $24.6 million in depreciation expenses for existing meters, also included as O&M (AP St. 5-R, p. 6).
70. The total Pennsylvania SMIP costs reflect 48 percent of the total system revenue requirements for the CIS upgrades. The balance of such CIS-related costs is being allocated to service areas outside of Pennsylvania (AP St. 5-R, pp. 4, 12).
71. The Company developed a comprehensive cost estimate with the assistance of EDS, an HP Company that provided specific and detailed costs for smart metering and related infrastructure (AP St. 4, pp. 4-5).
72. The Company utilized the AMI model published by McKinsey & Company to reflect the costs specific to smart metering, related infrastructure and the associated benefits (AP St. 4, pp. 4-5).
73. As part of the cost estimate process, Allegheny Power reviewed a large number of candidate technologies and vendors. Only products with major market presence and experience were consulted in preparing cost estimates. The candidates were not evaluated for final selection, but for suitability and to obtain prices for estimating the total cost of the SMIP (AP St. 4, pp. 5-6).
74. Allegheny Power’s SMIP proposals call for a formal procurement process open to qualified bidders to be employed to complete the design after Commission approval of the SMIP (AP St. 4, pp. 5-6).
75. No party in the proceeding has submitted evidence specifically challenging the accuracy and reasonableness of the Company’s cost estimates (AP St. 5, pp. 18‑20).
76. Smart meter technology will play a key role in the overall development of the “Smart Grid” and Advanced Metering Infrastructure (“AMI”) (AP St. 5, p. 8).
77. Smart meters, feeding into a Smart Grid and an AMI, can add value to utility customers and to society at large in the form of energy efficiency, fewer outages, and more efficient utility operations (AP St. 5, pp. 7-21).
78. Allegheny Power’s SMIP proposals can result in customer savings of $27 million in avoided capacity costs (by shaving off peak loads by about 3.2 percent by 2012); approximately $109-226 million of avoided capacity and energy costs as a result of IHDs, depending on the percentage reduction in annual energy consumption from the use of these devices; and environmental benefits (AP St. 6-R, pp. 7-16).
79. Low-Income Impact
80. The SMIP will enable Allegheny Power customers, including low-income customers, to mitigate SMIP costs through savings on their electric bills resulting from participation in SMIP-related programs and rate offerings (AP St. 8-R, pp. 4-5).
81. The purpose of the SMIP is to provide all customers with timely access to their energy usage and price information, which will allow customers, including low‑income customers, to take control of and manage energy usage with a concomitant opportunity to save money (AP St. 8-R, pp. 4-5).
82. Assuming an average residential customer bill of $100 and an average consumption of 1,000 kWh on the Company’s current default rate, a 15 percent reduction in usage across Allegheny Power’s service territory would produce an average savings of $15.00 per customer (AP St. 5-RJ, p. 6).
83. The average annual electric usage of low-income customers participating in the Company’s Low Income Usage Reduction Program (“LIURP”), 11,558 kWh per year, is comparable to that of the Company’s other residential customers (AP St. 8-RJ, p. 3).
84. The total annual kWh savings of low-income customers participating in the Company’s LIURP Program increased from 1,125 average kWh savings in 2006 to 3,147 kWh savings in 2008 (AP St. 8-RJ, pp. 3-4).
85. The Commission’s 2008 Bureau of Consumer Services (“BCS”) Report on Universal Service Programs and Collections Performance shows that of all the major EDCs in Pennsylvania, Allegheny Power has the fewest low-income customers with the lowest arrears (AP St. 8-R, pp. 6-8).
86. Allegheny Power monitors on a monthly basis CAP enrollment numbers, confirmed low-income arrears, all residential arrearages based on 30, 60, 90, and 120 days in arrears, and the number of service terminations. Allegheny Power does not have a limit on the number of eligible customers that can enroll in CAP (AP St. 8-RJ, p. 5).
87. The SMIP surcharge will not adversely impact customers who are enrolled in CAP at the time the SMIP surcharge is implemented with respect to their monthly payment amounts due. Monthly total bill amounts may increase but the monthly payment of a CAP customer is based on a percentage of the customer’s household income and thus, absent a demonstrated ability to afford any increase based on a change in household income, a CAP customer’s monthly payment amount will be unaffected by the SMIP surcharge (AP St. 8‑RJ, p. 5).
88. Allegheny Power proposed an alternate variable rate design for residential class customers. Under this proposal, the SMIP surcharge will be comprised of a 21 percent fixed customer charge and a 79 percent volumetric energy charge. The variable rate design can mitigate the cost impact with lower usage customers. The less electricity a residential customer uses, the lower the volumetric energy charge and, ultimately, the lower the SMIP surcharge will be (AP St. 4-R, pp. 10-11).

H. Cost Allocation and Rate Design

1. 450,000 Plan (Company’s Original Proposal)
2. Allegheny Power seeks to recover SMIP costs on a full and current basis via a separately stated non-bypassable line-item bill surcharge entitled “SMT Surcharge” to be reconciled annually pursuant to 66 Pa. C.S. §1307 (AP St. 4, pp. 7-8).
3. Allegheny Power proposes to allocate SMIP costs to the various customer classes based upon costs specific to a customer class and general costs that are allocated across multiple customer classes (AP St. 4, pp. 10-11).
4. Allegheny Power proposes to directly assign the revenue requirement specific to a particular customer class to that customer class where possible. This direct assignment includes meter costs (AP St. 4, pp. 11, 14).
5. Regarding common costs not related to the CIS replacement, the Company proposed to allocate them between the Residential and Non-Residential class, based on the number of customer connections, while CIS cost were proposed to be allocated among the three customer classes also based on the number of customer connections (AP St. 4, p. 11).
6. The Company proposes to allocate SMIP costs among four customer classes: (i) Residential; (ii) Small Commercial and Industrial; (iii) Medium and Large Commercial and Industrial; and (iv) Street Lighting (AP St. 4-R, pp. 6-8).
7. The Company did not use a Cost of Service (“COS”) study to allocate SMIP costs, which are future costs, or for rate design purposes. A COS Study is used to identify existing costs using a historical period but is not used to determine regulatory treatment of future costs (AP St. 4-RJ, pp. 12-13).
8. SMIP costs would not be reflected in a COS Study, and a COS Study would not provide any additional value to the Company’s cost allocation or rate design with its SMIP (AP St. 4-RJ, pp. 12-13).
9. SMIP costs and benefits are non-volumetric in nature, regardless of how SMIP costs are actually being recovered (i.e., a fixed charge versus a variable rate) (AP St. 4-R, p. 20).
10. SMIP Network and IT costs are allocated entirely to Pennsylvania because these systems will be used exclusively for the benefit of Pennsylvania customers. Out of state regulated utilities, which are a part of Allegheny Power, do not require smart meters presently (AP St. 4-RJ, pp. 11-12).
11. These systems (systems other than the CIS) provide no additional benefit to Maryland and West Virginia customers (AP St. 4-RJ, pp. 11-12).
12. Allegheny Power properly allocated a portion of the CIS replacement costs to MD and WV customers because CIS is a billing system that will be used by Allegheny Power’s sister operating companies in those areas (AP St. 4-RJ, pp. 11-12).
13. Allegheny Power has proposed an alternative rate design where the SMT Surcharge is a combination of a fixed customer charge and a volumetric energy charge for residential customers. This 21/79 percent split combination is the existing proportional split between the residential distribution fixed charge and volumetric charge (AP St. 4-R, pp. 10‑11).
14. 375,000 and 100,000 Meter Plans
15. Under the Company’s two alternative plans, IHD costs are not collected through the SMT surcharge. Allegheny Power intends to collect these costs through the rate offerings it plans to file with the Commission by mid-2010, as outlined in the approved EE&C/DR filing. Since IHDs would only go to customers on an opt-in basis, customers who do not opt-in will not have any IHD related cost responsibility (AP St. 3-SDT, p. 10).
16. The IHD charge includes the costs of PCTs in the same charge (AP St. 3‑SRT, p. 7).
17. For both the 375,000 Plan and the 100,000 Plan, Allegheny Power proposed a two-tiered alternative SMT Surcharge for recovery of SMIP costs. The first tier or base amount (certain capital and O&M costs) would include items such as infrastructure, communications and related electric distribution system upgrades needed to enable smart metering technology. The first tier or base amount would be allocated to all customers regardless of whether they have a smart meter and would be differentiated by residential, non-residential and street lighting customers. The first tier would not include smart meter costs (AP St. 3‑SDT, Ex. REV-1; AP Ex. 1, SMIP, p. 96).
18. Since the street lighting class is not metered the only category of costs this class receives is associated with the CIS system (AP Ex. 1, SMIP, p. 96; AP St. 3-SDT, p. 9).
19. Under the two-tiered SMT Surcharge, with the exception of the CIS system, all other tier 1 capital and O&M costs are split proportionally between the residential and non-residential classes based upon the number of customer connections (AP Ex. 1, SMIP, p. 96; AP St. 3‑SDT, Ex. REV-1).
20. The second tier would include the smart meter costs and would be differentiated by costs associated with residential, non-residential single phase, and non-residential three phase meters (AP St. 3-SDT, p. 9).
21. Under the 375,000 Plan (for the period June 2011 through May 2012), the monthly surcharge for residential customers with smart meters would decline from $14.34 (original) to $11.16 (375,000 Plan) if the customer elected not to request an IHD (AP St. 3‑SDT; Ex. REV-1, pp. 1, 3).
22. Tasks associated with the smart meter solution architecture areas of In Home Technologies, Communications Network, Back Office Systems, Customer Interface and Systems Management and Security are still required for a functional smart meter solution under both alternatives to the original SMIP (AP St. 1-SRT, pp. 11-12).
23. CIS costs are appropriately allocated to Allegheny Power’s sister companies in other jurisdictions, since CIS is a billing system that is, and continues to be, used by all Allegheny Power regulated utility companies (AP St. 3-SRT, p. 7).
24. Other back office systems (systems other than CIS) are only allocated to Pennsylvania since these new costs are necessary to implement the SMIP and are unique to Pennsylvania (AP St. 3-SRT, p. 7).
25. Allegheny Power’s rural, hilly terrain presents particular communications architecture and engineering challenges (AP St. 1-SRT, p. 5).

I. Revenue Requirement

1. 450,000 Meter Plan (Company’s Original Proposal)
2. The SMT Surcharge is designed to collect a revenue requirement consisting of a return of and on capital costs, based on the Company’s pre-tax cost of capital; forecasted incremental O&M costs as incurred, which are offset by forecasted savings associated with deployment of the Company’s proposed SMIP; and costs associated with depreciation of the Company’s existing meters (AP St. 4, p. 8).
3. In the original SMIP, Allegheny Power requests a return on equity (“ROE”) of 11.5 percent based on the Company’s last authorized ROE in Docket No. R-942986 (AP St. 4, p. 9).
4. The Company proposes to update its allowed return to be representative of financing costs on a going-forward basis (AP St. 4, p. 8).
5. The Company is currently assigned a corporate credit rating of “BBB-” by Standard & Poor’s Corporation (“S&P”) and a long term rating of “Baa3” by Moody’s Investor Services, Inc. (“Moody’s”). Similarly, Fitch Ratings Ltd. (“Fitch”) has assigned an issuer default rating of “BBB-” (AP St. 7-R, pp. 8-9).
6. In a recent report by S&P ranking U.S. regulated utilities from strongest to weakest, the Company ranked 153 out of the total 178 companies with investment grade credit ratings (AP St. 7-R, pp. 10-11).
7. Using another Pennsylvania utility’s ROE and applying it to Allegheny Power for purposes of SMIP cost recovery is inappropriate because it does not take into account Allegheny Power’s financial risks and capital structure.
8. SMIP forecasted capital costs will be depreciated/amortized over the estimated useful book lives of the investment (AP St. 4, pp. 8-9).
9. The estimated useful tax lives are used to determine accumulated deferred income taxes, which is an adjustment to the revenue requirement (AP St. 4, pp. 8-9).
10. The book and tax depreciation lives in the original SMIP proposal are as follows:

 Asset Type Book Life Tax Life

 In Home Technologies 5 years 10 years

 Smart Meters 10 years 10 years

 Hardware 5 years 5 years

 Software (without CIS) 5 years 3 years

 Software (with CIS) 7 years 3 years

(AP St. 4, pp. 8-9).

1. Allowance-For-Funds-Used-During-Construction (“AFUDC”) will be accrued at the Company’s post-tax cost of capital when a capital cost occurs prior to its in-service date (AP St. 4, pp. 8-9).
2. Since the Company intends to replace its existing metering over a 5-year period with smart meters in the original SMIP proposal, the Company plans to increase its depreciation expense to a level that will allow it to fully depreciate its existing metering plan over a five-year period from April 2010 through March 2015 (AP St. 4, p. 10).
3. The Company plans to recover the additional depreciation expense, which is the amount in excess of the current level, through the SMT Surcharge until such time when the Company files a base rate case with the Commission and new retail base rates are approved (AP St. 4, p. 10).
4. The Company’s reconciliation mechanism will determine actual costs incurred through the designated twelve month reconciliation period, which will include actual O&M costs and a capital revenue requirement to reflect actual capital costs─that is, the most recently available pre-tax cost of capital (which includes use of the current debt costs and preferred stock costs recommended by the OTS), and any changes or updates to depreciation and accumulated deferred income taxes (AP St. 4-R, p. 23).
5. Company’s 375,000 Meter and 100,000 Meter Plans
6. The Company proposes in each alternative a ROE of 10.5%, which results in a lower SMT Surcharge. The Company has offered to use a 10.5% return on equity since this value matches the return on equity in PECO Energy Company’s Joint Petition for Partial Settlement at Docket No. M-2009-2123944 (AP St. 3-SDT, pp. 6-7).
7. For purposes of offering an alternative to the Company’s original SMIP, the Company proposed to extend the book lives of the majority of the assets as follows:

 Alternative Difference from

 Asset Type Book Life Original Filing

 In Home Technologies 10 years Additional 5 years

 Smart Meters 15 years Additional 5 years

 Hardware 5 years No change

 Software (without CIS) 10 years Additional 5 years

 Software (with CIS) 10 years Additional 3 years

(AP St. 3-SDT, p. 5).

1. Since book lives are integral to the calculation of the capital cost impact to the SMT Surcharge, an extension of the book lives would result in a surcharge that is lower in magnitude as compared to the originally filed SMT Surcharge rates (AP St. 3-SDT, pp. 5-6).

J. Interest

1. The Company’s surcharge recovery mechanism will not include a provision for interest on over collections or under collections of its “SMT Surcharge.”
2. Over collections of the SMT Surcharge will be credited against the next period’s recovery, while under collections would result in an increase in the surcharge in the next period.

K. Deferral

1. The Company proposes to use deferral accounting appropriately, when its SMT Surcharge recovery varies from the costs actually incurred to reflect the impact of under/over collections (AP St. 4-R, p. 28; OTS St. 1-SR, p. 8).

III. DESCRIPTION OF WEST PENN’S SMART METER TECHNOLOGY PROCUREMENT AND INSTALLATION PLAN (“SMIP”)

AND THE TWO ALTERNATIVES IT PRESENTED

A. The Original SMIP Plan

 In its originally proposed Smart Meter Technology Procurement and Installation Plan, Allegheny Power proposes to replace its existing, functioning meters over a five-year period from 2010 through 2014 with smart meters and associated infrastructure. Allegheny Power plans full deployment of the SMIP by 2014. Allegheny Power plans to deploy smart meters to all 725,248 of its metered customers by the end of 2014 at an estimated cost of $580 million to its Pennsylvania ratepayers. Allegheny Power proposes to collect this $580 million between the date of approval of its Smart Meter Procurement and Installation Plan (“SMIP”) and the end of 2014 by assessing a surcharge on its customers. The surcharge will increase the rates of its residential customers by $5.86 per month beginning in February of 2010. The surcharge will increase to $14.34 per month in June of 2011, further increase to $15.57 per month in June of 2012, and then increase to $15.77 per month by June of 2013. By June of 2013, residential customers using 500 kWh per month will see a 34% increase over 2009 rates and customers using 1,000 kWh per month will see an 18% increase, solely to cover the smart meter surcharge. These expected increases will be in addition to the increases in generation rates occasioned by the expiration of the generation rate cap on January 1, 2011, and increases from the recovery of its Energy Efficiency and Conservation and Demand Response (“EE&C/DR”) Plan costs which begins in 2010. At the same time, the Company proposes to install In-Home Displays (“IHD”) in every residential premise in its service territory. The Company proposes a smart meter architecture consisting of six components which are discussed in more detail in Section 2.4 of the SMIP, including: (a) Home Area Network and In Home Devices (SMIP, Section 2.4.2) to connect and control appliances, thermostats, hybrid vehicles, home generation, etc; (2) smart meters (SMIP, 2.4.3) which will connect the Home Area Network to the electric system using standard wireless communications and a multi-supplier standard; (3) A Communications Network (SMIP, Section 2.4.4) which connects the smart meters to the utility “core systems” using secure collectors, microwave and fiber communications; (4) Core Systems or Back-Office Systems (SMIP, Section 2.4.5) which will collect, store, process and manage information generated by users, the Home Area Networks and smart meters and also calculate and issue customer bills;[[3]](#footnote-3) (5) The Customer Interface (SMIP, Section 2.4.6) which provides the ability for customers and authorized third parties to interact and manage electric usage via In Home Devices, an Interactive Voice Response System (“IVR”), or a Web Portal; and (6) Security which will encompass a set of systems, protocols and processes to allow Allegheny Power to provide secure advanced meter technology. AP Ex. 1, SMIP, p. 12; AP Ex. 2, Petition at ¶8; OCA Main Brief, p. 10; AP Main Brief, pp. 9-10.

 According to Allegheny Power, after retention of a system integrator to support the Company’s implementation efforts, detailed planning for smart meter trial installations to evaluate field technology must commence in early 2010, including detailed design of the Local Area Network (“LAN”) and the Wide Area Network (“WAN”).[[4]](#footnote-4) Work must also commence on the Meter Data Management System (“MDMS”), the Enterprise Service Bus (“ESB”) and the Customer Information System (“CIS”).[[5]](#footnote-5)

 Smart meter installation is proposed to commence this year with 90,000 smart meters deployed; another 310,000 smart meters are to be deployed next year; followed by the installation of 231,000 more smart meters in 2012. AP Main Brief, p. 18. After 2012, the SMIP proposes continued installation of smart meters with 703,603 smart meters installed by the end of 2013, and deployment completed with 725,248 smart meters installed. Allegheny Power’s proposed deployment of smart meters will move from areas of higher customer concentration to areas of lower customer concentration in an effort to bring smart meters to the most customers as soon as possible. AP Main Brief, p. 19.

 Allegheny Power’s SMIP calls for the distribution of In-Home Devices (“IHDs”) to all service territory customers unless they opt out of receiving one. AP Main Brief, p. 19. Allegheny Power wants all customers to have access to their usage data and pricing information, even if they do not make use of the internet and the associated Web Portal that the Company plans to establish for customers. AP Main Brief, pp. 19-20.

 Programmable Communicating Thermostats (“PCTs”) automate demand response through direct load control of central air conditioners for residential, small commercial and industrial and governmental/non-profit customers. AP Ex. 1, SMIP, p. 21. Allegheny Power’s SMIP provides that smart metering and associated equipment will provide communications to the thermostat, providing direct load control, and customer response to energy prices can be either automated or manual. AP Ex. 1, SMIP, p. 21. The PCT-based demand response program, which is a part of Allegheny Power’s EE&C/DR Plan, targets 13 percent of residential customers. AP Ex. 1, SMIP, p. 44; AP Main Brief, p. 20.

 Allegheny Power’s SMIP calls for the deployment of the communications network necessary to enable smart metering to start with meters in the highest density areas initially, where the greatest cost efficiency and EE&C/DR results are expected. AP Ex. 1, SMIP, p. 46. Allegheny Power’s SMIP also calls for the deployment of Back Office Systems and Customer Facing Systems. The deployment of these systems is described in both the SMIP and in Company witness Arthur’s direct testimony. AP St. 3, pp. 23-25. The new Back Office Systems and Customer Facing Systems are required to manage and process data flows from meters. These systems, which have the capability to manage pricing information, include Automated Data Collection Systems (“ADCS”), Customer Information System (“CIS”), Meter Data Management System (“MDMS”), and an upgraded Outage Management System and Work Order Management System (which must be integrated with MDMS). Allegheny Power plans to upgrade all these systems to support Act 129 goals. AP Ex. 1, SMIP, p. 48; AP Main Brief, pp. 20-21.

 Allegheny Power also intends to deploy a Customer Interface component as part of its SMIP. This component is intended to provide customers and third parties such as Curtailment Service Providers (“CSPs”) with access to smart meter information, which is necessary to change customer behavior. Customers and third parties will need access to smart meter data. In addition to accessing usage data via their IHD, in Allegheny Power's view, customers and third parties will use the internet and telephone to access usage information. Internet and telephone upgrades are therefore part of the SMIP, as well as Electronic Data Interface (“EDI”) to provide authorized commercial operators such as CSPs access to smart meter data. For accessing usage data by telephone, the Company will upgrade its existing Interactive Voice Response System (“IVR”). To provide access to data via the Internet, the Company will implement a Web Portal system to provide customers, CSPs and other authorized parties access to usage data from smart meters. Smart meter usage data will be stored in the new MDMS system (which also manages communication to and from the smart meters) and acts as a new data “warehouse” that customers can access through the Web Portal or the IVR system. AP Ex. 1, SMIP, p. 49.

 The Company plans to install a new Identity Management System to ensure that only recognized customers and authorized third parties, such as CSPs, can access smart meter usage data. AP Ex. 1, SMIP, p. 49.

 In its supplemental testimony admitted at the March 16, 2010 hearing, Allegheny Power proposed two alternative deployment schedules: a 375,000 smart meter deployment plan and a 100,000 smart meter deployment plan. These two alternatives will be described in separate subsections below. Allegheny Power stated that it was presenting these alternative deployment schedules to respond to concerns regarding the cost and pace of deployment raised by parties to this proceeding and to provide the Commission with alternatives that provide for a less rapid deployment of smart meters. AP St. 1-SDT, p. 3; OCA Supp. Main Brief, p. 16.

 Under both alternatives, the Company will continue with its plans to fully deploy four of the six components of its SMIP─the back office systems, customer interfaces, system management/security and communication network─by 2014. The primary difference from the Company’s original deployment plan is in the method of the deployment of In-Home Devices (IHDs) and the pace and method of deployment of the smart meters themselves through the service territory. OCA St. 1-Supp, pp. 4-5. The Company is proposing to eliminate the universal deployment of IHDs which had a cost of about $100 million. Instead, the Company will deploy IHDs only to those customers that request an IHD or for new construction service requests. OCA Supp. Main Brief, p. 16.

 Under the original SMIP, the Company proposed a Smart Meter Technology (SMT) surcharge that would apply to all customers. Under its two alternative deployment schedules, however, the Company is proposing a two-tiered approach to the SMT charges plus an additional charge for customers with an IHD. Under the Company’s alternative proposals, customers would pay a different surcharge based on whether they have a smart meter. For a customer that has a smart meter and chose to participate in an EE&C/DR Plan program that used an IHD, that customer would pay an additional charge. OCA witness Hornby explained the different tiers of the SMT charges as follows:

* The first Tier SMT charge is set to recover the costs of the communications network, back office systems, customer interfaces and system management/security. The Company proposes to apply the first tier charge to all customers.

* The second Tier SMT charge is set to recover the cost of smart meters. The Company proposes to apply the second tier charge only to customers who receive a smart meter.
* A charge separate from the SMT charge has been proposed to recover the cost of an in-home display. The Company proposes to apply this separate charge only to customers to whom it provides an in-home display and, apparently, a PCT under one of its EE&C Plan programs or rate offerings. (The supplemental testimony of the Company witnesses is not crystal clear regarding the mechanism through which PCT costs would be recovered under the alternative deployment schedules.)

OCA St. 1-Supp at 5-6: OCA Supp. Main Brief, pp. 38-39.

 In addition to the change in the deployment schedule, under each alternative (375,000 and 100,000) the Company also proposes longer depreciation lives for the capital costs of most components of the SMIP and to use a lower return on equity of 10.5% to calculate the SMIP-related revenue requirement. These proposed changes have the effect of mitigating somewhat the needed revenue requirement to be collected through the SMT surcharge on an annual basis. OCA St. 1-Supp, p. 8; OCA Supp. Main Brief, pp. 16-17.

B. 375,000 Smart Meter Deployment Plan

 Under the first alternative plan presented by the Company, approximately 375,000 smart meters would be deployed by mid-2012 (“375,000 Plan”). According to Allegheny Power, this option maintains a large pool of potential EE&C/DR program participants, achieves the projected energy and demand savings under the EE&C/DR Plan, and still achieves many of the procurement and deployment efficiencies projected in the original deployment plan. Under the 375,000 Plan, smart meters would be provided to customers without their having elected to receive a smart meter or participate in a smart meter program. The 375,000 Plan calls for an overall deployment beginning in 2010 and continuing through 2017 in a progressive and controlled manner. AP St. 1-SDT, pp. 5-6. Smart meters would also be installed for all customers requesting service for new construction. AP St. 1-SDT, p. 6; AP Supp. Main Brief, pp. 6-7.

 The 375,000 Plan targets 60,000 IHDs for only those customers that request one or to those customers for whom installation of an IHD is essential to participate in a relevant EE&C/DR program, including Residential Efficiency Rewards, Critical Peak Rebate, Time of Use with Critical Peak Pricing, Hourly Pricing Option, and Pay Ahead Smart Service. The 375,000 meter schedule also targets a deployment of approximately 30,000 programmable communicating thermostats (“PCTs”) to those customers that participate in the PCT demand response program. AP St. 1-SDT, pp. 5-6; AP Supp. Main Brief, p. 7.

 Under the 375,000 alternative deployment option, for the time period between June 2010 and May 2011, a residential customer without a smart meter would pay a surcharge of $6.37 per month and a residential customer in a geographic region receiving a smart meter would pay an SMT surcharge of $8.30 per month. To participate in an EE&C/DR Plan program that uses an IHD, the residential customer with a smart meter would pay an additional charge of $3.96 per month, bringing the total SMT surcharge for an EE&C Plan participant to $12.26. AP St. 3-SDT, Ex. REV-1, p. 3. For the period June 2013 to May 2014, a customer receiving a smart meter would pay a monthly surcharge of $9.86 while a customer without a smart meter would pay a surcharge of $7.93 per month. OCA St. 1-Supp; Ex. JRH-9; AP St. 3-SDT, Ex. REV-1, p. 3. To participate in an EE&C/DR Plan program using an IHD, the monthly surcharge would increase to $13.82. AP St. 3-SDT, Ex. REV-1. This compares to the SMT surcharge for residential customers of $15.77 per month under the original SMIP. OCA Supp. Main Brief, pp. 25-26.

1. 100,000 Smart Meter Deployment Plan

 Under Allegheny Power’s second alternative, 100,000 smart meters would be deployed to residential, small C & I, and large C & I customers by mid-2012 (“100,000 Plan”). Under the 100,000 Plan, smart meters would be deployed to all 715,000 plus customers over a ten-year period. But, for the first 5-year period (through the end of 2014), smart meters would be deployed only to customers that request a smart meter, request to participate in a smart meter program or rate offering (“opt-in” customers), or to customers that request service due to new construction. AP St. 1-SDT, p. 6. The 100,000 deployment through mid-2012 is set up to support the approved EE&C/DR programs and to achieve the mandated energy and demand reduction goals of Act 129. To maximize customer participation, Allegheny Power plans that the opt-in deployment through 2012 would be targeted in higher customer density areas of the Company’s service territory. Initially, the targeted areas would be in western Pennsylvania near Pittsburgh where customer density is greatest. AP St. 1-SDT, pp. 7-8. For the second 5-year period (through the end of 2019), smart meters would be deployed on a planned and controlled basis to all remaining customers in the Company's service territory and to those that request service due to new construction. AP St. 1-SDT, pp. 6-7; AP Supp. Main Brief, pp. 8-9.

 The 100,000 Plan targets 100,000 IHDs for only those customers that request one or for those customers for whom installation of an IHD is essential to participate in a relevant EE&C/DR program including Residential Efficiency Rewards, Critical Peak Rebate, Time of Use with Critical Peak Pricing, Hourly Pricing Option, and Pay Ahead Smart Service. The 100,000 meter schedule also targets a deployment of 30,000 PCTs to those customers that participate in the PCT demand response program. AP St. 1-SDT, p. 9; AP Supp. Main Brief, pp. 8-9.

 Thus, in comparing the two alternatives, the 100,000 Plan differs from the original SMIP and from the 375,000 Plan in that the 100,000 plan is an opt-in plan for the first five years and would first target geographic areas with the highest customer density for opt-in smart meter deployment. And, as required by Act 129, the Company would also locate smart meters wherever it received requests for service in new construction. Of note, compared to Allegheny Power’s original proposed smart meter deployment schedule and the 375,000 Plan, the 100,000 Plan adds risk to the Company’s ability to obtain sufficient customer participation levels in EE&C/DR programs and rate offerings that are necessary to meet the Act 129 energy reduction goals. AP St. 2-SDT, pp. 6-7; AP Supp. Main Brief, p. 9.

 With the exception of the deployment timetable, the other tasks and milestones required to be completed by the Company would be completed in the same order and timeframes as indicated in the original SMIP. This is because in order to have functional smart meters, the other tasks and milestones of the original SMIP still need to be completed during the initial deployment period, regardless of the number of smart meters deployed. AP St. 1-SDT, p. 12; AP Supp. Main Brief, p. 9.

 Under this approach, the Company must fully deploy the communications network since a customer requesting a meter could be located anywhere in the service territory. AP St. 1-SDT at 12; OCA Supp. Main Brief, p. 27.

 Under the 100,000 alternative deployment option, for the time period between June 2010 and May 2011, a residential customer without a smart meter would pay a surcharge of $6.21 per month and a residential customer who requests a smart meter would pay an SMT surcharge of $8.56 per month. To participate in an EE&C/DR Plan program that uses an IHD, the residential customer with a smart meter would pay an additional charge of $3.86 per month, bringing the total SMT surcharge for an EE&C Plan participant to $12.42. AP St. 3-SDT, Ex. REV-1, p. 2. For the period June 2013 to May 2014, a customer receiving a smart meter would pay a monthly surcharge of $10.58 while a customer without a smart meter would pay a surcharge of $8.23 per month. OCA St. 1-Supp; Ex. JRH-9; AP St. 3-SDT, Ex. REV-1, p. 2. To participate in an EE&C/DR Plan program using an IHD, the monthly surcharge would increase to $14.44. AP St. 3-SDT, Ex. REV-1, p. 2; OCA Supp. Main Brief, p. 27.

IV. DISCUSSION

A. Burden of Proof and Overview

 Act 129 provides for the recovery of the reasonable and prudent costs of the smart meter technology. 66 Pa. C.S. §2807(f)(7). Section 2807(f)(7) provides:

An electric distribution company may recover reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) and (iii), as determined by the commission. This paragraph includes annual depreciation and capital costs over the life of the smart meter technology and the cost of any system upgrades that the electric distribution company may require to enable the use of the smart meter technology which are incurred after the effective date of this paragraph, less operating and capital cost savings realized by the electric distribution company from the installation and use of the smart meter technology.

66 Pa. C.S. §2807(f)(7). At all times, it remains the burden of the Company to prove that its Plan is reasonable and that it will result in just and reasonable rates charged to customers. 66 Pa. C.S. §§315, 332, 1301, 2807(f)(7).

As the proponent of a Commission order granting its Petition and approving its Plan, Allegheny Power has the burden of proof in this case. 66 Pa. C.S.A. §332(a).

The “burden of proof” is composed of two distinct burdens: the burden of production and the burden of persuasion. *Hurley v. Hurley*, 2000 Pa. Super. 178, 754 A.2d 1283 (2000).

The burden of production, also called the burden of producing evidence or the burden of coming forward with evidence, determines which party must come forward with evidence to support a particular proposition. This burden may shift between the parties during the course of a trial. If the party (initially, this will usually be the complainant, applicant, or petitioner, as the case may be) with the burden of production fails to introduce sufficient evidence, the opposing party is entitled to receive a favorable ruling. That is, the opposing party would be entitled to a compulsory nonsuit, a directed verdict, or a judgment notwithstanding the verdict. Once the party with the initial burden of production introduces sufficient evidence to make out a prima facie case, the burden of production shifts to the opposing party. If the opposing party introduces evidence sufficient to balance the evidence introduced by the party having the initial burden of production, the burden then shifts back to the party who had the initial burden to introduce more evidence favorable to his position. The burden of production goes to the legal sufficiency of a party’s case.

Having passed the test of legal sufficiency, the party with the burden of proof must then bear the burden of persuasion to be entitled to a verdict in his favor. “[T]he burden of persuasion never leaves the party on whom it is originally cast, but the burden of production may shift during the course of the proceedings.” *Riedel v. County of Allegheny*, 159 Pa. Cmwlth. 583; 591, 633 A.2d 1325; 1328 n. 11 (1993). The burden of persuasion, usually placed on the complainant, applicant, or petitioner[[6]](#footnote-6), determines which party must produce sufficient evidence to meet the applicable standard of proof. *Hurley v. Hurley*, 2000 Pa. Super. 178, 754 A.2d 1283 (2000). It is entirely possible for a party to successfully bear the burden of production but not be entitled to a verdict in his favor because the party did not bear the burden of persuasion. Unlike the burden of production, the burden of persuasion includes determinations of credibility and acceptance or rejection of inferences. Even unrebutted evidence may be disbelieved. *Suber v. Pa. Comm’n on Crime and Delinquency*, 885 A.2d 678 (Pa. Cmwlth. 2005), app. denied, 586 Pa. 776, 895 A.2d 1264 (2006). In order to bear the burden of proof and be entitled to a decision in his favor, a party must bear both the burden of production and the burden of persuasion.

To establish a sufficient case and satisfy the burden of proof, the Company must bear its burden by a preponderance of the evidence. *Samuel J. Lansberry, Inc. v. Pa. Public Utility Comm’n*, 134 Pa. Cmwlth. 218; 221-222, 578 A.2d 600; 602 (1990), app. denied, 529 Pa. 654, 602 A.2d 863 (1992). That is, by presenting evidence more convincing, by even the smallest amount, than that presented by the other party. *Se-Ling Hosiery v. Margulies*, 364 Pa. 45, 70 A.2d 854 (1950). Allegheny Power must initially produce sufficient credible evidence to establish a prima facie case in order that it not lose summarily. *Morrissey v. Dep’t of Highways*, 424 Pa. 87, 225 A.2d 895 (1967). If Allegheny Power does so, the burden of going forward with evidence shifts to the parties opposing its Petition to produce credible evidence of at least co-equal weight. This burden of going forward with evidence may shift back and forth between the parties, but the ultimate burden of persuasion remains with Allegheny Power. *Milkie v. Pa. Public Utility Comm’n*, 768 A.2d 1217 (Pa. Cmwlth. 2001).

Additionally, any finding of fact necessary to support the Commission’s adjudication must be based upon substantial evidence. *Mill v. Pa. Public Utility Comm’n*, 67 Pa. Cmwlth. 597, 447 A.2d 1100 (1982), *Edan Transportation Corp. v. Pa. Public Utility Comm’n*, 154 Pa. Cmwlth. 21, 623 A.2d 6 (1993), 2 Pa. C.S. §704. Substantial evidence has been defined as such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Bethenergy Mines, Inc. v. Workmen’s Compensation Appeal Bd. (Skirpan)*, 531 Pa. 287, 612 A.2d 434 (1992). More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established. *Norfolk and Western Ry. v. Pa. Public Utility Comm’n*, 489 Pa. 109, 413 A.2d 1037 (1980); *Erie Resistor Corp. v. Unemployment Compensation Bd. of Review*, 194 Pa. Super. 278, 166 A.2d 96 (1960); *Murphy v. Dep’t of Public Welfare*, 85 Pa. Cmwlth. 23, 480 A.2d 382 (1984).

 There were four SMIP proposals made in the instant proceeding. Allegheny Power proposed its original SMIP in August 2009 and then proposed the two alternatives discussed above (the 375,000 Plan and the 100,000 Plan) in the supplemental testimony and exhibits admitted into evidence at the Supplemental Hearing on March 16, 2010. The OCA also

made a proposal in its supplemental testimony and exhibits that was entered into evidence on March 16, 2010. The OCA’s proposal was not outlined above, nor does the undersigned consider it to be an alternative SMIP for Allegheny Power. As the burden of proof discussion above illustrates, Allegheny Power, the proponent, has the burden of proof here. It filed a petition seeking approval of a plan. The OCA does not have the burden of proof here. Its alternative plan was admitted into evidence and discussed in supplemental main briefs but is not an option for the undersigned to select. The OCA’s Plan seeks to modify Allegheny Power’s EE&C/DR Plan which was approved by the Commission. The instant proceeding involves Allegheny Power’s SMIP *only*. The undersigned does not have jurisdiction here, in this SMIP proceeding, to modify Allegheny Power’s EE&C/DR Plan.

 Each electric distribution company (“EDC”) in Pennsylvania submitting a SMIP Plan to the Commission for approval is different and each faces various challenges in meeting the requirements of Act 129. Each EDC is different in terms of such things as geographical area and customer density. Technologically speaking, the Pennsylvania EDCs are at various points on the “technology line” in terms of smart meters in place, hardware, software, supporting systems, information systems, security systems, etc. In many respects, because of the differences among the various Pennsylvania EDCs, comparative analyses among these companies are neither relevant nor probative for purposes of evaluating the SMIP Plan alternatives advanced by Allegheny Power.

 Allegheny Power correctly points out in its main brief that its EE&C/DR Plan and the SMIP are fundamentally interrelated. Smart meter technology underpins many of the programs, measures and rate offerings in Allegheny Power’s approved EE&C/DR Plan. Specifically, nine of the 22 programs/rate offerings in Allegheny Power's EE&C/DR filing depend on the installation of smart meters and smart meter infrastructure. The programs are:

(i) Residential Efficiency Rewards Rate;

(ii) Programmable Controllable Thermostat (PCT)

Program;

(iii) Pay Ahead (Smart) Service Rate;

(iv) Customer Load Response Program;

(v) Distributed Generation Program;

(vi) Contracted Demand Response Program;

(vii) Critical Peak Rebate (CPR);

(viii) Time of Use (TOU) with Critical Peak Pricing Rate; and

(ix) Hourly Pricing Option (HPO) Rate.

AP Main Brief, pp. 11-12.

 The Commission approved Allegheny Power’s EE&C/DR Plan that relies to a degree on smart meter technology. In the Commission’s October 15, 2009 Order approving the Company’s EE&C Plan, the Commission stated:

We again note that this Commission agrees with the OCA that Allegheny’s reliance on the rapid deployment of smart meters and the associated network infrastructure does add an element of increased risk to its Plan. As Allegheny bears the sole risk of significant penalties if it fails to meet the mandated targets, we will not direct Allegheny to eliminate the proposed programs that rely on smart meter deployment, except where otherwise directed in this Opinion and Order. In recognizing this increased risk, the Commission strongly encourages Allegheny to develop an alternate “back‑up” plan that is less reliant on smart meter deployment. Such an alternate plan would be a readily available option that can be implemented on short notice, after Commission approval, should any unforeseen circumstances delay or disrupt Allegheny’s smart meter deployment. The Commission will closely monitor this element of Allegheny’s Plan during the annual plan reviews and its review and monitoring of Allegheny’s Smart Meter Procurement and Installation Plan.

Petition of West Penn Power Company d/b/a Allegheny Power for Approval of its Energy Efficiency and Conservation Plan, Docket No. M-2009-2093218, *slip op*. at 21 (Order entered October 15, 2009); OCA Supp. Main Brief, pp. 21-22.

 In addition to West Penn, Allegheny Power includes regulated utility companies in both West Virginia and Maryland. AP Ex. 1, SMIP, p. 97; OCA Main Brief, p. 48. These other state jurisdictions do not currently require smart meters. Allegheny Power has no smart meters installed in the West Penn service territory in Pennsylvania. In its SMIP proposals, Allegheny Power seeks to recover $24.6 million in stranded costs resulting from the replacement of existing meters with smart meters (accelerated depreciation of existing meters over 5 years). AP St. 4, pp. 9-10; OCA Main Brief, p. 72. Allegheny Power’s customer information system (“CIS”) was installed in the 1970s. The Company has performed upgrades on the system over the years but it has not performed a significant upgrade of the system since 1999. AP St. 1-R, p. 5; OCA Cross-Exam Ex. 7, Q. IV-7; OCA Main Brief, p. 49.

 With respect to smart meter technology, Allegheny Power is starting at ground zero. It does not have any smart meters in place nor does it have the back office infrastructure in place to support smart meters and meet the functionality requirements for smart meters contained in Act 129. It must replace existing functioning meters with smart meters to comply with the law. In addition, since Allegheny Power includes regulated utility companies in other states that do not require smart meters, there is a cost inclusion/cost allocation issue for the CIS system and for the Network and Information Technology (“IT”) systems. A significant number of Allegheny Power customers are located in states (Maryland and West Virginia) that do not require smart meters. This cost inclusion/cost allocation issue is the most significant issue presented here. It is present in each of the three SMIP alternatives.

 In its Supplemental Main Brief, Allegheny Power states that its preference is for the Company's original deployment schedule or the 375,000 Plan to be approved. According to Allegheny Power, this is because under this type of deployment approach, the deployment of 375,000 meters is a lower, but acceptable number of meters needed to obtain a sufficient level of customer participation in EE&C/DR programs and rate offerings for the Company to meet its Act 129 energy reduction requirements. AP St. 2-SDT, p. 8. In the Company's view, the 375,000 Plan provides an acceptable level of risk in regards to achieving EE&C/DR Plan objectives. AP St. 2-SDT, pp. 8-9; AP Supp. Main Brief, p. 7.

 The undersigned finds that the Company has met its burden of proof with respect to the 375,000 Plan discussed above and said plan shall be approved subject to the conditions and modifications in the ordering paragraphs to follow. This plan is a costly one, in large part because of the existing state of Allegheny Power’s meter technology and supporting infrastructure and also because of the back office system costs, which Allegheny Power plans to fully install. To the extent practicable, this initial decision will follow the common brief outline and discuss, in succession, cost issues (reasonableness and prudency, and surcharge and cost allocation), rate design, revenue requirement, interest on over and under collections, and the cost recovery mechanism review process.

 The 375,000 Plan to install smart meters is less aggressive than the original proposal, does not require the installation of IHDs (installed as requested or as necessary to participate in an EE&C/DR program), which in the original proposal would have cost approximately $100 million, reduces somewhat the impact of the SMT surcharge on customers, and enables Allegheny Power to meet it EE&C/DR goals with less risk than the 100,000 Plan alternative. The 375,000 Plan is costly because of the back office systems necessary for the smart meters to meet the functional requirements of Act 129 and be useful, and because of the stranded costs resulting from the replacement of existing meters. Based on the record evidence, the undersigned sees no way to avoid these costs, given the EE&C/DR Plan approved for Allegheny Power, which relies on smart meters.

B. SMT Surcharge and Cost Issues

1. Reasonableness and Prudency

 The projected cost to implement the SMIP in the Pennsylvania service areas of Allegheny Power will be approximately $580 million. This amount consists of approximately $444 million in capital expenditures, $111 million in operation and maintenance ("O&M") expenses and $24.6 million in depreciation expenses for existing meters, also included as O&M. AP St. 5-R, p. 6. Allegheny Power witness Mr. Valdes testified that the total Pennsylvania SMIP costs reflect only 48 percent of the total system revenue requirements for the CIS upgrades. The balance of such CIS-related costs is being allocated to service areas outside of Pennsylvania. AP St. 5-R, pp. 4, 12; AP Main Brief, p. 41.

 Allegheny Power may recover reasonable and prudent costs of providing smart meter technology under Section 2807(f)(7) of Act 129. 66 Pa. C.S. §2807(f)(7). The Commission’s Implementation Order specifically provides that “[t]he EDC must also provide sufficient support to demonstrate that all such costs are reasonable and prudent with respect to its smart meter plan. Consistent with Section 315(a), the burden of proof shall be on the EDC.” Implementation Order, p. 29. The OCA and other parties contend that Allegheny Power’s three proposed SMIP alternatives are not reasonable or prudent.

 The undersigned agrees with Allegheny Power’s view that, as a policy matter, arguments opposing the SMIP on the basis of comparisons to other utilities’ plan costs lose sight of the reality of planning for the required steps of Act 129. The Company’s planning efforts and expenditure levels are necessary. Pennsylvania’s electric distribution companies each had a unique set of pre-restructuring circumstances to confront, and have continued to deliver service at capped rates for the entire transition period, as required by the Commission. The CIS updates and other related technology investments that the Company plans to make in order to meet SMIP requirements are direct customer-related costs. These investments will serve existing and future customers. AP Reply Brief, pp. 15-16.

 Some opposing parties have based their objection to the SMIP costs primarily on the premise that the proposed cost amount is large as compared to other utilities. This premise is not consistent with the traditional ratemaking standard, which is a "just and reasonable" standard based on the unique circumstances of the utility in each case. *See* 66 Pa. C.S. §§315, 332, 1301, 2807(f)(7). Comparing the Company's SMIP costs to other utilities is flawed because the relevant standard here is whether the SMIP costs are prudent and reasonable. Allegheny Power has met this burden of proof. In contrast, the opposing parties have failed to refute it, as their only evidence on the reasonableness of SMIP costs is that the costs are large. AP Reply Brief, pp. 12-13.

The credible record evidence supports the reasonableness and prudency of the 375,000 Plan and SMIP cost estimates. The Company's detailed estimate of SMIP capital expenditures, O&M expenses, off-setting O&M benefits and related administrative costs allows the undersigned and the Commission to review the estimates for reasonableness and prudence. AP St. 4, p. 7. No party in the proceeding has submitted evidence specifically challenging the accuracy and reasonableness of the Company's cost estimates. Nor has any party proposed an alternative estimate of costs for a SMIP that deploys smart meters on a basis comparable to the Company's proposal. The OCA’s witness J. Richard Hornby acknowledged that he did not provide any alternative capital or O&M cost estimates on a per unit basis that contradict the Company's estimates. Tr. p. 263. The sole basis of Mr. Hornby's cost criticism is that the estimated costs are higher than those he has seen in other filings. *Id.* AP Main Brief, p. 40.

 Public interest and customer benefits resulting from the Company's SMIP implementation can be numerous and significant. Allegheny Power witness Richard C. Arthur, Jr. testified that the Company's customers will perceive the value of these expenditures from the various components, including IHDs and internet portals. As a result of Allegheny Power's SMIP implementation, customers will have the information to understand how their usage patterns impact the amounts they use and pay for electricity. Mr. Arthur pointed out that each of the six SMIP components play a key role in ensuring that the customers receive the information they need on a timely, accurate and secure basis. AP St. 3, p. 32; AP Main Brief, p. 42.

 Allegheny Power also provided testimony from Mr. Ethan L. Cohen, who outlined several overall public interest benefits of the SMIP. Mr. Cohen's direct testimony points out Pennsylvania's progressive and relatively unique status in establishing (through Act 129) an aggressive mandate for all major Pennsylvania electric utilities to achieve firm energy consumption and peak demand reductions by relatively near term dates certain. Mr. Cohen testified that smart meter deployment is an essential element of bringing the benefits of demand response to fruition, and described the important role that smart meter technology will play in the overall development of the "Smart Grid" and Advanced Metering Infrastructure ("AMI").[[7]](#footnote-7) Smart meters, feeding into a Smart Grid and an AMI, add value to utility customers and to society at large in the form of energy efficiency, fewer outages, more efficient utility operations and less carbon, according to Mr. Cohen. AP St. 5, pp. 7-21. Allegheny Power's SMIP recognizes the importance of bringing the benefits of AMI to its customers sooner rather than later. AP St. 5, pp. 9-11. Allegheny Power's SMIP (the 375,000 Plan) will provide a foundation/building block upon which the Smart Grid will be built. AP Main Brief, pp. 42-43.

 Demand response and its enabling technologies offer many different benefits in many different areas. In terms of reliability, a reduction in peak electricity demand reduces the threat of outages. In terms of electricity markets, demand response and smart metering technologies can allow demand reductions to be deployed instead of resorting to additional power production, with the result potentially being lower wholesale prices, which all customers pay one way or the other. Reductions in peak demand may serve as a means of mitigating market power of suppliers, which can otherwise occur when demand increases unconstrained during peak periods. AP Main Brief, pp. 43-44.

 With smart meters, customers will get information on their electricity usage that they have never had before and get it in a timely manner such that it acts as feedback to reinforce their energy management efforts. Customers will have price and rate options (through the EE&C/DR Plan) that will stimulate them to be more efficient energy consumers. Industry studies have shown that even where customers are not on time-differentiated rates, they may reduce their electricity usage by more than ten percent just as a result of being more informed and understanding better how and when they are using electricity. AP Main Brief, pp. 43-44.

 In terms of environmental issues, demand response can make important contributions. The obvious one is in the enhancement and reinforcement of customer energy efficiency, the generally accepted cornerstone of emission reduction policies. Demand response technologies and practices can lead to greater energy efficiency and greater accountability of reductions. AP Main Brief, p. 44.

 Allegheny Power’s SMIP proposals can result in customer savings of $27 million in avoided capacity costs (by shaving off peak loads by about 3.2 percent by 2012); approximately $109-226 million of avoided capacity and energy costs as a result of IHDs, depending on the percentage reduction in annual energy consumption from the use of these devices; and environmental benefits. AP St. 6-R, pp. 7-16.

 2. SMT Surcharge

 Under the original SMIP, the Company proposed a Smart Meter Technology (SMT) surcharge that would apply to all customers. Under the 375,000 Plan alternative for which the undersigned has determined the burden of proof has been met, as well as for the 100,000 Plan alternative, the Company is proposing a two-tiered approach to the SMT charges plus an additional charge for customers with an IHD. Under the Company’s alternative proposals, customers would pay a different surcharge based on whether they have a smart meter. For a customer that has a smart meter and chose to participate in an EE&C/DR Plan program that used an IHD, or requested an IHD, that customer would pay an additional charge. OCA witness Hornby explained the different tiers of the SMT charges as follows:

* The first tier SMT charge is set to recover the costs of the communications network, back office systems, customer interfaces and system management/security. The Company proposes to apply the first tier charge to all customers.

* The second tier SMT charge is set to recover the cost of smart meters. The Company proposes to apply the second tier charge only to customers who receive a smart meter.
* A charge separate from the SMT charge has been proposed to recover the cost of an in-home display. The Company proposes to apply this separate charge only to customers to whom it provides an in-home display and, apparently, a PCT under one of its EE&C Plan programs or rate offerings.

OCA St. 1-Supp at 5-6; OCA Supp. Main Brief, pp. 38-39.

 The OSBA witness Robert D. Knecht testified in his Supplemental Direct Testimony, that the cost of smart meters should be applied to all customers instead of only customers that receive a smart meter. Allegheny Power indicated that it does not object to spreading the costs of installed smart meters across the entire customer base. According to the Company, the concept of a second tier of the SMT surcharge was presented as an option that would tie such costs to the customers that caused the costs, and as a means of reducing the surcharge amount to customers who had not yet received a smart meter under the deployment schedule. AP St. 3-SRT, p. 6; AP Supp. Main Brief, p. 24.

 The undersigned understands Mr. Knecht’s concern with creating a second tier and charging customers who do not request a smart meter more than customers who do not yet have a smart meter installed. His point is that these costs are mandated by law and should be spread over the entire customer base. Without a doubt, there will be customers who receive a smart meter who do not want one and have no desire to participate in an approved EE&C/DR program. There will be customers who do not wish to change their usage or do not have the ability to change it significantly. However, even though these customers do not choose to incur the additional cost of a smart meter, that meter will enable them to monitor and control usage and, perhaps, realize savings. Customers who do not yet have smart meters installed will not be able to participate in EE&C/DR programs that require smart meters. If Allegheny Power provides information and educates customers who receive smart meters, these customers may be able to make changes in their usage or choose an EE&C/DR program that enables them to recoup some or all of the monthly SMT Surcharge. The two-tiered SMT Surcharge may result in more customers receiving smart meters participating in programs/rate offerings and conserving. The undersigned finds the two-tiered SMT charge proposed by the Company to be just, reasonable and prudent.

 Allegheny Power witness Valdes prepared a three page Exhibit, attached to the Company’s Supplemental Main Brief, which shares the Company’s estimated SMT Surcharges under: (i) the original SMIP Plan (Exhibit REV-1, page 1 of 3), (ii) the 100,000 meter by mid-2012 alternative plan (Exhibit REV-1, page 2 of 3), and (iii) the 375,000 meter by mid-2012 alternative plan (Exhibit REV-1, page 3 of 3). AP St. 3-SDT, Ex. REV-1; AP Supp. Main Brief, p. 23.

 Under the 375,000 alternative deployment option, for the time period between June 2010 and May 2011, a residential customer without a smart meter would pay a surcharge of $6.37 per month and a residential customer in a geographic region receiving a smart meter would pay an SMT surcharge of $8.30 per month. To participate in an EE&C/DR Plan program that uses an IHD, the residential customer with a smart meter would pay an additional charge of $3.96 per month, bringing the total SMT surcharge for an EE&C Plan participant to $12.26. AP St. 3-SDT, Ex. REV-1, p. 3. For the period June 2013 to May 2014, a customer receiving a smart meter would pay a monthly surcharge of $9.86 while a customer without a smart meter would pay a surcharge of $7.93 per month. OCA St. 1-Supp; Ex. JRH-9; AP St. 3-SDT, Ex. REV-1, p. 3. To participate in an EE&C/DR Plan program using an IHD, the monthly surcharge would increase to $13.82. AP St. 3-SDT, Ex. REV-1. This compares to the SMT surcharge for residential customers of $15.77 per month under the original SMIP. OCA Supp. Main Brief, pp. 25-26. The undersigned finds this less costly alternative preferable to the original deployment plan.

 The 375,000 Plan requires only those customers who request an IHD or require one to participate in an EE&C/DR Program to pay for the device. This makes this plan alternative preferable to the original plan. In addition, the fact that Allegheny Power has withdrawn its request to recover its PUC Assessment Fee in the SMT Surcharge is a plus.

3. Back Office Systems and Jurisdictional Cost Allocation

 The main issue raised by the parties opposing the original SMIP Plan and the two alternatives is the cost recovery and cost allocation of the CIS and IT systems. Without a doubt, the high cost of Allegheny Power’s SMIP under each alternative is caused, for the most part, by the back office system costs. The OCA and DEP challenge the recovery of CIS, network and IT costs through the SMT Surcharge. Their preference is that these costs should be claimed in a separate base rate proceeding. However, Allegheny Power correctly states in its reply brief that,

Act 129 explicitly gives the EDC the discretion to choose whether to recover SMIP costs through a base rate filing or via a surcharge.[[8]](#footnote-8) Moreover, Act 129 is clear that distribution system upgrades that enable the smart meter technology are included in the term "smart meter technology" whose costs are recoverable through a surcharge.[[9]](#footnote-9) No opposing party has demonstrated that the CIS, network and IT upgrades identified by Allegheny Power in their SMIP are not necessary to enable smart meter technology on the Company's system.

AP Reply Brief, p. 17.

Allegheny Power correctly contends that forcing recovery of these costs in a base rate proceeding reads out of Act 129 the clear option EDCs have been given to choose their means of cost recovery. AP Reply Brief, p. 17.

 Allegheny Power correctly points out that the OCA and DEP position that, because some Pennsylvania EDCs have upgraded their CIS, network and IT systems pre-Act 129, Allegheny Power should be forced to seek recovery of these costs through a base rate proceeding(s), should be rejected. This position ignores the twin realities that these system improvements are necessary to enable the smart meter technology and that these system improvements would not be necessary at this time absent the Act 129 mandate. AP Reply Brief, p. 18. The undersigned concludes that the back office costs are recoverable costs within the purview of Act 129 through a surcharge.

 In response to the OCA’s contention that some, if not all, of the back office systems the Company proposes in its SMIP are part of its “normal distribution service,” Allegheny Power cites the testimony of Mr. Valdes. He testified that,

This issue has already been addressed in connection with the Company’s original Smart Meter deployment schedule plan. If back office investments such as the Enterprise Service Bus, upgraded Work Management System, a new Geographic Information System and an upgraded Outage Management System were investments made as part of the Company’s normal distribution service, then it is logical that such investments would have already occurred. The simple fact is that such investments have not occurred since, outside of the requirements of Act 129, the Company is able to meter and bill its customers with its existing systems and would not need such new investments. This issue has been previously addressed on page 4 of the rejoinder testimony of Company witness Mr. Heasley, Statement No. 1-RJ, where he states that Allegheny Power would not need the network and information technology additions and/or upgrades at this time without Act 129’s Smart Meter requirements, and Act 129 provides that the cost of deploying Smart Metering infrastructure includes the cost of related distribution system upgrades.

AP St. 3-SRT, pp. 8-9.

Again, these back office system costs are recoverable costs here. If back office systems are deleted from the SMIP, smart meters cannot be deployed and be fully functional. AP Supp. Main Brief, p. 28.

 The undersigned agrees with the manner in which Allegheny Power proposes to allocate back office system costs among the three jurisdictions within which it operates (Pennsylvania, West Virginia and Maryland). The SMIP network and IT system costs are allocated entirely to Pennsylvania (West Penn). None of the SMIP network or IT system costs are allocated to the other jurisdictions because these jurisdictions do not require smart meters and these systems would not be used or useful. The CIS system (billing system) that Allegheny Power proposes in the SMIP will be used and useful in the other two jurisdictions within which the Company operates so the costs associated with it are properly allocated among the three jurisdictions. If, in the future, other state jurisdictions require smart meters, the cost allocation must be changed to alleviate the burden of West Penn customers.

 Act 129 contemplates recovery of costs associated with the deployment of smart meters and the implementation of a smart meter plan. If only a portion of the SMIP network and IT system costs is allocated to West Penn (Pennsylvania) and the remainder of said costs is

allocated to Allegheny Power’s affiliates in West Virginia and Maryland, it is highly doubtful that Allegheny Power would recover these significant costs. West Virginia and Maryland more than likely would not permit recovery of these costs because they do not require smart meters and the systems are, therefore, not used or useful to their respective states’ customers.

 4. Allocation of Joint and Common Costs

 In its main brief, the OCA objects to Allegheny Power’s allocation of joint and common costs based on the number of customer connections. AP St. 4, p. 11. OCA witness Hornby explained that Allegheny Power’s proposed joint and common cost allocation on the basis of the number of customer meters is unreasonable. Mr. Hornby testified:

The Company also has not demonstrated that the joint and common costs have been allocated in a manner that reflects the benefits of the systems being installed. Allocating based on number of customers does not properly reflect the benefits since many of the benefits identified relate to energy and demand savings. An allocator that captures these benefits would be more appropriate.

OCA St. 1 at 30. The OCA submitted that the number of customers is neither a measure of benefits derived from the smart meter system nor the causation of the system costs. To the contrary, the OCA argues that the joint and common costs should be allocated to the customer classes based on an allocation factor that reflects the energy usage of the classes and the peak demand of the classes. OCA Main Brief, p. 58.

 According to the OCA, the joint and common costs that Allegheny Power will incur will result in the development and construction of a smart meter network designed to drive down peak demands and wholesale costs of power. By the Company’s own testimony, the OCA contends, the primary reason for its accelerated smart meter deployment is to meet the energy efficiency and demand reduction goals of Act 129. AP St. 1, pp. 8-9. The OCA claims that reasonable cost of service practices require that costs be allocated among rate classes according to cost causation. OCA St. 1, p. 30; OCA Main Brief, pp. 58-59.

 The purpose of this massive new investment, the OCA claims, is to reduce overall demand and energy costs for the benefit of all customers. The OCA asserts that allocating these joint and common costs based on energy and demand recognizes that larger customers (in terms of demand and energy usage) will derive far greater benefits from both the smart meter systems and the enhanced technological capabilities.

 Allegheny Power asserts that SMIP costs (and resulting benefits) are non-volumetric in nature, which means that SMIP costs (and resulting benefits) do not change with changes in energy consumption. Allegheny Power further asserts that, as a result of the non-volumetric nature of these types of costs (and resulting benefits), these joint and common costs (*e.g.*, the administration of the smart meter communication network, back office systems, customer interfaces, software licenses, and other joint capital and O&M expenses) (and resulting benefits) do not vary based on customer usage or size. AP Reply Brief, pp. 27-28; WPPII Main Brief, p. 9. Allegheny Power argues that there is no valid basis to allocate joint and common costs to customer classes in some proportion to the benefits received from each class. Both the WPPII and the OSBA support the Company’s position with respect to the allocation of joint and common costs.

 WPPII asserts that Allegheny Power’s cost of service approach for allocating the costs of its SMIP is squarely within the Commission’s long-standing precedent for establishing rates based on a utility’s cost of providing service. Specifically, WPPII argues that the Commonwealth Court and the Commission have explicitly held that a utility’s cost of providing service must be the guiding principle in utility ratemaking. *See Lloyd v. Pa. Pub. Util. Comm’n,* 904 A.2d 1010, 1020 (Pa. Commw. 2006); WPPII Main Brief, p. 10.

 In the context of smart meter technology procurement and installation plans, WPPII cites the Commission’s Implementation Order. In its main brief, WPPII asserts as follows:

the Commission’s Implementation Order unequivocally requires that ‘[a]ny costs that can be clearly shown to benefit solely one specific class should be assigned wholly to that class[,]’ while ‘[t]hose costs that provide benefit across multiple classes should be allocated among the appropriate classes using reasonable cost of service practices.’ Implementation Order, p. 32. By the plain and unequivocal language of its Implementation Order, the Commission has directed that cost of service principles to [*sic*.] be applied to assign non-direct (joint and common costs) for purposes of this proceeding.

WPPII Main Brief, p. 11.

 As discussed previously, the undersigned found the two-tiered SMT Surcharge to be a just and reasonable means of collecting the revenue requirement for SMIP costs. The undersigned also finds Allegheny Power’s proposed cost allocation method to be sound and consistent with applicable law and the Implementation Order. Costs should be allocated based on direct customer causation (as the two-tiered SMT Surcharge does by allocating the cost of smart meters to only those customers who receive one) or, in the case of non-direct costs (joint and common costs), based on the number of customers in each class. These joint and common costs are non-volumetric in nature.

 The OCA’s proposed cost allocation method, although it purports to be a cost of service allocation method, is in reality based on “value of service principles.” The OCA proposes that Allegheny Power assign joint and common costs to customers based on the purported benefits that each class might receive from the SMIP. To accept the OCA’s cost allocation, the undersigned must conclude that SMIP costs are being caused by Act 129 and, therefore, all of these costs depend on the levels of demand and energy by rate class. WPPII Main Brief, p. 13. The rates for Allegheny Power’s SMIP are administratively determined and should not be based on “value of service” considerations instead of “cost of service” ratemaking principles. There are no competitive alternatives available to customers.

 In the two-tiered SMT Surcharge proposed, which the undersigned finds just and reasonable, the base amount (joint and common costs) which includes “items such as infrastructure, communications and related electric distribution system upgrades needed to enable smart metering technology,” is included in the first tier. AP St. 3-SDT, p. 9. The first tier (base amount/joint and common costs) of the two-tiered SMT Surcharge would be allocated to all customers regardless of whether they have a smart meter, and would be differentiated by residential, non-residential and street lighting customers. There would be no need to separate the base amount of the SMT Surcharge into single-phase and three-phase rates since such costs do not materially vary by such criterion. AP St. 3-SDT, p. 9. The undersigned finds this cost allocation of joint and common costs, referred to as “base amount” in Mr. Valdes’s supplemental testimony, both just and reasonable.

5. Stranded Costs-Accelerated Depreciation of Existing Meters

 Allegheny Power is proposing to recover over $24.6 million of “stranded costs” under its SMIP for accelerated depreciation of existing meters. This stranded investment is largely a result of the rapid deployment strategy chosen by the Company. To accommodate this rapid deployment, Allegheny Power is proposing to accelerate the depreciation of its existing meters so that all existing meters are fully depreciated within five years. AP St. 4, pp. 9-10; OCA Main Brief, p. 72.

 Allegheny Power claims that the Commission should allow for recovery of these costs via the SMT Surcharge. Allegheny Power asserts that a reduction to the annual expense to account for the return on rate base of the increased build-up of accumulated depreciation is not needed. To support this position, Allegheny Power asserts that the current base rates were established based on a level of rate base and other cost items in Docket No. R-00942986. Allegheny Power further argues that the Company’s level of rate base can vary from one year to the next based on its level of capital investment. Allegheny Power states that the Company files quarterly financial reports that allow the Commission to monitor the Company’s return on rate base and take action to change rates if necessary. AP St. 4-R, pp. 8-9; AP Main Brief, p. 70.

 According to Allegheny Power, the Commission’s Implementation Order provides that “. . . in the event that there are stranded costs that need to be recovered the Commission agrees with EA, PECO and Duquesne that the EDCs should be allowed to seek recovery of those costs through an accelerated depreciation schedule, to be included in the EDC’s cost recovery plan.” Implementation Order, p. 33. Allegheny Power relies on this portion of the Implementation Order for its proposal to recover stranded costs here as part of an SMT Surcharge. AP Main Brief, p. 70.

 The OCA submits that Allegheny Power’s proposed accelerated depreciation is contrary to the intent of the Smart Meter Implementation Order and Act 129 and that this claim should be denied. The Implementation Order states that accelerated depreciation shall be done in a manner that will “minimize the stranded costs.” Implementation Order, p. 32. The OCA asserts that Allegheny Power has done nothing in its proposal to minimize stranded costs. OCA Main Brief, p. 72.

 According to the OCA, the Commission’s Implementation Order makes two key points regarding stranded costs. First, the Order sets forth the Commission’s expectation that stranded cost will be minimized in the smart meter plans. The Commission stated:

The Commission believes the EDCs should install smart meters in a manner that coincides with the full depreciation of existing meters, so as to minimize the stranded costs.

Smart Meter Procurement and Installation, Docket No. M-2009-2092655, at 33 (Order entered June 24, 2009) (Smart Meter Implementation Order). The OCA argues that Allegheny Power’s accelerated deployment of smart meters and its $24 million in stranded cost did not achieve this Commission goal. OCA Reply Brief, p. 54.

 Second, the OCA asserts, the Commission’s Order directed EDCs to include an accelerated depreciation schedule with their cost recovery plan. The Commission stated:

However, in the event that there are stranded costs that need to be recovered the Commission agrees with EA, PECO and Duquesne that the EDCs should be allowed to seek recovery of those costs through an accelerated depreciation schedule, to be included in the EDC’s cost recovery plan.

Implementation Order, p. 33. According to the OCA’s reading of the Implementation Order, the Commission did not specify that these stranded costs were only to be included in a surcharge mechanism. Rather, the Commission directed that an accelerated depreciation schedule be included in the cost recovery portion of the plan. OCA Reply Brief, p. 54.

 The OCA submits that ratepayers will be unnecessarily burdened by this proposal to depreciate all existing meters and recover substantially all new smart meter costs in a five year period. Additionally, this accelerated depreciation may result in an increase in accumulated depreciation and a reduction in rate base that is not reflected in current base rates. The OCA submits that due to the impact to Allegheny Power’s rate base and the fifteen year gap since Allegheny Power’s last base rate proceeding, this issue should be dealt with in the Company’s next base rate proceeding. OCA witness Hornby recommended that:

[T]his is a major amount that needs to be reviewed, ideally in a base rate proceeding. If the Commission does allow recovery of these costs via the SMT, the annual expense must be reduced each year to account for the return on rate base effect of the increased build-up of accumulated depreciation.

OCA St. 1 at 29; OCA Main Brief, p. 73.

 The EE&C/DR Plan approved by the Commission for Allegheny Power relies on the deployment of smart meters and smart meter technology, in part, to achieve the Act 129 energy consumption and demand reduction mandates. Allegheny Power has filed a SMIP and offered two alternatives to the original proposal that vary with respect to how aggressively smart meters will be deployed in the West Penn service territory. Allegheny Power does not have any smart meters deployed at the present time. The Implementation Order specifically allows EDCs to seek recovery of stranded costs through an accelerated depreciation schedule. *See* Implementation Order, p. 33. That is exactly what Allegheny Power seeks to do in its SMIP here. Section 2807(f)(7) provides as follows:

(7) An electric distribution company may recover reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) and (iii), as determined by the commission. This paragraph includes annual depreciation and capital costs over the life of the smart meter technology and the cost of any system upgrades that the electric distribution company may require to enable the use of the smart meter technology which are incurred after the effective date of this paragraph, less operating and capital cost savings realized by the electric distribution company from the installation and use of the smart meter technology. Smart meter technology shall be deemed to be a new service offered for the first time under section 2804(4)(vi). An electric distribution company may recover smart meter technology costs:

     (i) through base rates, including a deferral for future base rate recovery of current basis with carrying charge as determined by the commission; or

     (ii) on a full and current basis through a reconcilable automatic adjustment clause under section 1307.

66 Pa. C.S. §2807(f)(7).

 Allegheny Power has chosen to recover the reasonable and prudent costs of its SMIP through a reconcilable automatic adjustment clause. It can do so. It can also recover its stranded costs (the accelerated depreciation of its meters) in the SMT Surcharge pursuant to a fair reading of the Implementation Order.

 6. Meter Cost Differential

 The OSBA’s witness, Mr. Knecht, raised concerns regarding the cost differential between single-phase residential and single-phase non-residential meters. OSBA St. 3, pp. 4-5. In response, Allegheny Power’s witness, Mr. Valdes, explained that the per meter cost differential identified by Mr. Knecht was a direct function of the cost estimates the Company provided with regard to acquisition and installation of the meters. According to Mr. Valdes, the cost differential in these types of meters is driven primarily by the turnkey installation cost estimates. Mr. Valdes stated that in the event the cost differential estimated does not actually materialize, the SMT surcharge would be adjusted accordingly. AP St. 3-SRT, p. 4; AP Supp. Main Brief, p. 31.

 The Company’ position at this juncture is that it is amenable to either of two approaches.

1. Use the current estimated non-residential meter cost and allow the reconciliation procedure to adjust the surcharge downward if the estimated cost differential doesn’t materialize.
2. Match the non-residential meter cost to the estimated residential meter cost and adjust the surcharge upward if the differential does materialize.

Mr. Valdes’ Exhibit REV-1R shows the difference in the estimated surcharge under approach 2, which is that the surcharge is reduced for Schedules 20, 22, 23 and 24 by approximately 60 cents. AP St. 3-SRT, pp. 4-5; AP Supp. Main Brief, p. 32.

 The undersigned concludes that Allegheny Power should match the non-residential meter cost to the estimated residential meter cost and adjust the surcharge upward if the differential does materialize.

C. Rate Design

 As part of the original SMIP, Allegheny Power proposed to collect the SMT Surcharge entirely as a customer charge. As stated in the SMIP, the justification for recovery via a customer charge was as follows: "A fixed rate per month is used in lieu of a volumetric rate since different customers within the same customer class should not bear a disproportionate responsibility for SMIP costs that are non-volumetric in nature." AP St. 4-R, p. 9, quoting AP Ex. 1, SMIP, p. 97; AP Main Brief, p. 60.

 In response to the OCA’s position that recovery of the residential class portion of the SMIP costs be allocated primarily on a volumetric basis, Allegheny Power proposed an alternative rate design where the SMT Surcharge is a combination of a fixed customer charge and a volumetric energy charge for residential customers. AP St. 4-R, pp. 10-11. Specifically, the Company proposed in rebuttal testimony to collect from residential customers 21 percent of SMIP costs as a fixed customer charge and 79 percent as a volumetric charge. This 21/79 percent split, according to Allegheny Power is the existing proportional split between the residential distribution fixed charge and volumetric charge. AP St. 4-R, p. 10.

 At the Supplemental Hearing on March 16, 2010, Allegheny Power presented two alternative SMIP deployment proposals, in addition to the original, and a two-tiered alternative SMT Surcharge for recovery of SMIP costs. As discussed previously, the undersigned concluded that the two-tiered SMT surcharge for recovery of SMIP costs was just and reasonable. Through the two-tiered SMT Surcharge proposal, the base amount, (certain capital and O&M costs) which includes “items such as infrastructure, communications and related electric distribution system upgrades needed to enable smart metering technology,” is included in the first tier. AP St. 3-SDT, p. 9. The first tier (base amount) of the two-tiered SMT Surcharge would be allocated to all customers regardless of whether they have a smart meter, and would be differentiated by residential, non-residential and street lighting customers. AP St. 3-SDT, p. 9; AP Supp. Main Brief, p. 34. Since the street lighting class is not metered, the only category of costs this class receives is associated with the CIS since this system performs the billing function for the Company. AP Ex. 1, SMIP, p. 96; AP St. 3-SDT, Ex. REV-1. With the exception of the CIS, all other capital and O&M costs are proportionally split between the residential and non-residential classes based upon the number of customer connections since these types of costs do not vary based upon customer usage or size. AP Ex. 1, SMIP, p. 96; AP St. 3-SDT, Ex. REV-1. The first tier would not include the costs of smart meters or the costs of IHDs. The second tier (smart meter costs) would be differentiated by costs associated with residential, non-residential single-phase, and non-residential three-phase meters. AP St. 3-SDT, p. 9; AP Supp. Main Brief, p. 35.

 Allegheny Power did not use a cost of service study (“COS study”) to determine rate design (allocation of revenue requirements among the rate classes). Allegheny Power asserts that a COS study would not provide any additional value to rate design. AP Main Brief, pp. 60-61. According to Allegheny Power, a COS Study is used to determine existing costs, not future costs. Allegheny Power opines that a COS Study is used to identify existing costs using an historical period but is not used to determine regulatory treatment of future costs. The costs in Allegheny Power's SMIP are future costs and thus, the Company argues, would not be reflected in a COS Study. AP St. 4-RJ, pp. 12-13. Consequently, Allegheny Power contends that a COS Study would not provide any additional value to the Company's cost allocation with its SMIP. AP Main Brief, p. 58.

 The OSBA agrees with Allegheny Power that there is no need for a COS Study. OSBA Main Brief, pp. 17-18. The OSBA referred to the testimony of Allegheny Power’s witness, Mr. Valdes, who testified as follows:

I agree that Allegheny Power has indeed proposed a SMT surcharge based upon the same type of analysis that is used to develop base rates. However, I disagree that the SMT Surcharge is not reasonable. The analysis upon which the SMT Surcharge is based includes the development of revenue requirements, an allocation of revenue requirements among rate classes, and a design of rates to collect the revenue requirement allocated to each rate class. The analysis includes a detailed estimate of capital costs, O&M expenses, and off-setting benefits.

\* \* \*

AP St. 4-R, p. 13; OSBA Main Brief, p. 17.

 The WPPII did not file a supplemental main brief addressing the two-tiered SMT Surcharge; however, WPPII does support the Company’s proposed cost allocation method as just and reasonable. WPPII asserts that “the amount of energy and peak demand used by West Penn’s customer classes have absolutely no bearing on the amount of costs incurred by the Company for its Smart Meter Program.” WPPII St. 1-R, p. 5; WPPII Main Brief, pp. 25-26.

 WPPII has no objection to Allegheny Power’s proposed alternative rate design where the SMT Surcharge is a combination of a fixed customer charge and a volumetric energy charge for residential customers. AP St. 4-R, pp. 10-11. In rebuttal testimony, Allegheny Power witness, Mr. Valdes, suggested that,

the Company is willing to modify the design of its SMT to recover 21% of its SMIP costs via a customer surcharge and 79% via a volumetric surcharge … in light of the concerns put forth by Ms. Brockway regarding the impact to low income/low usage residential customers and the position put forth by Mr. Hornby regarding an effort to mitigate the customer bill impact, Allegheny Power could accept a combination of a fixed customer charge and a volumetric *for residential customers*.

*See* AP St. 4-R, p. 10 (emphasis added); WPPII Main Brief, p. 25, footnote 75. WPPII’s position is that this alternative rate design using a per kWh charge for the residential class should not be extended to other classes of customers (in this case non-residential). Energy consumption characteristics are generally consistent among members of the residential class, according to the WPPII. As a result, there would be no inequitable distribution of costs between the customers of this class. WPPII asserts that for reasons of equity and propriety of rate design, this energy charge approach for the residential class (21/79) should not be extended to other rate classes under any circumstances. According to the WPPII, an energy charge or capacity charge mechanism would disproportionately assign greater costs to higher energy and demand users within a class of similar customers (non-residential), despite the fact that the actual cost of the meter installation and the costs of administering the network and data system for every like customer would not vary. WPPII Main Brief, p. 26.

 The OCA’s position is that the Company’s original rate design proposal for recovering SMIP costs from residential customers should be rejected. The OCA argues that the Company’s proposal would improperly collect all joint and common costs through the fixed customer charge.[[10]](#footnote-10) According to the OCA, utilizing traditional ratemaking principles, the Commission has limited the costs that can be included for recovery in the customer charge to “basic customer costs” necessary to customer service. *See, e.g., Pa. PUC v. West Penn Power Co*., 69 PUR4th 470, 521 (1985) (*West Penn*); *Pa. PUC v. West Penn Power Co*., 1994 Pa. PUC LEXIS 144, 154 (1994). The OCA asserts that the Commission has defined “basic customer costs” to include the costs for the meter and service drop, meter reading and billing. According to the OCA, if all of the smart meter costs are collected through a fixed customer charge, the incentive to reduce usage will decrease to the detriment of the energy efficiency goals of Act 129. *West Penn*, p. 521; OCA Main Brief, p. 64.

 The OCA also rejects the Company’s residential alternative proposal. In its main brief, the OCA states that Allegheny Power’s alternative proposal is an improvement to the Company’s original proposed rate design, but the alternative proposal does not resolve all of the OCA’s concerns. OCA witness Hornby testified in his surrebuttal testimony that:

[T]he fact remains that the Company is still proposing to ultimately collect over $15 per month on average from residential customers. The portion it would collect through a customer surcharge would still ultimately increase the customer charge by over $3, or sixty percent. The Company has not provided a bill analysis to support an increase of that amount.

OCA St. 1-S, pp. 23-24. In addition, the OCA contends, there is no support for the Company’s selection of 21% of the costs as being the appropriate amount to include in the fixed charge portion. The OCA argues that the rate design should be such that the amount to be recovered from the residential class is primarily allocated on a volumetric basis. OCA St. 2, p. 6. The OCA claims that such an allocation would lessen the burden on low use customers who cannot take advantage of the usage reduction programs. OCA St. 2, p. 35; OCA Main Brief, pp. 65-66.

 The OCA believes that Allegheny Power should undertake a COS study. The OCA submits that the Company should use a Cost of Service study to guide its decisions regarding the bill impacts. OCA witness Hornby recommended that:

[F]undamental ratemaking principles suggest that once the Company has determined the revenues to be collected from each service and rate class, it should use the results of its cost-of-service study plus an analysis of bill impacts to guide its decisions regarding the portion of the rate class revenue requirement to recover via an increase in the customer charge and the portion to recover via increase in the delivery and/or demand charge components of each tariff.

OCA St. 1, p. 31; OCA Main Brief, p. 66. According to the OCA, Allegheny Power has provided no basis or justification for its original proposal to recover these costs via a customer charge or, in the Company’s alternative proposal, sufficient basis to support what the proper division between a customer charge and a volumetric charge should be. OCA St. 1, p. 23. OCA witness Hornby testified that:

The capital expenditure on meters is only about 25 percent of the total capital costs. That is the amount that should be the starting point for determining the portion of the surcharge that is a customer charge. Next, one needs to consider the amount by which the customer charge should be allowed to increase in a given time period. Setting the SMT such that it would increase the existing customer charge dramatically is inconsistent with the ratemaking principle of gradualism. This is particularly important because the SMT as a customer charge is unavoidable and will have a disproportionate impact on low use customers within the residential rate classes. That is why it is [sic] important to have a COS and bill impact analysis to guide the determination of the portion of the rate class revenue requirement to recover via an increase in the customer charge and the portion to recover via increase in the delivery and/or demand charge components of each tariff.

OCA St. 1, p. 31. The OCA submits that Allegheny Power should undertake a Cost of Service study to determine the proper design of the residential surcharge rates. OCA Main Brief, pp. 66-67.

 Again, the undersigned finds that the two-tiered SMT Surcharge for recovery of the 375,000 SMIP Plan costs is just and reasonable. Through the two-tiered SMT Surcharge proposal, the base amount, (certain capital and O&M costs) which includes “items such as infrastructure, communications and related electric distribution system upgrades needed to enable smart metering technology,” is included in the first tier. AP St. 3-SDT, p. 9. The first tier (base amount) of the two-tiered SMT Surcharge would be allocated to all customers regardless of whether they have a smart meter, and would be differentiated by residential, non-residential and street lighting customers. AP St. 3-SDT, p. 9; AP Supp. Main Brief, p. 34. Since the street lighting class is not metered, the only category of costs this class receives is associated with the CIS since this system performs the billing function for the Company. AP Ex. 1, SMIP, p. 96; AP St. 3-SDT, Ex. REV-1. With the exception of the CIS, all other capital and O&M costs (does not include smart meters or IHDs) are proportionally split between the residential and non-residential classes based upon the number of customer connections since these types of costs do not vary based upon customer usage or size. AP Ex. 1, SMIP, p. 96; AP St. 3-SDT, Ex. REV-1. The first tier would not include the costs of smart meters or the costs of IHDs. The second tier (smart meter costs) would be differentiated by costs associated with residential, non-residential single-phase, and non-residential three-phase meters. AP St. 3-SDT, p. 9; AP Supp. Main Brief, p. 35.

 For purposes of brevity, the undersigned is not going to repeat the cost allocation discussions here. The Company’s cost allocation method is consistent with Act 129 and the Implementation Order. The Commission’s Implementation Order unequivocally requires that ‘[a]ny costs that can be clearly shown to benefit solely one specific class should be assigned wholly to that class[,]’ while ‘[t]hose costs that provide benefit across multiple classes should be allocated among the appropriate classes using reasonable cost of service practices.’ Implementation Order, p. 32. Allegheny Power’s cost allocation method is just and reasonable because it is squarely within the Commission’s long-standing precedent for establishing rates based on a utility’s cost of providing service. The allocation of joint and common costs based on customer connections is proper. In addition, it is proper to assign the cost of a smart meter to the customer who receives it.

 The undersigned finds that, with respect to the residential class in Allegheny Power’s proposed rate design, the Company’s original proposal to collect the SMIP costs through a customer charge is just and reasonable. The undersigned rejects the alternative proposal to collect SMIP costs within the residential class by means of both a customer charge and on a volumetric basis (21/79). SMIP costs (and resulting benefits) are non-volumetric in nature, which means that SMIP costs (and resulting benefits) do not change with changes in energy consumption. Customers within the residential class should not pay higher or lower SMIP costs based upon the kWh of energy they use. The SMIP costs assigned to the classes in tier 1 are non-volumetric in nature.

 The undersigned agrees with both the Company and the OSBA that a COS study is not necessary here. The analysis upon which the SMT Surcharge is based includes the development of revenue requirements, an allocation of revenue requirements among rate classes, and a design of rates to collect the revenue requirement allocated to each rate class. The analysis includes a detailed estimate of capital costs, O&M expenses, and off-setting benefits. A COS Study would not provide any additional value to the Company's cost allocation with its SMIP. A COS Study is used to determine existing costs, not future costs. Consequently, COS studies are used to identify existing costs using a historical period but they are not used to determine regulatory treatment of future costs. The costs in Allegheny Power's SMIP are future costs and thus would not be reflected in a COS Study.

 D. Revenue Requirement

1. Company Proposal

 As previously mentioned, the Company has elected to recover smart meter technology costs on a full and current basis through a reconcilable automatic adjustment clause under Section 1307. AP St. 4, pp. 7-8. The SMT Surcharge, as it is called, is designed to collect a revenue requirement consisting of a return of and on capital costs, based on the Company’s pre-tax cost of capital; forecasted incremental O&M costs as incurred, which are offset by forecasted savings associated with deployment of the Company’s proposed SMIP; and costs associated with depreciation of the Company’s existing meters. The SMT Surcharge would also reflect any adjustment associated with the annual reconciliation mechanism, which is intended to reconcile prior period revenues and costs. AP St. 4, p. 8; AP Supp. Main Brief, p. 33. Since the filing of the SMIP, the Company has proposed some adjustments to its original SMT Surcharge. The Company has also proposed an alternative two-tiered approach for the SMT Surcharge.

 The Company originally proposed the SMT Surcharge as a fixed rate per month by dividing the allocated revenue requirement by the number of customer connections, respective to the three customer classes of residential, non-residential and street lighting. According to the Company, a fixed rate per month was used in lieu of a volumetric rate since different customers within the same customer class should not bear a disproportionate responsibility for SMIP costs that are non-volumetric in nature. AP St. 3-SDT, p. 8. However, in order to address a concern put forth by OSBA, in Statement No. 4-R, the Company’s witness, Mr. Valdes, offered to develop a non-residential single-phase smart metering rate that is separate from a three-phase smart metering rate. This proposal was accepted by the OSBA, and Allegheny Power indicated it would modify its originally filed SMT Surcharge in accordance with that acceptance, if that SMT Surcharge proposal were found just and reasonable. Mr. Valdes explained in his written rebuttal testimony, Statement 4-R, pp. 5-8, that the separation of single- and three-phase customers mitigates the cost differential between small and large non-residential customers that was a concern for OSBA. AP Supp. Main Brief, p. 33-34.

 At the supplemental hearing on March 16, 2010, Allegheny Power proposed an alternative two-tiered approach for the SMT Surcharge. The first tier is the base amount of the SMT Surcharge and includes all cost items except costs associated with the smart meter and IHDs. The base amount would include items such as the infrastructure, communications and related electric distribution system upgrades needed to enable smart metering technology. The first tier (*i.e.,* base amount) of the SMT Surcharge would be applied to all customers regardless of whether they have a smart meter, and would be differentiated by residential, non-residential and street-lighting customers. There would be no need to separate the base amount of the SMT Surcharge into single-phase and three-phase rates since such costs do not vary by such criterion. The second tier of the SMT Surcharge proposed by Allegheny Power collects costs associated with the smart meter and would only apply to customers that have a smart meter. Additionally, in accordance with the agreement reached with the OSBA, the second tier would be differentiated by costs associated with residential, non-residential single-phase, and non-residential three-phase meters. AP St. 3-SDT, p. 9; AP Supp. Main Brief, pp. 34-35. Along with the two-tiered SMT Surcharge alternative, Allegheny Power proposes to collect the IHD costs through the rate offerings it will be filing with the Commission by mid-2010, as outlined in the Company EE&C/DR filing. IHD’s would only be available to residential customers on an opt-in basis, which means that non-residential customers would not have an IHD provided by Allegheny Power and subsequently would not have any related cost collection. This alternative also means that only residential customers who elect an IHD will pay costs for the IHD. AP St. 3-SDT, p. 10; AP Supp. Main Brief, p. 35.

 The undersigned selected the 375,000 Plan alternative proposed by Allegheny Power as a just, reasonable, and prudent manner to implement and deploy smart meter technology and to recover the SMIP costs. The undersigned also found the two-tiered SMT Surcharge to be a just, reasonable and prudent means to collect the costs. The parties’ positions regarding cost recovery through an SMT surcharge, costs, cost allocation and rate design have been discussed.

2. Rate of Return

 In its supplemental testimony, under the alternative proposals the Company is offering, its requested return on equity would be reduced to 10.5%, a reduction of 100 basis points. AP St. 3-SDT, p. 7. The Company believes that its last authorized return on equity is appropriate and in compliance with the Commission’s Implementation Order entered June 24, 2009 at Docket No. M‑2009‑2092655, which mentions that capital expenditures for any equipment and facilities that may be required to implement the Smart Meter Plan would include a return component based on the electric distribution company’s weighted cost of capital. Implementation Order, p. 29; AP Supp. Main Brief, p. 37.

 However, in an attempt to recognize concerns from other parties regarding the return on equity, the Company states that it is willing to accept for purposes of its alternative plans a return on equity of 10.5%. This will result in a lower SMT Surcharge. The Company has offered to use a 10.5% return on equity since this value matches the return on equity in PECO Energy Company’s Joint Petition for Partial Settlement at Docket No. M-2009-2123944. The Company expects that the SMT Surcharge will be adjusted to reflect the return on equity that may be awarded in future base rate proceedings or other appropriate proceedings. AP St. 3‑SDT, pp. 6‑7; AP Supp. Main Brief, p. 37.

 Allegheny Power agrees to use of a 10.5% return on equity in the event the Commission adopts one of the alternative plans addressed in its supplemental brief. AP Supp. Main Brief, p. 37.

 Initially, the OCA objected to Allegheny Power’s proposed 11.5% ROE. The OCA agrees that the allowed return for each EDC should be based on the most recent Commission-approved capital structure and capital cost rates, but only if that proceeding was within the last few years. Allegheny Power’s last base rate proceeding was fifteen years ago, when Allegheny Power was a vertically integrated utility. Tr. p. 234. The OCA submits that Allegheny Power’s original proposal (11.5% ROE) does not provide an accurate measure of the markets or of Allegheny Power’s risk under the SMT cost recovery mechanism. OCA Main Brief, p. 69.

 The OCA submits that in calculating the revenue requirement for the SMT Surcharge, the Company should use a 10.1% return on equity until such time as it files its next distribution base rate case or the Commission establishes a procedure to utilize the reports of the Bureau of Fixed Utility Services to establish the ROE for the surcharge calculation. OCA Main Brief, p. 70. According to the OCA, the 10.1% return on equity reflects current market conditions and an appropriately conducted cost of capital study. If anything, the OCA asserts, the 10.1% return on equity is conservatively high as it is being used in a reconcilable surcharge method of cost recovery with little or no risk. OCA St. 3-S, pp. 8-9, 12; OCA Reply Brief, p. 51.

 The OCA continues to support the use of a return on equity of 10.1% for Allegheny Power’s SMT Surcharge, despite Allegheny Power’s willingness to use a 10.5% return on equity (“ROE”). OCA St. 1-Supp, p. 8; OCA Main Brief, pp. 69-71; OCA Reply Brief, pp. 48-52. The OCA argues that reliance on the settlement of PECO’s Smart Meter Plan is misplaced. The OCA points out that the use of the 10.5% ROE in the PECO case was in the context of a comprehensive settlement of all but one issue presented by that case. The OCA contends that settlements do not form the basis of precedent for further Commission decisions. OCA Supp. Main Brief, pp. 44-45.

 The OCA’s witness, Mr. Hornby, recommended that,

For now, I recommend that the ROE in the most recent litigated electric distribution case for a Pennsylvania utility be used. It is my understanding that this would be 10.1%. Going forward, I recommend that a procedure be developed so that an equity return based on the most recent “Report on the Quarterly Earnings of Jurisdictional Utilities” (Quarterly Earnings Report) prepared by the Bureau of Fixed Utility Services and released by the Commission could be used when there has not been a base rate case for Allegheny Power in the recent past.

OCA St. No. 1, p. 29; OCA Main Brief, p. 70.

 Mr. Hornby’s recommendation of a 10.1% ROE is based on the 2006 Met-Ed/Penelec base rate proceedings. Pa. PUC, et al v. Met-Ed Co., Docket No. R-00061366 and Pa. PUC, et al v. Penelec, Docket No. R-00061367 (Orders entered January 11, 2007). OCA Main Brief, p. 70.

 The OCA’s witness, Mr. Kahal, proposed two alternative checks on the 10.1% ROE recommendation: (1) the use of prevailing triple-B utility bond yields as the appropriate return on equity for SMT investments; and (2) the use of a recent cost of equity analysis that is specifically tailored to a delivery service utility. OCA St. 3-S, p. 8. OCA witness Kahal testified that the first measure is appropriate because of Allegheny Power’s proposed low-risk SMT cost recovery mechanism, and the second approach “is more conservative because it reflects utility investment risk essentially under standard regulation, not through a reconcilable surcharge.” OCA St. 3-S, p. 8. According to the OCA, when these two methods are applied, they result in a range of 7.73% to 10.2% for the ROE. OCA St. 3-S, pp. 10-11; OCA Main Brief, pp. 70-71.

 The DEP agrees with the OCA proposal discussed above and with the OCA’s reasoning. DEP Supp. Main Brief, pp. 13-14. Rate of return was not addressed by the OSBA, Constellation or the WPPII in their respective briefs.

 The OTS disagrees with the original Company proposal for a return on equity of 11.5%. The OTS did not address the Company’s proposal to reduce the ROE to 10.5% for the alternative plan proposals. The OTS recommends that Commission staff calculate a cost rate of common equity for the electric industry and present it in the Quarterly Earnings Report. OTS St. 1, p. 14. This cost rate of common equity, the OTS adds, will be based on the Commission’s barometer group, which will be used to determine the appropriate capital structure. Until the next Quarterly Earnings Report establishes the capital structure for smart meter cost recovery, OTS recommends that the capital structure be published in the Order in this proceeding. OTS St. 1, p. 15; OTS Main Brief, p. 18.

 The OTS argues that its recommendation that the Commission calculate the cost rate of common equity and capital structure based on its barometer group is appropriate because it properly matches the financial risk associated with the capital structure to the cost rate of common equity. OTS St. 1, p. 15. Additionally, the OTS argues that applying a Commission- calculated cost rate of common equity is an established Commission procedure that has been used in DSIC proceedings for the water industry. In DSIC proceedings, the individual equity returns for the water utilities are not used. Instead, the Commission calculates a cost rate of common equity that is then applied to all companies utilizing a DSIC mechanism to recover the appropriate costs. The OTS recommendation is to apply this same principle to smart meter cost recovery. According to the OTS, the appropriate comparison is that the mechanism applies to the recovery of capital additions prior to incorporation in base rates. The OTS points out that the Commission’s Bureau of Fixed Utility Services currently calculates a market-indicated common equity cost range for the electric company barometer group in the Quarterly Earnings Reports. OTS St. 1, p. 14. Therefore, the OTS concludes that this procedure can be applied to smart meter costs. OTS Main Brief, p. 19.

 The undersigned agrees with the OTS’s proposal for calculating the rate of return here. In determining an appropriate return on equity to be used in the rate of return calculation of Allegheny Power’s SMT Surcharge, all parties, including Allegheny Power, have proposed the use of a proxy figure. Allegheny Power has not had a fully-litigated base rate proceeding before the Commission in several years. Thus, there is no recent Commission-determined reasonable return on equity for Allegheny Power available for consideration here.

 The undersigned does not approve of the use of settled Pennsylvania EDC base rate cases for the reason that seldom do such cases result in a Commission determination on a reasonable return on equity. The parties to a settled base rate case can mathematically calculate the “indicated” return on equity resulting from the terms and agreements of the settlement. But rarely do such cases include a Commission determination on the return on equity. A figure accepted by an adjudicatory body in approving a settlement is not entitled to the same weight as a return on equity rate determined to be reasonable following full litigation of that issue. The undersigned concludes that the Quarterly Earnings Report shall be used as a proxy for the equity return in the rate of return calculation of the SMT Surcharge, and continue to serve as a proxy for that calculation until such time as the Commission determines a reasonable return on equity for Allegheny Power in a fully-litigated rate case.

3. Capital Structure and Cost Rate for Debt and Preferred Stock

 The rate of return is calculated by determining the proportions of capital and assigning a cost rate to each type of capital. Therefore, it is first necessary to determine the capital structure, which is the proportion of long-term debt, preferred stock and common equity. OTS St. 1, p. 11. OTS recommends that the Commission use a representative capital structure for all EDCs in the recovery of smart meter costs that is based upon the barometer group in the Quarterly Earnings Report. OTS St. 1, p. 15. As such, the Commission would calculate the appropriate capital structure and publish it in the Quarterly Earnings Report. Until the next Quarterly Earnings Report establishes the capital structure for smart meter cost recovery, the OTS recommends that the capital structure be published in the order in this proceeding. OTS St. 1-R, pp. 4-5; OTS Main Brief, p. 20.

 According to the OTS, the representative capital structure is important for two reasons. First, the representative capital structure is based on the same barometer group that will be used to determine the appropriate cost rate of common equity. Therefore, under the OTS recommendation, the representative capital structure will properly match the financial risk associated with the corresponding cost rate of common equity. OTS St. 1, p. 15. Second, the OTS is recommending a representative capital structure for all EDCs, which it asserts is important because some electric companies have capital structures that are not representative of the industry norm. OTS St. 1, p. 15. As such, the OTS contends, using a uniform representative capital structure will not advantage or disadvantage any EDC or its ratepayers. The OTS states that it recognizes that implementing a representative capital structure deviates from what is currently used in DSIC proceedings; however, according to the OTS, capital structures of water companies are more closely aligned with the industry norm. OTS St. 1-R, p. 6; OTS Ex. 1-R, pp. 1-2. The OTS contends that this is not the case in the electric industry and therefore its recommendation for a uniform capital structure is appropriate for smart meter cost recovery. OTS Main Brief, p. 21.

 With regard to the cost rate of debt and preferred stock, the OTS recommends that the Company’s actual costs, as found in the most recent Quarterly Financial Report, be used in establishing the appropriate costs for this component of the revenue requirement. OTS St. 1, p. 16. The OTS claims the cost rate of preferred stock should be blended with the cost rate of debt to determine a composite cost rate for the fixed rate portion of the capital structure. The OTS asserts that this recommendation is appropriate because it reflects the Company’s current cost rate and will best reflect the cost of capital used to finance the smart meter technology. OTS Main Brief, pp. 21-22.

 In its main brief, Allegheny Power contends that it has demonstrated that the use of a barometer group, as proposed by the OTS, is inappropriate and that the Company’s actual capital structure ought to be used for purposes of determining the return related to the SMT Surcharge. Allegheny Power asserts that its proposed reconciliation mechanism will determine actual costs incurred through the designated twelve-month reconciliation period, which will include actual O&M costs and a capital revenue requirement to reflect actual capital costs—that is, the most recently available pre-tax cost of capital (which includes use of the current debt costs and preferred stock costs recommended by OTS witness, Ms. Sears), and any changes or updates to depreciation and accumulated deferred income taxes. AP Main Brief, p. 71.

 According to Allegheny Power, Ms. Sears' surrebuttal testimony expresses ongoing concerns about using actual data, rather than a hypothetical barometer group. OTS St. 1-SR, pp. 9-10. Citing the rejoinder testimony of its witness, Dr. Avera, the Company argues that not only is it inappropriate to use a capital structure of a barometer group that is not necessarily representative of Allegheny Power, it is inappropriate to mix the Commission-authorized return on equity with a barometer group’s capital structure that would have financing that is dissimilar from Allegheny Power. Allegheny Power further contends that the administrative difficulties expressed by Ms. Sears regarding the submittal of a rate of return study at each quarterly filing are solved by using Allegheny Power’s most recent quarterly earnings report that is already filed with the Commission. AP St. 4-RJ, pp. 10-11. The Company concludes by asserting that its capital structure and cost rate of debt and preferred stock proposal is reasonable and consistent with the reality of the financing needed for capital costs. AP St. 4-RJ, pp. 22-23.

 The undersigned does not agree with the position of the OTS that the Commission develop a representative capital structure applicable to all EDCs in the recovery of smart meter costs. The OTS made no showing that the use of a representative capital structure would result in each EDC recovering its reasonable and prudent smart meter costs, a result permitted by Section 2807(f). Further, while the Commission has used hypothetical capital structures in rate cases, such a use has been predicated on evidence tending to show that the actual capital structure of a particular utility is so far beyond the range of a reasonable capital structure that the utility’s actual capital structure is unreasonable for ratemaking purposes. This is not the basis of the OTS recommendation. Rather the OTS makes its proposal for a representative capital structure to be consistent with its proposed use of the return on equity published in the Quarterly Earnings Report. The undersigned concludes that this is not a sufficient basis to reject Allegheny Power’s actual capital structure. Allegheny Power’s actual capital structure should be utilized in the SMT Surcharge.

4. Asset Lives

 For purposes of offering an alternative to the Company's original SMIP, the Company proposed to extend the book lives of the majority of the assets as follows:

 Alternative Difference from

 Asset Type Book Life Original Filing

 In Home Technologies 10 years Additional 5 years

 Smart Meters 15 years Additional 5 years

 Hardware 5 years No change

 Software (without CIS) 10 years Additional 5 years

 Software (with CIS) 10 years Additional 3 years

As illustrated above, compared to the original filing, under the alternative the book lives for all capital assets would be extended from three to five years, with the exception of hardware-related capital assets. The Company was not comfortable offering to extend the book life of this category of asset since the Company believes it was already proposed at the maximum duration that could reasonably occur. AP St. 3-SDT, p. 5; AP Supp. Main Brief, pp. 37-38.

 According to the Company, since book lives are integral to the calculation of the capital cost impact to the SMT Surcharge, an extension of the book lives would result in a surcharge that is lower in magnitude as compared to the originally filed SMT Surcharge rates. AP St. 3-SDT, pp. 5-6. The Company determined this was an area in which a longer than average book life could be proposed in an attempt to address other parties’ concerns and reduce the impact of the SMT Surcharge. The Company is not proposing any change to the tax lives in the originally-filed SMIP. AP St. 3-SDT, p. 6.

 The Company agrees to use of the foregoing adjusted service lives as part of the alternative plan proposals. The OCA and DEP agree to the Company’s changes regarding the book lives of the assets listed above. The undersigned finds these alternative book lives that reduce the magnitude of the SMT Surcharge to be just and reasonable.

E. Interest

 1. Company Proposal and OTS Position

 The Company’s proposed surcharge recovery mechanism does not include a provision for interest on over collections or under collections of its SMT Surcharge. Under the Company’s plan, over collections of the SMT Surcharge would be credited against the next period’s recovery, while under collections would result in an increase in the surcharge in the next period. The Company will not receive interest on top of under collections, nor will customers receive interest on refunds of over collections. Allegheny Power contends that its position is consistent with the Commission’s Order approving the Company's EE&C Plan, which held that over and under collections with the EE&C Surcharge would not bear interest in their recovery or refund. AP Main Brief, pp. 72-73.

 The OTS argues the following regarding interest: (1) that the Company has improperly omitted an interest component for over collections and under collections with the SMT Surcharge; (2) that Allegheny Power should be required to use as its interest rate the monthly residential mortgage lending rate published in the Pennsylvania Bulletin; (3) that interest should be one-directional; and (4) that the Company's request for a deferral of over collections and under collections is inappropriate. AP Main Brief, p. 73.

 2. Interest for Over Collections and Under Collections

 OTS recommends that interest be computed on any over/under collection activity for each month in the reconciliation period. OTS proposes that the reconciliation period be the twelve month interval ending June 30. OTS St. 1, pp. 6, 20. Once the proper interest accrued during the reconciliation period is calculated, OTS maintains that only the net interest amount resulting from over collections (due to ratepayers) be incorporated into the smart meter cost recovery mechanism. OTS St. 1, p. 20. OTS recognizes that its one directional interest recommendation in this proceeding differs from its recommendation in West Penn’s EE&C Plan proceeding. In the Company’s EE&C Plan proceeding, OTS recommended recovery of net under collections at the legal rate of interest with the refund of net over collections at the legal rate of interest plus two percent. OTS St. 1, pp. 22-23. The recommended asymmetrical interest rates and the two directional application of interest were appropriate in the EE&C proceeding, according to the OTS, because the costs were primarily expense items. Unlike EE&C Plan costs, the OTS asserts that the Smart Meter Plan is capital intensive. Therefore, the recovery of such costs includes a return component. OTS St. 1, p. 23. The OTS argues that the Company should not be permitted to collect interest on its rate of return; therefore, it is inappropriate to collect additional carrying cost on any under collections. OTS Main Brief, pp. 23-24.

 According to Allegheny Power, the OTS proposal is predicated upon OTS’s belief that the application of interest on over collections is necessary for the protection of ratepayers to prevent EDCs from misusing the surcharge. Allegheny Power surmises that the OTS is concerned that EDCs will inflate over collections in order to profit from the time value of the over collected money. AP Main Brief, p. 73.

 Allegheny Power claims that this same argument regarding inflation of over collections was raised by the OTS in the Company's EE&C/DR Plan proceeding and was rejected by the Commission. There, according to the Company, the Commission ruled that the EE&C Surcharge under Act 129 would not bear interest. The Commission ruled that Act 129 is silent on the issue of interest and that “[w]ith no statutory or case law requirement to impose interest, we conclude that over/under collections related to EE&C Plans are not subject to interest.”[[11]](#footnote-11) AP Main Brief, p. 73.

 Allegheny Power contends that the Commission’s rationale and ruling in the EE&C Plan should also apply in the SMIP proceeding because both proceedings are directly related to Act 129 and closely aligned. Allegheny Power asserts that there is no reason to deviate from consistency in the proceedings, and the Commission’s rationale that Act 129 does not impose interest on over and under collections is equally applicable in both the EE&C proceeding and the smart meter proceeding. AP St. 4-R, pp. 24-25; AP Main Brief, pp. 73-74.

 The undersigned agrees with Allegheny Power. Act 129 is silent on the issue of interest. Both the instant SMIP proceeding and the previously adjudicated EE&C/DR plan proceeding are closely aligned. Over collections of the SMT Surcharge shall be credited against the next period’s recovery while under collections shall result in an increase in the SMT Surcharge for the next period’s recovery. There is no need to deviate from consistency in the proceedings. No interest shall be imposed on over or under collections in the ordering paragraphs to follow.

 Both the Company and the OTS briefed the issue of the applicable interest rate for over collections of the monthly SMT Surcharge and the One-Directional interest proposal advanced by the OTS. Since the undersigned has concluded that interest on over and under collections shall not be a component of the SMT Surcharge there is no need to recite the parties’ respective positions on these issues here.

3. Deferral Accounting

 No party opposes the Company’s proposal to use deferral accounting. OTS Main Brief, pp. 25-26.

F. Cost Recovery Mechanism Review Process

 No party objected to Allegheny Power's proposed use of an automatic adjustment clause to recover, in full and on a current basis, SMIP costs. However, the OTS raised several issues in its direct testimony with the cost recovery review process. As discussed below, the Company agreed with the OTS’s cost recovery review process suggestions and the OTS issues have been resolved. AP Main Brief, p. 76.

 In its SMIP, Section 4.2, Allegheny originally proposed a SMIP annual review schedule to coincide with the review schedule for its EE&C Plan. However, the OTS did not agree with the proposed schedule and instead, recommended that the Commission designate a uniform twelve month reconciliation period ending on June 30 of each year. Based on the establishment of this reconciliation period, the annual filing would occur on or before August 1, with the first filing to occur by August 1, 2011. The recommended procedural schedule would include hearings to be held by October 1, followed by the Commission’s Order to be issued on or before December 1, with a tariff effective date of January 1 of the following year. In rebuttal testimony, the Company indicated that it has no objection to and does not oppose the OTS review schedule. AP St. 4-R, p. 21; AP Main Brief, pp. 76-77.

In its SMIP, the Company originally proposed to file changes to their SMT Surcharge on January 1 for rates to become effective June 1 and remain unchanged for a period of 12 months. The OTS recommended that Allegheny Power be required to submit quarterly SMT rate update reports that include calculations for its upcoming quarterly projected SMT recoverable costs and rider revenues, allowing for quarterly rider rate adjustments. According to the OTS, quarterly adjustments will provide for more accurate matching of revenues and recoverable costs due to the use of a shorter time period. In rebuttal testimony, the Company indicated that it has no objection to and does not oppose the proposed quarterly updates. AP St. 4‑R, p. 22; AP Main Brief, p. 77.

 The undersigned concludes that Allegheny Power’s modified cost recovery review process is reasonable.

V. CONCLUSIONS OF LAW

 1. The Commission has jurisdiction over the parties and subject matter of this proceeding.

 2. Act 129 of 2008, 66 Pa. C.S.A. §2807, requires electric distribution companies (“EDCs”) with more than 100,000 customers to develop a plan to deploy smart meters.

 3. Pursuant to 66 Pa. C.S. §332(a), the burden of proof in this proceeding is upon the Petitioner, West Penn Power Company d/b/a Allegheny Power.

 4. West Penn Power Company d/b/a Allegheny Power’s 375,000 alternative Smart Meter Technology Procurement and Installation Plan, as modified by its acceptance of revisions made by parties to this proceeding and as modified by this Initial Decision, complies with the smart meter capability requirements in Act 129 and the Commission's Implementation Order at Docket No. M-2009-2092655.

 5. West Penn Power Company d/b/a Allegheny Power’s 375,000 alternative Smart Meter Technology Procurement and Installation Plan, as modified by its acceptance of revisions made by parties to this proceeding and as modified by this Initial Decision, complies with the smart meter access, security, and privacy requirements in Act 129 and the Commission's Implementation Order issued at Docket No. M-2009-2092655.

 6. The costs and cost allocation methodology associated with West Penn Power Company d/b/a Allegheny Power’s 375,000 alternative Smart Meter Technology Procurement and Installation Plan, as modified by its acceptance of revisions made by parties to this proceeding and as modified by this Initial Decision, are prudent and reasonable.

 7. West Penn Power Company d/b/a Allegheny Power’s two-tiered SMT Surcharge associated with its 375,000 alternative Smart Meter Technology Procurement and Installation Plan, as modified by its acceptance of revisions made by parties to this proceeding and as modified by this Initial Decision, recovers costs on a full and current basis and is otherwise reasonable, just and prudent.

 8. West Penn Power Company d/b/a Allegheny Power’s 375,000 alternative Smart Meter Technology Procurement and Installation Plan and its accompanying two-tiered SMT Surcharge should be further modified in accordance with this Initial Decision.

 9. West Penn Power Company d/b/a Allegheny Power should be required to file a revised 375,000 alternative Smart Meter Technology Procurement and Installation Plan, including a two-tiered SMT Surcharge, consistent with its acceptance of revisions made by the several parties and as further modified by this Initial Decision within 30 days of the Commission’s Order in this proceeding.

VI. ORDER

THEREFORE,

IT IS ORDERED:

 1. That the Petition of West Penn Power Company d/b/a Allegheny Power for approval of its Smart Meter Technology Procurement and Installation Plan (the 375,000 Plan), Docket No. M-2009-2123951, as revised by the Petitioner and further modified by Petitioner’s acceptance of revisions made by several parties, is granted consistent with this Initial Decision and Order, with the exception that the tier 1 SMT Surcharge for the residential class shall not be allocated on the 21/79 basis proposed by Petitioner.

 2. That West Penn Power Company d/b/a Allegheny Power’s acceptance of specific modifications to its Smart Meter Technology Procurement and Installation Plan is approved.

 3. That any recommendation made by any party to this proceeding which was not accepted by West Penn Power Company d/b/a Allegheny Power or included in this Decision and Order is rejected.

4. That, within 30 days of the entry of the Commission’s Order in this

proceeding, West Penn Power Company d/b/a Allegheny Power shall file a revised Smart Meter Technology Procurement and Installation Plan complying with the terms of that Order.

 5. That, within 30 days of the entry of the Commission’s Order in this proceeding, West Penn Power Company d/b/a Allegheny Power shall file a tariff or tariff supplement as may be required to implement the revised Smart Meter Plan, and designed to recover the approved costs thereof through a smart meter charge that shall be in compliance with the approval of the smart meter procurement and installation plan in these ordering paragraphs.

 6. That West Penn Power Company d/b/a Allegheny Power’s request to withdraw the Motion to Reopen the Evidentiary Record on December 18, 2009 is granted.

 7. That West Penn Power Company d/b/a Allegheny Power’s oral petition at the further evidentiary hearing on March 16, 2010 to withdraw its Motion of the West Penn Power Company d/b/a Allegheny Power to Strike Portions of the Supplemental Direct Testimony of the Office of Consumer Advocate is granted.

 8. That the request of the Pennsylvania Association of Community Organizations for Reform Now to withdraw from this proceeding is granted.

Date: April 29, 2010 Mark A. Hoyer

 Administrative Law Judge

1. Allegheny Power requested that the letter it sent for the purpose of withdrawing the Motion to Reopen be accepted in lieu of a formal Petition for Leave to Withdraw under 52 Pa. Code §5.94. Allegheny Power submitted that pursuant to 52 Pa. Code §1.2(c) waiver of the Section 5.94 petition requirement is permissible because the waiver will not adversely affect the substantive rights of any party. [↑](#footnote-ref-1)
2. Section 5.405 of the Commission’s regulations, 52 Pa. Code §5.405, governs the evidentiary effect of the Petition to Modify a Prior Commission Order and to Reopen the Evidentiary Record and the answers filed in response thereto. [↑](#footnote-ref-2)
3. Allegheny Power includes a Customer Information System (“CIS”) in this fourth component of its SMIP. Allegheny Power claims its current CIS is not capable of supporting smart meters. AP Main Brief, p. 9. [↑](#footnote-ref-3)
4. AP St. 2, p. 8. The LAN and WAN are types of communications networks. [↑](#footnote-ref-4)
5. The ESB allows different portions of the smart meter system to effectively communicate with each other, while MDMS, among other things, is a “universal translator” that supports consumption measurement and various rate structures such as time of use, real time and critical peak pricing. SMIP, p. 48. The new CIS system will allow implementation of required tasks in the areas of bill calculations and production, rates management, usage management, meter management, work management and customer account management. AP Ex. 1, SMIP, p. 116. [↑](#footnote-ref-5)
6. See, 66 Pa. C.S.A. §§332(a), 315. [↑](#footnote-ref-6)
7. A Smart Meter is an advanced meter that identifies consumption in more detail than a conventional electro-mechanical meter, and communicates bi-directionally across a network back to the local [utility](http://en.wikipedia.org/wiki/Public_utility) for monitoring, analysis, processing and billing purposes. Smart meters can provide real-time or near real-time sensors, [power outage](http://en.wikipedia.org/wiki/Power_outage) notification, and power quality monitoring capabilities. These additional capabilities are more than simple [automated meter reading](http://en.wikipedia.org/wiki/Automated_meter_reading). Smart meters are part of a [Smart Grid](http://en.wikipedia.org/wiki/Smart_grid), but alone do not constitute a Smart Grid. A Smart Grid delivers electricity from suppliers to consumers using digital technology to save energy, reduce cost and increase reliability and transparency. AP St. 5, p. 8. [↑](#footnote-ref-7)
8. 66 Pa. C.S. §2807(f)(7)(i),(ii). ("An electric distribution company may recover smart meter technology costs: (i) through base rates, including a deferral for future base rate recovery of current basis with carrying charge as determined by the commission; or (ii) on a full and current basis through a reconcilable automatic adjustment clause under section 1307.")

 [↑](#footnote-ref-8)
9. 66 Pa. C.S. §2807(g). [↑](#footnote-ref-9)
10. This same argument would apply to the alternate proposal as well (21/79). [↑](#footnote-ref-10)
11. EE&C Order, p. 84. [↑](#footnote-ref-11)