**BEFORE THE**

**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Duquesne Light Company : P-2015-2497267

for Approval to Modify its Smart :

Meter Procurement and Installation Plan :

**INITIAL DECISION**

Before

Katrina L. Dunderdale

Administrative Law Judge

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I. INTRODUCTION

 This decision grants in part and denies in part a request to modify Petitioner’s Final Smart Meter Plan to spend $79 million to implement changes that enhance outage communication and voltage monitoring capabilities, and to recover costs through the Smart Meter Charge.

II. HISTORY OF THE PROCEEDING

 On June 24, 2009, the Pennsylvania Public Utility Commission (Commission) entered its *Implementation Order*, at Docket No. M-2009-2092655, to assist Duquesne Light Company (Duquesne Light, DLC or the Company) and the other Electric Distribution Companies (EDCs) in complying with the requirements of Act 129 of 2008, 66 Pa.C.S. § 2807(f), *et seq*., which, among other matters, required EDCs to file with the Commission their respective smart meter procurement and installation plans. As a result, on May 6, 2013, the Commission granted Duquesne Light’s petition to implement its Final Smart Meter Plan, at Docket No. M-2009-2123948, as required by Act 129.[[1]](#footnote-1)

Duquesne Light filed a Petition on August 4, 2015 seeking approval to modify its Smart Meter Procurement and Installation Plan. The Petition seeks to implement changes to the approved smart meter plan for the purpose of enhancing outage communication and voltage monitoring capabilities, and to recover the costs associated with those changes through the Smart Meter Charge (SMC).

On October 2, 2015, the Office of Administrative Law Judge (OALJ) issued a Notice scheduling this matter for a prehearing conference on October 13, 2015 at 10:00 a.m. and the presiding officer issued a Prehearing Conference Order.

On October 13, 2015, the presiding officer conducted a prehearing conference at which appeared representatives for Duquesne Light, Citizen Power, Inc. (Citizen Power), the Office of Small Business Advocate (OSBA), and the Office of Consumer Advocate (OCA). The parties discussed the issues of the proceeding and established a litigation schedule. Thereafter, on October 14, 2015, the presiding officer issued a Prehearing Order and OALJ issued a Hearing Notice scheduling the matter for evidentiary hearings on February 17, 2016 through February 19, 2016 in Pittsburgh, Pennsylvania.

On January 22, 2016, the presiding officer issued a Protective Order at the request of Duquesne Light, due to the presence of proprietary and/or confidential information.

On February 18, 2016, the presiding officer conducted an initial hearing with representatives from Duquesne Light, OCA, OSBA and Citizen Power present. At the initial hearing, the parties agreed to waive cross-examination of the written testimonies served previously, and the presiding officer admitted the written testimonies of Duquesne Light and OCA into the record, as listed in Attachment A hereto.

Duquesne Light and OCA served various testimonies (both public and proprietary versions) on the other active parties. A full listing of the testimonies served upon the parties is listed in full in Attachment B hereto.

On February 29, 2016, the presiding officer received the transcript of the initial hearing. Main briefs were filed by Duquesne Light, OCA and Citizen Power on or before March 17, 2016. Reply briefs were filed by Duquesne Light, OCA and Citizen Power on or before April 7, 2016. The hearing record closed on April 11, 2016, upon the issuance of the Interim Order Closing the Record.

On May 4, 2016, the presiding officer issued the Post-Hearing Order which reopened the hearing record and scheduled a call-in telephonic post-hearing conference for Tuesday, May 17, 2016 at 10:00 a.m. at which time the parties were ordered to be prepared to discuss and agree to a revised litigation schedule. Duquesne Light and OCA were ordered to

explain whether certain portions of written statements were characterized accurately as “Confidential.” In addition, the parties were provided with four questions:

1. How much of the reasonable and prudent costs of the installation of the OMS and ADMS relate to the voltage monitoring and outage communications capabilities and how much are related to providing the multitude of other functionalities?
2. How much of those costs should be recovered through the SMC?
3. Does Duquesne Light need to have a full-blown OMS and ADMS to provide the voltage monitoring and outage communication capabilities, or could those be provided through other means, or a more scaled-back process?
4. Without opining on the overall benefits of the systems, should rate payers be required to pay the costs of the OMS and ADMS on a full and current basis through the SMC, or are the non-smart meter functionality portions of those costs more appropriately recovered through base rates over a number of years?  The other EDCs required to implement smart meters already had sophisticated OMS that were paid through base rates.  Should Duquesne Light rate payers now be required to pay for such an upgrade outside of the normal base rate process just to add two additional functionalities to their smart meters?

 At the request of the parties, the date of the post-hearing conference was moved to Tuesday, May 24, 2016 at 10:00 a.m.

On May 24, 2016, the Administrative Law Judge conducted a post-hearing conference with the following parties represented: Duquesne Light Company; Citizen Power, Inc.; Office of Consumer Advocate; and Office of Small Business Advocate. At the post-hearing conference, the parties considered issues raised by the May 4, 2016 Order, agreed to suspend the litigation schedule and established a further litigation schedule. Lastly, the parties discussed whether information in previously-admitted written statements was properly characterized as “Confidential”.

Subsequently, on May 25, 2016, the presiding officer issued the Second Post-Hearing Order which suspended the litigation schedule, directed Duquesne Light to respond to the four enumerated inquiries, provided all parties with an opportunity to serve supplemental direct and/or supplemental rebuttal written testimony, and directed the parties to appear at a further evidentiary hearing on June 30, 2016.

On June 6, 2016, the OALJ issued a Hearing Notice which scheduled a Further Hearing for June 30, 2016, at 1:00 p.m. in the Commission’s hearing room in Pittsburgh, Pennsylvania.

On June 6, 2016, Duquesne Light served the Supplemental Post Hearing Direct Testimony of James T. Karcher, with one confidential exhibit, and on June 24, 2016, OCA served the Supplemental Post Hearing Rebuttal Testimony of Stacy L. Sherwood.

On June 30, 2016, the presiding officer conducted the Further Hearing at which all parties were present. Duquesne Light presented the testimonies of James T. Karcher (Mr. Karcher) and William Pfrommer (Mr. Pfrommer), and moved for the admission of Duquesne Light Statement No. 2C and Duquesne Light Confidential JTK Exhibit 1PH. OCA presented the testimony of Stacy L. Sherwood (Ms. Sherwood), and moved for the admission of OCA Statement No. 1-R (Supplemental). The presiding officer moved the three documents into the hearing record.

On June 30, 2016, Duquesne Light requested the opportunity to submit a brief and, possibly, a reply brief. The other parties were in agreement and a briefing schedule was agreed to by the parties. Thereafter, the presiding officer issued the Third Post-Hearing Order which established a briefing schedule and ordered that each party filing a Main Brief and/or Reply Brief was presumed to have rescinded any Main Brief/Reply Brief previously filed in this proceeding. Main briefs were filed by Duquesne Light, OCA and Citizen Power on July 20, 2016, and reply briefs were filed on July 27, 2016.

On August 15, 2016, the presiding officer issued Fourth Interim Order which closed the hearing record.

III. FINDINGS OF FACT

Historical Facts

 1. Duquesne Light Company is a certificated public utility pursuant to 66 Pa.C.S.A. § 102 and provides electric service to 600,000 metered customers in Allegheny and Beaver Counties in Pennsylvania. (Tr. 73; Duquesne Light Exhibit No. at 5).

 2. Duquesne Light’s Smart Meter Plan was approved on May 6, 2013, and consisted of two components: the For Our Customers, or FOCUS project; and the Advanced Metering Infrastructure (AMI) project. (Duquesne Light Statement No. 1 at 2).

 3. The FOCUS project implemented smart meter technology and includes the “upgrade, implementation and integration of major systems such as a new Customer Care & Billing (CC&B) system, a new Service Oriented Architecture, Meter Data Management system, Workforce Management system, Market Transaction Messages and Interactive Voice Response,” *inter alia*. (Duquesne Light Statement No. 1 at FN. 1).

 4. Under Duquesne Light’s current AMI project, there are four components: smart meters; local area network (LAN); wide area network (WAN); and the Head-End Collection System. (Duquesne Light Statement No. 1 at 3).

 5. As of August 4, 2015, Duquesne Light had installed 113 LAN Data Aggregation Points (DAPs) and 13 WAN towers, in addition to implementing bidirectional communication, remote meter programming, hourly usage data and hourly consumption functionalities. (Duquesne Light Statement No. 1 at 3).

 6. On August 4, 2015, Duquesne Light estimated it would install approximately 150,000 smart meters by January 1, 2016 and an additional 50,000 smart meters by June 1, 2016. (Duquesne Light Statement No. 1 at 3).

 7. Duquesne Light deployed only 90,000 smart meters by December 31, 2015 and its approved plan called for installation of 9,500 smart meters per month (or 114,000 per year) beginning in January 2016. (Duquesne Light Statement No. 1 at 3).

 8. As of June 30, 2016, Duquesne Light had installed approximately 150,000 to 180,000 metered customers with smart meters. (Tr. 73).

 9. Duquesne Light currently uses the Supervisory Control and Data Acquisition (SCADA) system to check the status of its devices in the field and determine from the Distribution Operations Center (DOC) if the devices are “open” or “closed”, if power is flowing through the device, and to determine the value of the voltage on different portions of a line where Duquesne Light has telemetry installed. (Tr. 71).

 10. Currently, Duquesne Light has the Outage Analysis System (OAS) to track, monitor and respond to outages, using data input by Customer Service Representatives (CSRs) into Duquesne Light’s computer mainframe. (Tr. 67).

The Company’s Proposals

 11. Duquesne Light’s proposed plan calls for installing 12,500 smart meters per month, instead of 9,500 smart meters per month, with complete deployment to residential customers accomplished by December 31, 2018, instead of the original estimated completion date in 2020. (Duquesne Light Statement No. 1 at 4).

 12. Duquesne Light was set to begin deployment of commercial and industrial smart meters in 2016 by installing 7,500 smart meters per year and completing all deployment to commercial and industrial customers by December 31, 2019. (Duquesne Light Statement No. 1 at 4).

 13. Shortening the date by when all smart meters will be installed is a cost neutral event because the increased smart meter costs through 2019 will be offset by the decrease in meter installation costs, plus management and administration costs in 2020. (Duquesne Light Statement No. 1 at 5).

 14. Duquesne Light proposes enhancements to SCADA which would improve outage communication, electricity restoration and voltage monitoring through use of an Advanced Distribution Management System (ADMS), which DLC estimates will cost an additional $46 to $56 million. (Duquesne Light Statement No. 1 at 7; Tr. 65-67).

 15. Duquesne Light estimates the final total cost to implement smart meter technology, including ADMS, will total $319 million but that total does not include the cost of upgrades, maintenance or operation. (Duquesne Light Statement No. 1 at 5-7).

 16. Duquesne Light proposes that the ADMS will include the Outage Management System (OMS) and the Distribution Management System (DMS) and would envelope SCADA into the final product. (Tr. 89, 90).

 17. Duquesne Light estimates the difference between the approved total cost in the 2012 Smart Meter Plan (SMP) and the proposed costs herein is $240 million versus $319 million, or $79 million in additional costs. (Duquesne Light Statement No. 1 at 5-7).

 18. Four elements led to the increase of $79 million in estimated additional costs over the original estimates: hardware/software costs; the costs associated with the system integrator (Accenture); higher internal labor costs; and the costs of obtaining outside services. (Duquesne Light Statement No. 1 at 7, 8.)

 19. Hardware/software costs increased due to purchases of additional servers, operating system licenses and database software needed to support additional development and test recovery environments. (Duquesne Light Statement No. 1 at 7 & 8).

 20. In its approved 2012 SMP, Duquesne Light did not include smart meter maintenance costs totaling $10 million through 2019; implementation costs for Bill Ready functionality totaling $7 million; or (as hardware/software costs) the costs of meter shop software replacement, which software would be used (1) to receive new meters into inventory; (2) to manage the testing of meters; and (3) to manage the status of meters in and out of the meter shop. (Duquesne Light Statement No. 1 at 7).

 21. In its approved 2012 Smart Meter Plan, Duquesne Light estimated what would be the costs associated with a system integrator before an actual vendor was selected. (Duquesne Light Statement No. 1 at 6, 7).

 22. Duquesne Light selected Accenture as the system integrator, but Accenture’s costs were higher than the original estimate in 2012. (Duquesne Light Statement No. 1 at 7).

 23. Duquesne Light’s labor costs exceeded the 2012 estimate because Duquesne Light only included full time employees who worked solely on the AMI project in its 2012 estimate and did not include part time labor costs for employees who worked part time on the AMI project. (Duquesne Light Statement No. 1 at 7, 8).

 24. After approval of its 2012 Smart Meter Plan, Duquesne Light established a new project management office (PMO) with shared service functions to manage the program and the inter-relationships with other IT initiatives. (Duquesne Light Statement No. 1 at 7, 8).

 25. In its 2012 Smart Meter Plan, Duquesne Light did not include the costs for services provided by outside third-party suppliers including: (1) a supplier to develop a customer presentment platform; (2) a supplier for customer service entrance repairs; and (3) a supplier providing cyber security to conduct vulnerability assessments and penetration testing of the AMI solution, which was included as a requirement under the Settlement Agreement in the 2012 Smart Meter Plan. (Duquesne Light Statement No. 1 at 8).

 26. Duquesne Light hired DNV GL to conduct further analyses of outage communication and voltage monitoring capabilities, and to produce an Outage Management System Study (OMS). (Duquesne Light Statement No. 2 at 4).

27. Using company-specific data and its own proprietary formula, DNV GL concluded the OMS would create customer savings of approximately $6,000,000 per year if there was a five minute reduction in annual outage time. (Duquesne Light St. No. 2-R, p. 4).

28. The proprietary formula used by DNV GL was not provided to the parties or to the presiding officer. (Tr. 158).

 29. The Interruption Cost Estimate (ICE) calculator, developed for the U.S. Department of Energy, estimates the range of annual customer savings resulting from a five minute reduction in average outage time would be approximately $4 million starting in 2023 and increasing to approximately $6 million in 2039. (Duquesne Light St. No. 2-RJ at 2-3).

 30. The ICE calculator is not helpful for use in Pennsylvania because it excludes data from the Mid-Atlantic region and most of the data included in the ICE calculator is from reports that are over 15 years old. (Tr. 157).

 31. If Duquesne Light completes full deployment of the smart meters but does not get approval for the OMS and the DMS, Duquesne Light would continue to use its OAS and SCADA systems. (Tr. 98).

 32. Other major electric distribution companies in Pennsylvania installed some version of an OMS before deploying smart meters, and the cost of installing those OMSs was not included in those EDCs’ Smart Meter Charges paid by customers. (Tr. 100, 101).

 33. Duquesne Light defines “societal benefits” which it predicts will total $6 million per year after full deployment of smart meters and ADMS, to include costs avoided because the time of outage is reduced. (Tr. 107).

 34. Duquesne Light defines “Avoided costs” to include no food spoilage, no loss of production time for businesses, no loss of production time for people working from home, and schools that remain in session. (Tr. 107, 108).

 35. Duquesne Light estimates the societal benefits with five extra minutes of electric service per year, on average, will total $6 million per year and will be experienced by all of its customers across the rate classes as well as increase reliability system-wide. (Tr. 108).

 36. With fully deployed smart meters and the OMS fully functioning, Duquesne Light should be able to “ping” a customer’s smart meter to see if service is restored without the need to dispatch a field crew to verify if electric service was restored. (Tr. 116-118).

 37. The financial benefit to reducing costs during a major storm event will be reflected in reduced labor and equipment costs for Duquesne Light, and in a reduced storm rider in customers’ bills if there is a reduction in the length of time a storm event lasts. (Tr. 118).

 38. Duquesne Light estimates the proposed project will not become cost effective (i.e., when the benefits exceed the costs to implement) until 8 or 9 years after the project is fully implemented, or by 2030. (Tr. 118-121).

 39. Duquesne Light did not include the cost it will incur to run the upgraded project annually when it estimated that the total cost for the proposed upgrades would cost no more than $56 million. (Tr. 199).

 40. Duquesne Light estimates the requested $56 million for the proposed upgrades, if approved, will be spent by December 31, 2021. (Tr. 119).

 41. Duquesne Light estimates the ongoing costs to operate the new systems will be $2.87 million each year starting on January 1, 2022. (Tr. 119, 120).

 42. Duquesne Light estimates it will spend $6 million in operational and maintenance costs between the time of the Commission’s approval of its proposal until December 31, 2021. (Tr. 120).

 43. The total cost of the proposed project will be at least $62 million plus an additional $2.87 million per year after 2021 in maintenance costs. (Tr. 120); Duquesne Light St. No. 1 at 7.

 44. The ongoing maintenance costs for Duquesne Light’s current OAS are minimal but the main frame will sunset and have to be replaced over the next few years. (Tr. 122).

Electric Model

 45. Duquesne Light currently has ESRIGIS, which is an up to date GIS-based system. (Tr. 123).

46. If the proposed modification is approved, Duquesne Light first will have to build an electrical model of its entire electrical system before OMS can be installed and functional. (Tr. 75).

 47. The new proposed electrical model, if approved, would not require ESRIGIS to be replaced. (Tr. 123).

 48. In order for ESRIGIS to work with the new electrical model, Duquesne Light will have to obtain a modeling tool to act as an overlay to work with ESRIGIS. (Tr. 123).

 49. Duquesne Light included the cost of the modeling tool in its estimate of the total cost for the new electrical model. (Tr. 123, 124).

 50. Duquesne Light’s current GIS has 25% to 40% of the transformers in the Company’s system noted but does not note any wires, or switching devices currently functional within the Company’s territory. (Tr. 124).

 51. Duquesne Light uses a separate Auto-CAD system which contains notations for all of the utility’s lines but the Auto-CAD system is not geo-spatially accurate. (Tr. 124).

Cost Recovery

 52. Duquesne Light defines “cost recovery” as the expenses incurred in an investment and how Duquesne Light will recover the cost of the investment in Operations and Maintenance expenses as well as the investment over time from the rate payers. (Tr. 129, 130).

 53. Duquesne Light expects the SMC to rise as the Company incurs costs to (1) deploy smart meters; (2) install software to operate the smart meters; and (3) to purchase and install the ADMS. (Tr. 132).

 54. Duquesne Light’s request to recover the proposed costs through the SMC will increase the current SMC from $3.50 per month to approximately $6.00 per month as the upgrades, if approved, are rolled out, and will decrease likely in 2021. (Tr. 131).

 55. Duquesne Light expects to transfer recovery of unreimbursed smart meter costs into its base rate after the whole project is complete, or by 2030. (Tr. 132).

 56. To calculate the monthly SMC, every quarter Duquesne Light will calculate the expected investment and O&M costs within the upcoming quarter, and the expected return on that investment, and then divide that number by the number of meters in the field and the number of months (e.g., three months for quarterly). (Tr. 134, 135).

 57. Customers with single-phase meters will be charged differently from customers with poly-phase meters. (Tr. 135).

 58. The costs associated with single-phase meters will be borne equally (i.e., divided by) the total number of single-phase customers, and the costs associated with poly-phase meters will be allocated, or borne equally, by the total number of poly-phase customers. (Tr. 149).

 59. Duquesne Light assumes cost recovery of the smart meters will be complete within 10 years, which is the time period used in rate-making for recovery of common equipment. (Tr. 136-138).

 60. To determine cost effectiveness, a project must show operational improvements, customer improvements and improved customer service. (Tr. 175).

 61. The industry standard for cost recovery does not include using societal benefits or “soft benefits” when evaluating cost effectiveness. (Tr. 159, 167-169).

 62. With soft benefits included, cost effectiveness is not attained until 2034 – which is approximately 5 years before the project becomes obsolete. (Tr. 165, 166; OCA Exhibit SLS-3).

Advanced Metering Infrastructure

 63. The updated costs of the AMI project, as described in the 2012 Smart Meter Plan, total approximately $240 million. (Duquesne Light Statement No. 1 at 6).

 64. Duquesne Light currently has no system in place or currently planned which would allow the AMI system to monitor voltage at each smart meter and send a warning to the Company if voltage measurements exceed the normal range. (Tr. 125).

 65. Duquesne Light assumes the useful life of smart meters will be 15 years. (Tr. 139).

 66. The useful life of the older AMR meters is 20 to 25 years. (Tr. 139).

Advanced Distribution Management System

67. The ADMS consists of two primary components – an Outage Management System (OMS) and a Distribution Management System (DMS). (Duquesne Light St. No. 2 at 1).

 68. ADMS is a technical functionality which functions to make the OMS, the DMS and SCADA communicate correctly with the other functionalities in such a way that the three functionalities produce correct and accurate information on a computer screen for Duquesne Light’s personnel. (Tr. 93-95).

69. Duquesne Light expects to develop and execute the outage communication, restoration, and voltage monitoring capability plan in four phases: Phase 1 is to develop and build an electrical model of Duquesne Light’s entire network of facilities and equipment to be completed within three years; Phase 2 is to implement OMS to provide enhanced outage communication to be completed one year later; Phase 3 is to install the DMS portion of the ADMS with completion estimated to be more than one year after Phase 2; and Phase 4 is to incorporate the current SCADA system, by 2022. (Duquesne Light Statement No. 2 at 3, 4).

70. Duquesne Light expects Phases 1, 2 and 3 to take a total of 5.25 years after receiving Commission approval. (Duquesne Light Statement No. 2 at 4).

 71. Duquesne Light expects the creation of the electrical model to require three years to complete, after Commission approval is obtained. (Tr. 84-86).

72. An electrical model is a mobile mapping application foundational system that houses data about an electric distribution system and represents it on a geo-spatially correct digital map. (Duquesne Light Statement No. 2 at 5).

 73. Duquesne Light expects to use a combination of utility personnel and outside vendors to create the electrical model. (Tr. 87).

 74. Duquesne Light expects to hire outside vendors and contractors to assist with collecting field data, data entry, and to purchase a commercially-available, off-the-shelf outage management system for both the OMS and the DMS. (Tr. 88, 89).

 75. Purchasing an off-the-shelf outage management system entails purchasing the product, installation and training in addition to requiring ongoing license fees and maintenance fees. (Tr. 88, 89).

 76. Duquesne Light included software upgrades in its cost analysis for the ADMS but excluded the cost of hardware upgrades on the assumption the cost of the hardware upgrades would offset the hardware upgrades needed to support the existing systems that are used today when analyzing outages, if Duquesne Light continued to support the older system. (Duquesne Light St. No. 2-R at 8).

 77. Duquesne Light estimates the benefits of ADMS will exceed the cost approximately seven to eight years after the costs are approved and incurred, or approximately by January 2028. (Tr. 114-116).

 78. The proposed OMS and DMS would provide the functionality already required plus an enhancement that provides customers with better service. (Tr. 145).

 79. A portion of the cost to procure the OMS and the DMS is the regular cost of doing business as an EDC in Pennsylvania, and a portion is a smart meter cost to provide an enhancement to the SMP over and above the cost of doing business as an EDC. (Tr. 145-148).

 80. The useful life of the ADMS project is 20 years, or through 2039. (Tr. 156).

 81. If ADMS is approved, Duquesne Light’s customers might experience benefits through reduced outage times. (Tr. 177).

Outage Management System

 82. Under Duquesne Light’s current OAS, a telephone call to the utility which reports an outage results in a CSR manually entering data in the OAS and then producing a printout (or ticket) which is sent electronically to the Distribution Operations Center (DOC) where an operator must locate the site of the outage on a service map before the operator can dispatch crews to the site of the outage. (Tr. 67-69).

 83. Under the OAS, the event that prompts actions by Duquesne Light to respond to an outage is a telephone call from a customer, or from someone in the field, or from the SCADA system. (Tr. 70, 71).

 84. Duquesne Light’s current distribution automation system will notify the DOC automatically if an outage is detected on Duquesne Light’s 23 kV system. (Tr. 71).

 85. The OAS has been in operation at Duquesne Light for over twenty years. (Tr. 72).

86. Duquesne Light’s existing outage communication system does not currently have the ability to verify outages and restorations automatically without human intervention. (Duquesne Light St. No. 2 at 7-9).

 87. Duquesne Light’s current OAS does not fit the requirements of an outage management system but does provide adequate outage communication capabilities. (Tr. 175, 176).

 88. Under the proposed OMS, communication between smart meters and the computer system will produce a notice on the CSR’s computer screen, which notice will sort affected customers by outages and by response groups. (Tr. 68).

 89. The OMS system will provide a geographical map to the CSR with a graph-like representation of the outage area. (Tr. 69).

 90. The OMS system requires a GPS coordinates system mapping of Duquesne Light’s service territory in order to show a geo-spatially correct location for the outage. (Tr. 69).

91. In the August 2, 2013 filing, Duquesne Light estimated it would cost from $22 million to $44 million to implement an OMS and an electrical model. (Duquesne Light Statement No. 2 at 3).

92. OMS-capability (combined with an electrical model) can enhance outage communication and restoration capability and, generally, the EDC will become aware of customer outages before the customer calls Duquesne Light. (Duquesne Light St. No. 2 at 8).

 93. A properly functioning outage communication system along with a voltage monitoring functionality is intended to provide better diagnostics and control of abnormal conditions during power outages if an EDC implements these functions into its system, and uses AMI data with the Outage Management System (OMS). (Duquesne Light Statement No. 2 at 3).

94. The OMS component of the ADMS system allows an EDC to receive outage notifications (i.e., “last gasps”) from meters that go out of service and allows the EDC to “ping” an individual meter or group of meters for outage and restoration verification. (Duquesne Light St. No. 2 at 7-9; Tr. 72).

95. Smart meters are designed to put out a “last gasp” when a meter powers down (such as when there is an outage) due to a small device within the smart meter which communicates to the utility that the smart meter is now out of power. (Tr. 72).

96. The presence of a fully functioning OMS might reduce the average duration of power outages because distribution system operators have a quicker awareness of the number and location of customers affected by an outage and can dispatch crews earlier to address outages sooner. (Duquesne Light St. No. 2 at 7).

97. OMS can benefit Duquesne Light customers the most once all 600,000 customers have smart meters installed but also provides benefits over the current OAS before all smart meters are installed. (Tr. 74, 75).

98. In contrast to the OAS, the OMS is intended to provide better reporting, more precise information on affected customers, and more knowledge about an outage even before all smart meters are deployed. (Tr. 75).

99. Duquesne Light estimates the average duration of outages will decrease by five minutes if there is a fully functioning OMS, which reduction might produce customer cost savings by eliminating the impact of outages on industrial, commercial and residential customers. (Duquesne Light St. No. 2-R at 4).

100. Duquesne Light estimates the OMS-capability might produce savings of approximately $300,000 per year for Duquesne Light due to reduced phone calls at Duquesne Light’s call center because of OMS’ customer outreach notifications for reporting outages and restorations, and the increased effectiveness of Duquesne Light’s responses during and after storm events. (Duquesne Light St. No. 2 at 7).

101. The non-quantifiable benefits which OMS-capability might create for Duquesne Light and its customers includes customer satisfaction, increased safety to the public and to Duquesne Light employees, and enhanced operations in various Duquesne Light departments. (Duquesne Light St. No. 2 at 7-9).

102. In conjunction with the Automatic Vehicle Load (AVL) system, OMS-capability should enable Duquesne Light’s Operations Center to view the location of each Duquesne Light vehicle on an OMS map that simultaneously shows outage locations, to notify crews to be prepared for energization of nearby facilities, and to identify and dispatch the crews closest to a potential public hazard for quicker arrival time. (Duquesne Light St. No. 2 at 7-9).

103. OMS-capability would enable Duquesne Light’s Operations Center to manage outages from one application as opposed to using several applications, as currently is done. (Tr. at 67-70).

104. With OMS functioning, the Operations Center could model outages at switching points and non-switching points by using line cuts and jumpers, in addition to reducing the amount of paper used to manage outages, because Duquesne Light would be moving away from printed tickets. (Duquesne Light St. No. 2 at 7-9).

105. OMS-capability should increase efficiency for Duquesne Light’s field personnel by reducing incidences when field personnel mistakenly are dispatched to locations where outages have been restored; by using mobile data units to update OMS with Estimated Times of Restoration (ETRs), arrival times, trouble cause, and to describe any follow-up work; and by automatically generating reliability reports, thus requiring less manual intervention during outage reporting. (Duquesne Light St. No. 2 at 7-9).

 106. Using OMS-capability for damage assessment, Duquesne Light employees could capture information directly from the field which would improve the possibility the repair crews bring proper materials and equipment upon first arrival. (Duquesne Light St. No. 2 at 7-9).

 107. In the call center, Duquesne Light’s customer service representatives (CSRs) will have access to an OMS dashboard which provides outage details a CSR could provide to customers and also provides historical outage information. (Duquesne Light St. No. 2 at 7-9).

 108. The OMS can reduce the number of calls a CSR takes due to automatic messaging. (Duquesne Light St. No. 2 at 7-9).

 109. With the OMS dashboard, information on outages will be more readily available to the Media and Community Relations department, which would enable it to give timely responses to media requests such as ETRs or whether crews have arrived on the scene. (Duquesne Light St. No. 2 at 7-9).

 110. The OMS-capability uses an enhanced outage map with outage counts and customer outage counts based on the electric model, and will provide timely data needed to report to requesting news agencies, local governments and the Commission. (Duquesne Light St. No. 2 at 7-9).

 111. The OMS will require four years to implement from the date of approval before it will be functional. (Tr. 82, 83).

 112. The cost to implement OMS-capability will range from $42.4 to $51.6 million, and it will take at least until 2034 before it becomes cost effective. (Duquesne Light St. No. 2 at 11; Duquesne Light St. No. 2-R at 2; OCA Exhibit SLS-3.)

 113. Under the current OAS, Duquesne Light has good reliability ratings and gets half of its customers back in service within five minutes of when an outage starts because Duquesne Light currently uses switching devices already in service. (Tr. 103).

 114. The average duration of outages in Duquesne Light’s system is currently 100 minutes annually across only the residential and commercial classes. (Tr. 108-111).

 115. Many of the industrial customers connected to Duquesne Light’s system do not experience as much loss of electric service or as often as the other rate classes because those customers are usually on a separate transmission circuit. (Tr. 109, 110).

 116. An EDC’s cost to monitor outages is a regular cost of providing safe and reliable service to customers, regardless of whether an EDC uses smart meters. (Tr. 144).

Distribution Management System

 117. The DMS provides voltage monitoring capability to Duquesne Light’s outage detection system. (Tr. 76).

 118. When paired with the advanced electrical model used also with the OMS, the DMS will know the characteristics of Duquesne Light’s equipment, can predict the voltage at each location on a line, can refer to a power flow model, and can predict how a line will react to future changes. (Tr. 75).

 119. An advantage with DMS is capacity demand reduction which would allow Duquesne Light to lower the voltage at the front of a distribution line and still maintain sufficient voltage at the end of the same distribution line, by using switching devices, and to bring down the total system demand by reducing the amount of power flow in the system. (Tr. 76).

 120. During a peak usage time, the DMS would enable Duquesne Light to lower voltage at the head of a line but within acceptable parameters, and then raise the voltage at the end of a line which permits all customers on the line to be within tolerance of voltage levels but with lower capacity overall within the system. (Tr. 77).

 121. By lowering demand during a peak time, when supply costs are most expensive, Duquesne Light’s ratepayers would not have to pay for as much electricity at the higher supply rate. (Tr. 78).

 122. The DMS is needed for the proposed voltage monitoring functionality because it provides the voltage information inputs from the smart meters which allows for proper capacity demand reduction transformer loading. (Tr. 97).

 123. The DMS component of the ADMS should enhance Duquesne Light’s voltage monitoring functions because the DMS would perform distribution management functionalities such as Volt/VAR optimization, transformer loading, fault location, and switching solutions, and when using real time voltage data from smart meters a DMS should make real time adjustments to keep customer voltages in the proper range. (Duquesne Light St. No. 2 at 12).

 124. The Volt/VAR optimization capability (if using real time smart meter data) might achieve an electric system benefit of $2 million per year in capacity demand reduction once the DMS is fully implemented and utilized, which capacity demand reduction could be passed on as a savings to customers through reduced power costs. (Duquesne Light St. No. 2 at 13).

 125. The transformer loading analysis, using smart meter real time usage data, might achieve a benefit of $285,000 per year due to asset management savings and overtime savings once the DMS is fully implemented and utilized. (Duquesne Light St. No. 2 at 13).

 126. The DMS should enhance Duquesne Light’s ability to locate faults, which enhancement should reduce the time needed to find damage to the distribution system when the trouble location is otherwise unknown. (Duquesne Light St. No. 2 at 13).

 127. The DMS has a predictive ability to improve reliability and to identify transformers tending to show an overload during extremely high usage periods, which could prompt Duquesne Light to proactively replace those transformers with larger ones. (Tr. 78-81).

 128. The DMS can function without complete deployment of smart meters but the enhanced level of capacity demand reduction would be available only with those customers who currently have smart meters. (Tr. 81, 82).

 129. The cost to implement the DMS will range from $3.8 to $4.4 million, and take until at least 2034 before it becomes cost effective. (Duquesne Light St. No. 2 at 14; Duquesne Light St. No. 2-R at 2; OCA Exhibit SLS-3).

Bill Ready Billing

 130. Bill Ready is the billing process in which Duquesne Light would provide an EGS with usage data, the EGS would calculate the total supply charges, the EGS would notify Duquesne Light the amount to charge the customer, and Duquesne Light would place those EGS charges on the joint EDC/EGS bill transmitted to the customer. (Duquesne Light St. No. 3-R at 5).

 131. The 2012 Smart Meter Plan did not include the costs of meter operations or the Bill Ready functionality, which updated costs add an additional $10 million and $7 million, respectively, through 2019. (Duquesne Light Statement No. 1 at 6).

 132. Duquesne Light proposed including the costs of implementing Bill Ready as part of its Amended SMP. (Duquesne Light St. No. 3-R at 5).

 133. Currently, there exists no mechanism for Duquesne Light to recover Bill Ready costs from an EGS. (Duquesne Light St. No. 3-R at 5).

 134. The cost to implement Bill Ready will be approximately $7 million. (Tr.  169, 170); Duquesne Light St. No. 1 at 6.

IV. DISCUSSION

 This proceeding concerns Duquesne Light’s Smart Meter Plan. Duquesne Light contends its proposed changes to the Final Plan reflect a reasonable and equitable proposal that complies with Act 129 and with the Commission’s directives. Duquesne Light believes its proposal is in the public interest and should be approved without modification.

A. Regulatory and Administrative History

 Pursuant to Act 129 of 2008, P.L. 1592, the Commission required EDCs to implement multiple programs to promote energy efficiency and conservation by electric customers and to file smart meter plans within nine months after the effective date of the Act.[[2]](#footnote-2) On June 24, 2009, the Commission issued its *Implementation Order*, establishing the standards that EDCs must meet for providing smart meter technology to customers and providing guidance for meeting those standards.[[3]](#footnote-3)

On May 11, 2010, the Commission entered an Order approving Duquesne Light’s Initial Smart Meter Plan, with certain modifications.[[4]](#footnote-4) Thereafter, on June 29, 2012, Duquesne Light filed a Petition for Approval of its Smart Meter Deployment Plan, which was approved, in part, and modified by the Commission’s May 6, 2013 Opinion and Order, in which the Commission required Duquesne Light to make a compliance filing providing data supporting whether or not inclusion of communication of outages and restoration and voltage monitoring capabilities are cost effective.[[5]](#footnote-5) Duquesne Light submitted its Compliance Filing on August 2, 2013, and the Commission approved the Compliance Filing by Order entered January 9, 2014 at Docket No. M-2009-2123948.[[6]](#footnote-6)

This proceeding herein resulted because, on August 4, 2015, Duquesne Light filed its Petition to Modify its Smart Meter Plan along with its Amended Smart Meter Plan. In the Amended SMP, Duquesne Light proposes to install an Advanced Distribution Management System to achieve enhanced outage communication, outage restoration and voltage monitoring capabilities and to recover Bill Ready costs through Duquesne Light’s Smart Meter Charge. (Duquesne Light St. No. 2 at 4-5; Duquesne Light St. No. 3 at 5-6).

B. Burden of Proof

The burden of proof is upon Duquesne Light to show that its proposed modifications to its smart meter plan are in compliance with the Commission’s directives. Duquesne Light has the burden to prove it is entitled to the relief sought in this petition[[7]](#footnote-7) and must establish its proof by a preponderance of the evidence.[[8]](#footnote-8) To meet this burden, Duquesne Light must present evidence more convincing, by even the smallest amount, than that presented by any opposing party.[[9]](#footnote-9)

The burden of proof, also known as the burden of persuasion, means a duty to establish a fact by a preponderance of the evidence.[[10]](#footnote-10) If Duquesne Light presents evidence found to be of greater weight than the other parties, then the Company will have carried its burden of proof.[[11]](#footnote-11)

C. Summary of Parties’ Positions

Duquesne Light contends its proposal should be approved because (1) the customers’ savings were reliably quantified when Duquesne Light provided detailed distribution system data to DNV GL, and DNV GL used this Company-specific information to calculate customer savings on a circuit by circuit basis;[[12]](#footnote-12) (2) the estimate of customer savings calculated by DNV GL is supported by a second model (the ICE calculator) and, based upon these two independent models, the substantial customer savings from implementing the ADMS have been reliably quantified; (3) the savings should not be ignored simply because the DNV GL model uses a proprietary calculation and it would have been unfair to force DNV GL to release the details of the proprietary model because it would give their competitors the ability to duplicate the model; (4) Duquesne Light provided considerable detail to OCA regarding what factors DNV GL considered in estimating customer benefits in order to address OCA’s concerns about the proprietary DNV GL model;[[13]](#footnote-13) and (5) Duquesne Light supported its level of estimated savings through the publicly available ICE calculator and provided all of the data inputs that were used for the ICE calculator as an exhibit to its testimony.[[14]](#footnote-14)

 OCA submits Duquesne Light Company failed to meet its burden of proving the ADMS project as proposed is cost-effective. In its *Implementation Order*, the Commission reserved the right to waive the requirement for any of the nine additional smart meter capabilities it imposed if that capability was shown to be cost-ineffective. In this proceeding, the ADMS project (proposed as a means of meeting two of the nine additional capabilities) has been shown to be demonstrably cost-ineffective and the Commission should reject the project. Unless Duquesne Light can return with a cost-effective alternative proposal for implementing the outage communication and voltage monitoring capabilities, the Commission should waive these requirements for Duquesne Light under the Smart Meter requirements. Should the Commission not reject the ADMS project, OCA submits the recovery of the project’s costs should be sought through a base rate case and not Duquesne Light’s Smart Meter Charge, and the costs of Bill Ready functionality are properly recovered from Electric Generation Suppliers who are the overwhelming beneficiaries of this capability.

Citizen Power avers Duquesne Light failed to demonstrate the ADMS project is cost-effective and the Commission should reject that aspect of the Petition. In the alternative, if the Commission determines that the ADMS is cost-effective, they should direct Duquesne Light to recover costs through base rates.

D. Summary of Modified Smart Meter Plan (SMP) and Disputed Issues

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1. Duquesne Light’s Position

#### Duquesne Light posits that the ADMS project is cost effective and should be approved. The OMS is expected to cost approximately $42-$51 million, and the expected benefits will exceed costs in approximately 7-9 years. The DMS is expected to cost approximately $3.8-$4.4 million, and the expected benefits will exceed costs in less than two years. (Duquesne Light St. No. 2-R, p. 2.) Duquesne Light asserts it demonstrated the ADMS system is cost effective, and it should be approved.

The utility contends the Commission directed it to evaluate whether outage communication, outage restoration, and voltage monitoring capabilities should be included in its SMP. As a consequence of its endeavors to comply with that direction, Duquesne Light filed its Amended SMP on August 4, 2015, which proposed several modifications to its existing SMP including: (1) implementing an ADMS; (2) revising the implementation dates for certain smart meter functionalities; (3) accelerating the meter deployment schedule; and (4) updating the AMI cost estimates, including requesting cost recovery of the new ADMS, the new Bill Ready functionality, and the ongoing costs to repair unsafe customer service entrance equipment. Duquesne Light avers the most significant proposed modification is to comply with the Commission’s request to implement outage and restoration communication and voltage monitoring capabilities. Duquesne Light proposes to implement an ADMS consisting of two primary components – an OMS and a DMS – to provide these capabilities.

Duquesne Light contends the OMS combined with an electrical model will significantly enhance Duquesne Light’s outage communication and restoration capability. Duquesne Light insists the proposed OMS will create substantial benefits for customers and for the utility and is expected to produce savings of approximately $300,000 per year. In addition, the OMS will create customer savings of approximately $6,000,000 annually. Duquesne Light insists there are also numerous other safety and other non-quantifiable benefits associated with implementing the OMS.

Furthermore, Duquesne Light avers the DMS component of the ADMS would enhance its voltage monitoring functions by providing distribution management functionalities such as Volt/VAR optimization, transformer loading, fault location, and switching solutions. By proposing to implement the Time-of-Use (TOU), Real Time Pricing (RTP) and net metering functionalities that were delayed to 2016 rather than implemented in 2015, Duquesne Light avers it could implement other business and regulatory requirements earlier in 2015 such as Off-Cycle Switching.

Similarly, Duquesne Light proposed to accelerate its meter deployment schedule under the Amended SMP to provide for the complete installation of all residential meters by the end of 2018 and to complete all commercial and industrial meter installations by the end of 2019, instead of the originally proposed end date in 2020. Duquesne Light updated its projected AMI cost estimates, and proposed to recover certain additional costs through the SMC, including ADMS costs, costs for Bill Ready functionality, and costs to repair unsafe customer service entrance equipment.

Duquesne Light argues OCA’s position is extreme because it completely ignores customer savings because of the difficulty in quantifying the savings. Duquesne Light also points out OCA failed to offer a contrary estimate of customer savings and failed in its burden of presenting convincing contrary evidence. Duquesne Light contends it is unreasonable to ignore the clear societal benefits from reduce outage times using an ADMS. Duquesne Light points out that, whether accepting the ICE Model or the DNV GL study, the social benefits clearly will approximate $4 to $6 million per year and the Commission should consider societal benefits when evaluating the proposed ADMS.[[15]](#footnote-15)

Duquesne Light contends it did include software upgrades in its cost analysis, contrary to OCA’s contention that Duquesne Light should include additional software and hardware upgrades throughout the ADMS’ project life in its analysis.[[16]](#footnote-16) Duquesne Light argues it was appropriate to exclude hardware upgrades because they are generally expected to offset the hardware upgrades that would be needed to support the existing systems that are used today when analyzing outages.[[17]](#footnote-17) Duquesne Light acknowledged OCA’s argument that Duquesne Light should have included incremental ongoing costs to run the ADMS in its analysis[[18]](#footnote-18), but argues that, even if these costs are included, the project benefits still exceed the project costs.[[19]](#footnote-19)

 2. OCA’s Position

 Out of the six sets of modifications Duquesne Light proposed to its Final Smart Meter Plan, OCA disputes only two modifications, namely:

a. The implementation, over a period of five years, of ADMS, which involves the sequential development of an electrical model of the Duquesne Light system, followed by the installation of an Outage Management System (OMS) and finally installation of a Distribution Management System (DMS), which Duquesne Light alleges are required in order to meet the *Implementation Order*’s requirement that its smart meter system have outage communication and voltage monitoring capabilities; and

 b. The projected increase in the overall cost of the Plan from $203 million (as approved in the Commission’s May 6, 2013 Order) to $319 million. Of this increase, $54 million is earmarked for completion of the installation of smart meters and supporting technology.[[20]](#footnote-20) This additional $54 million includes $7 million to implement Bill-Ready billing, a sum not previously included in the Plan’s estimated cost. An additional $51 to $62 million is the estimated cost of installing and running the ADMS through 2020. If the top end of this range of ADMS costs is spent, the total cost of the Plan will be $319 million.

3. Citizen Power’s Position

Citizen Power disputes (1) whether the ADMS Project, as proposed, is cost effective; and (2) whether the proposed use of the Smart Meter Charge Rider for cost recovery is appropriate.

E. Advanced Distribution Management System (ADMS) Project Approval Issues

1. Duquesne Light’s Position

#### Duquesne Light points out the Commission directed EDCs to adopt enhanced abilities to communicate outages and restorations, and to monitor voltage as part of the Smart Meter program. Duquesne Light contends that in its Smart Meter Implementation Order, the Commission required it, as an EDC, to implement, inter alia:

8. Ability to monitor voltage at each meter and report data in a manner that allows EDC to react to the information.

….

10. Communicate outages and restorations.

(*Implementation Order* at 16.)

Duquesne Light contends the Commission stated these capabilities would further facilitate the consumer’s ability to control their electric use and costs, but the Commission reserved to itself the authority to waive these requirements if they were not cost effective. *Implementation Order* at 17, 31. However, Duquesne Light argues the clear directive from the Commission’s *Implementation Order* is that the abilities to monitor voltage and communicate outages and restorations are smart meter functionalities and should be incorporated into smart meter plans unless they are not cost-effective. Accordingly, Duquesne Light evaluated the cost-effectiveness of implementing enhanced abilities to communicate outages and restorations and monitor voltage as part of Duquesne Light’s smart meter plan.[[21]](#footnote-21)

The utility argues the ADMS will provide significant benefits both to customers and to Duquesne Light by significantly enhancing outage communication, service restoration and voltage monitoring capabilities. The OMS component of the ADMS system will allow Duquesne Light to receive outage notifications (i.e., last gasps) from smart meters that go out of service and will allow Duquesne Light to ping an individual smart meter or a group of smart meters to verify an outage and then service restoration. The OMS would be designed to inform Duquesne Light about outages more quickly than the current communication system, which relies heavily on customers – calling with complaints about lost service – to inform it when an outage occurs. With the OMS, Duquesne Light should be able to receive verifications from customers’ smart meters, which will enable Duquesne Light to dispatch crews earlier. This earlier notice and verification will allow Duquesne Light to prioritize the dispatch of crews and thereby reduce outage time. Duquesne Light estimates the average duration of outages will decrease by five minutes per year with the OMS. The utility argues an average annual savings of five minutes of outage time produces significant customer cost savings. Duquesne Light’s existing system does not have this functionality, and the addition of the OMS is required to perform this functionality.

To determine the dollar value of these anticipated cost savings, Duquesne Light’s consultant, DNV GL, evaluated Company-specific data (such as the number of circuits at different voltages, current miles, capacitor information, voltage regulators, and number of customers) and then performed a comprehensive study of Duquesne Light’s distribution system for the purpose of estimating savings achievable by a reduction in average outage time of five minutes annually. DNV GL estimated societal benefits, or actual cost savings to customers, to be approximately $6 million per year. Duquesne Light recommends the Commission use the DNV GL study because the customer benefits are calculated based upon more specific information about Duquesne Light’s distribution system.[[22]](#footnote-22)

Because DNV GL used a proprietary formula[[23]](#footnote-23) to estimate customer savings, Duquesne Light also used a publicly-available model to calculate societal or customer cost savings from the anticipated reduced outage time, called the Interruption Cost Estimate (ICE) calculator. The ICE calculator was developed for the U.S. Department of Energy to estimate interruption costs and benefits associated with reliability improvements in the United States. Using the ICE calculator, Duquesne Light estimates the range of total annual customer savings from the OMS will range from approximately $4 million in 2023 up to approximately $6 million in 2039.

In addition to anticipated customer savings with the OMS, Duquesne Light estimates the utility itself will achieve $300,000 per year in cost savings as a result of reduced telephone calls due to automated notifications of outages and service restorations and increased efficiencies during and after storm events. Plus, Duquesne Light contends the OMS will create numerous and significant non-quantifiable benefits for Duquesne Light and its customers through increased safety awareness, shorter time durations when locating outage locations, increased customer satisfaction, and enhanced operations within separate departments at Duquesne Light.

Duquesne Light contends the DMS component of the ADMS system performs distribution management functionality such as Volt/VAR optimization, transformer loading, fault location and switching solutions. By using real time voltage data from smart meters, Duquesne Light argues it will be able to make real time adjustments to keep customer voltages in proper range by using the DMS component.

Duquesne Light expects the Volt/VAR functionality within DMS to achieve an electric system benefit of $2 million per year in capacity demand reduction, which reduction in demand should produce lowered power costs for customers. The transformer-loading functionality within DMS should reduce costs by approximately $285,000 per year due to Asset Management and overtime savings. In addition, Duquesne Light argues the DMS will enhance Duquesne Light’s fault location capabilities, which will reduce the time needed to find damage within the distribution system when the trouble location is otherwise unknown. (Duquesne Light St. No. 2, p. 13.)

Duquesne Light asks the Commission to dismiss as flawed the request of OCA to deny approval of the ADMS on the alleged grounds the ADMS is not cost-effective. (OCA St. No. 1, p. 11.) Duquesne Light insists OCA’s argument is flawed because OCA completely ignores customer savings estimated to be approximately $6 million per year and ignores the significant non-quantifiable benefits that Duquesne Light and customers will experience with the ADMS.

 2. OCA’s Position

OCA points out the Commission’s *Implementation Order* directed that an EDC’s smart meter technology should support nine functions in addition to those mandated by Act 129. Concerned that some smart meter technological functions or capabilities might not be cost-effective, the Commission stated:

In order to ensure that these additional smart meter functions are cost‑effective, we direct that each smart meter plan filing include cost data that quantifies the costs to meet the minimum requirements set forth in Act 129, … and the individual incremental costs of each added function, less any operating and capital cost savings.

*I**mplementation Order* at 29. The Commission further stated that if an EDC or other party demonstrates that a Commission-imposed smart meter function is shown to be not cost-effective, the Commission would retain the option of waiving that particular requirement for the affected EDC. *I**d*. at 31.

 OCA offered evidence the project is not cost-effective and should not move forward, and argues the Commission should reject the ADMS at this time because it is a cost-ineffective project.

 OCA identified three concerns: (1) whether the benefits (other than societal) would actually exceed the ADMS’ costs prior to the end of the project life; (2) how certain ongoing Operating and Maintenance (O&M) costs were not included but should have been included in Duquesne Light’s analysis; and (3) the $6 million in alleged annual societal benefits are too uncertain to be utilized as part of the cost-benefit analysis.

 First, OCA questioned whether the ADMS project would be completed at the low end of its projected cost range (thereby allowing projected benefits to exceed the projected costs). In Duquesne Light witness Karcher’s Direct Testimony, DLC admitted the estimate for OMS was given in a range due to uncertainty about the cost at the current stage of development and that greater accuracy will not be achieved until the project is competitively bid.[[24]](#footnote-24)

 Second, OCA is concerned because Duquesne Light did not include ongoing project O&M costs as part of the cost-benefit analysis. Instead, Duquesne Light compared implementation costs only (not ongoing costs) to benefits.[[25]](#footnote-25) OCA argues the *Implementation Order* requires Duquesne Light to include deployment and operating costs including “a breakdown of all incremental and any associated potential operational and maintenance cost savings for each functionality and configuration. The cost-benefit analysis should reflect the incremental ongoing O&M costs that will be incurred during the period in which benefits are derived; otherwise, the cost-benefit analysis is not accounting for the required incremental costs to achieve those benefits and does not follow the requirements of the *Implementation Order*.”[[26]](#footnote-26)

OCA points out that Duquesne Light expects the ADMS to generate enough benefits to surpass costs by the conclusion of 2039, even though this comparison excludes costs to be incurred through 2039. In its discovery responses, Duquesne Light projected ongoing incremental O&M costs for different components of the ADMS projected to be incurred through 2024. Relying on Duquesne Light’s characterization of these costs as ongoing, OCA witness Sherwood developed a projection of these costs going forward through the life of the ADMS project, and applied a three percent escalation factor to the labor portion of these incremental costs through the period. OCA calculated the incremental O&M costs would be $3.385 million in 2024, and would be projected to rise to $4.582 million by 2039, and the total incremental costs would equal $78.455 million for the period 2024 through 2039.[[27]](#footnote-27) OCA asserts DLC did not take these costs into account as part of its cost-benefit analysis. In addition, Duquesne Light did not include $5 million to $6 million of incremental O&M costs related to the implementation phase of the project (between 2017 and 2020).[[28]](#footnote-28)

 OCA contends the cost for the ADMS project rises from Duquesne Light’s initial estimate ($46 million to $56 million) up to nearly $125 million over the project’s life, when the ongoing O&M costs are included in the analysis. Comparing this estimated cost to the projected (non-societal) benefits of $46.3 million, OCA asserts clearly the cost of the project substantially outstrips the objective benefits Duquesne Light has identified.[[29]](#footnote-29)

 Third, OCA questions whether the societal benefits should be relied upon at all to justify the costs of the ADMS project, on the theory that societal benefits should not be used in a cost-benefit analysis if those benefits cannot be quantified reliably. OCA notes that even in the Phase I study itself, reliable quantification of these benefits is subject to question.

OCA witness Sherwood testified, “unless the [societal benefits] can be reliably quantified, they should not be used as part of the cost-benefit analysis.”[[30]](#footnote-30) During her testimony at the Further Evidentiary Hearing held on June 30, 2016. Ms. Sherwood elaborated as follows:

JUDGE DUNDERDALE: No, that's fine. When a utility is looking into the cost effectiveness of a project or a program which is basically to involve a large up-front investment and then, of course, the utility is to get reimbursed or paid back for that cost, when I’m looking at cost effectiveness in that realm of utilities, what, in general, are the benefits that you would be looking for that you actually would look for; regardless of what the company is telling you, what benefits of that program are you looking for when you are trying to determine cost effectiveness?

[MS. SHERWOOD]: I’m looking for operational improvements, whether that be from the call center or truck rolls. I’m looking for improvements on the customer side. That might be through communications….

JUDGE DUNDERDALE: So, you are looking for how this program benefits how the operations run on the utility side, and then how the customers experience their communications with the company, as well as the service the company is providing?

[MS. SHERWOOD]: That’s correct. Those can be quantified. If call times were X or something, or the wait, or sometimes call centers are overloaded, so whether they are actually able to get through to the line. Those are things that we are looking at. Sometimes, it’s reliability. It depends on the project type.[[31]](#footnote-31)

Implicit in Ms. Sherwood’s observation that determinations of cost-effectiveness should be based on quantifiable operational improvements is recognition that the savings produced by these improvements offset costs that are incorporated in rates in the first instance. This recognition is true of the hard benefits that Duquesne Light cites for both the OMS and DMS. The $2.285 million in annual savings related to the OMS and the $300,000 in annual savings related to the DMS reflect reductions in costs that will flow to the customer either directly or indirectly through the rates they pay Duquesne Light.

The same cannot be said for the societal benefits Duquesne Light cites. These savings exist outside of the ratemaking function. Costs related to lost production time, food spoilage, hotel stays during outages are not things that all customers pay for in their rates. According to OCA, as non-system benefits, these cost savings should not be included as part of the cost-effectiveness evaluation conducted by the Commission. If anything, these cost savings should be considered as added benefits, not as a formal part of the cost-benefit analysis.

OCA contends societal benefits are an added benefit when evaluating cost effectiveness, and should not be used as part of the evaluation of the cost-benefit analysis. OCA argues the Commission should only consider hard benefits (i.e., those benefits that can be quantified) when making a determination of cost effectiveness.[[32]](#footnote-32)

OCA further pointed out that even in the Phase I study itself, reliable quantification of these benefits was subject to question. Specifically, under the heading Methodology and Approach in the Cost Benefit portion of the study, it stated the ADMS implementation had the “potential to deliver soft benefits that are *difficult to estimate in value*.”[[33]](#footnote-33) The study goes on to list a variety of soft benefits, but relevant here is the fact that the list includes the reduced societal impacts totaling approximately $6 million annually from reduced costs of outages to Duquesne Light consumers. Some cited examples of societal impacts were lost production time and food spoilage due to loss of electric power.[[34]](#footnote-34) Hence, even the Phase I study recognizes the $6 million of societal benefits as being “soft” and difficult to quantify.

 Because the proprietary formulas used by DNV GL could not be disclosed, Duquesne Light presented an alternative estimate of societal benefits based on a publicly available model for calculating benefits of reduced outage time – the Interruption Cost Estimate (ICE) Calculator. Using the ICE calculator, Duquesne Light estimated societal benefits of $4.2 million three years after OMS implementation, rising to $5.7 million at the end of 19 years, assuming a 2% annual rate of inflation.[[35]](#footnote-35)

 OCA witness Sherwood pointed out that the ICE Calculator relies upon old data sets from customer value of service studies conducted by 10 utilities outside the Mid-Atlantic and Northeast regions, which is the location of DLC’s service territory. OCA contends these limitations are “particularly troublesome because of the unique population density and economic intensity of the region.”[[36]](#footnote-36) OCA argues the ICE Calculator focuses on time periods during which interruptions were having an impact on the regions studied and the majority of the data was more than 15 years old. Lastly, OCA argues the model is designed to estimate the interruption costs for outages that last up to 16 hours and should not be used for major outages.[[37]](#footnote-37)

OCA points out that Duquesne Light’s witness acknowledged ICE’s limitations, and tried to defend the use of ICE as a way of demonstrating “that the estimated societal benefits calculated by the proprietary DNV GL model are reasonable,” however, DLC recommended the Commission look to the “more sophisticated” DNV GL model.[[38]](#footnote-38)

OCA notes the ICE model breaks down the customer benefits by rate class when calculating societal benefits resulting from the reduction in duration of electrical outages. Duquesne Light’s presentation of the ICE model results, in connection with implementation of ADMS, convinced OCA there is a wide disparity between the costs and benefits of ADMS as those costs and benefits relate to the residential class. Specifically, there is an imbalance between the cost recovery and the expected benefits by rate class. By the conclusion of the ADMS’ project life, more than half of the benefits needed to offset the cost of the ADMS will derive from societal benefits. Only 1.5 percent of the societal benefits will be enjoyed by the residential class,[[39]](#footnote-39) however, the residential class will be allocated approximately 90 percent of the ADMS costs. OCA argues the project does not appear to be cost-effective for residential customers due to the low societal benefits projected for residential customers.[[40]](#footnote-40)

 While this cost-benefit disparity for the residential class is indeed striking, OCA does not raise this issue for the purpose of reopening the question of overall cost allocation vis-à-vis smart meter costs in this proceeding. Rather, OCA cites this issue as a further example of the cost-ineffectiveness of the ADMS project and further reason that the Commission should not approve the project.

 Moreover, the existence of this disparity also lends support to OCA’s position that recovery of these costs should be sought in a base rate proceeding, where the costs and benefits can be thoroughly examined and issues of cost allocation fully addressed. If, however, the Commission authorizes ADMS to go forward and permits recovery through the SMC, OCA submits that cost allocation under the SMC needs to be addressed to better match costs with benefits.

Rather than serving as a “check” on the results of the Phase I study’s calculation of societal benefits, OCA submits the limitations of the ICE model serve to reinforce the fact that the reliable calculation of societal benefits is quite difficult to accomplish. Accordingly, in the absence of an ability to reliably quantify these benefits, OCA submits these benefits should be excluded from the cost-benefit evaluation. OCA further notes the Commission has traditionally

not recognized claims of societal benefits in other contexts, such as the analysis of cost effectiveness of energy efficiency programs.[[41]](#footnote-41)

Without inclusion of the societal benefits, the costs of ADMS far exceed the benefits it will produce. As such, OCA submits the ADMS project is clearly cost-ineffective and its implementation should be rejected by the Commission on that basis.

 3. Citizen Power’s Position

Citizen Power notes that Duquesne Light estimated the cost of implementing the ADMS Project is between $46 million and $56 million. Of this estimate, between $42.2 million and $51.6 million comes from the implementation of the OMS while between $3.8 million and $4.4 million is from the implementation of the DMS.[[42]](#footnote-42) In addition, there is an estimated ADMS Run Operations cost of between $5 million and $6 million as well as ongoing incremental annual costs to operate and maintain ADMS of $2.8 million per year.[[43]](#footnote-43) The estimated quantifiable benefits of implementing the ADMS Project are $46.3 million over a 20 year period.[[44]](#footnote-44) Specifically, the quantifiable benefits gradually increase until they reach a plateau of $2.585 million per year in 2023.[[45]](#footnote-45) Duquesne Light is expected to realize a savings benefit of $300,000 from the OMS Implementation and a savings of $285,000 per year from the DMS Implementation, while the other $2,000,000 per year is expected to be passed onto customers through reduced power costs.[[46]](#footnote-46)

In addition, Duquesne Light estimated a societal benefit of $6 million per year.[[47]](#footnote-47) This estimate was the result of a study performed by DNV GL, a consultant hired by Duquesne Light for their OMS Study. The formulas used by DNV GL for this study were proprietary and were based on an average reduction of outage duration time of five minutes. Due to the proprietary nature of DNV GL’s model, Duquesne Light also provided societal benefit estimates from the ICE Calculator, a publically available model for calculating societal benefits. Taken together, “[t]he ICE model and the DNV GL study predict societal benefits of approximately $4 - $6 million per year.”[[48]](#footnote-48)

Citizen Power argues an analysis of the benefits and costs provided by Duquesne Light does not demonstrate that the ADMS Project is cost effective. First, the Commission did not specify what type of cost/benefit analysis should be performed. There are many instances where the Commission does not take societal benefits into account when looking at the cost-effectiveness of a proposal.[[49]](#footnote-49) Also, even taking societal benefits into account, the cost effectiveness is unclear. The combined cost of the ADMS project and the ADMS Run Operations could run as high as $62 million, while the quantifiable benefits, many of which are far into the future, are only estimated at $46.3 million. It is uncertain whether a conservative estimate of $4 million per year in societal benefits exceeds the estimated ongoing costs of $2.8 million per year of operating and maintaining ADMS by a large enough margin to justify the cost.

 4. Disposition by Administrative Law Judge

 Contrary to Duquesne Light’s numerous contentions, the Commission did not require the EDC to implement the OMS and DMS functionalities, but to analyze their cost effectiveness. In addition, the Smart Meter *Implementation Order* does not require that cost recovery for the OMS and DMS functionalities must be incorporated into the SMC, but indicates that the EDC may choose to incorporate it into the SMC.

 The OMS as proposed is estimated to save Duquesne Light’s customers five minutes out of the current average of 100 minutes of lost electric service annually, across primarily the residential and commercial classes. The industrial class customers are not expected to be impacted by the implementation of the new functionalities because industrial customers usually have separate transformers from the transformers used by the other classes. In this proceeding, DLC did not show or prove how 95 minutes of lost service has an added value benefit of $6 million to customers who now experience 100 minutes of lost service annually on average. The DNV GL calculations used unknown variables and applied unknown calculations when it opined that $6 million will be saved annually by the customers. These calculations cannot be validated and should not be used to determine any soft cost savings.

 Including both the hard and soft benefits in the cost benefit analysis, Duquesne Light’s plan to implement the ADMS will not become cost effective until at least 2034.[[50]](#footnote-50) Excluding soft benefits, the ADMS never becomes cost effective before obsolescence, as evidenced by the fact that by 2039 the cumulative benefits will be $46 million while the cumulative costs will total $125 million, not including the O&M costs.[[51]](#footnote-51)

ICE is an industry-acceptable standard although its calculation of $4 million is based on old data and data collected outside of the Mid-Atlantic region, so the calculation carries only limited weight. The ICE calculator opined $4 million would be saved annually, yet it uses data collected over a decade earlier and from EDCs located outside the Mid-Atlantic regions. Duquesne Light failed to provide evidence that having five more minutes of electric service will make any positive economic impact on DLC’s distribution customers.

 Duquesne Light proved there will be non-quantifiable benefits to customers from the implementation of the OMS but did not provide any explanation, except its bald assertions, to prove that these benefits would be “significant.” For the purposes of this Initial Decision, the presiding officer did not use the estimates made available through DNV GL because those estimates are too vague, without substance and carried no weight in the writing of this decision.

 Duquesne Light did show that Volt/VAR in the DMS functionality will produce significant savings because of its capability to control voltages for greater economy and less excess usage. This capability will reduce the frequency of outages and allow DLC to better predict transformer failure before the transformers actual fail. This function would be a great functionality to add to DLC’s arsenal but there were no definitive numbers added to show that implementing the DMS would result in benefits that exceed the costs, especially since the DMS will require the creation of a new electric model in order to work properly.

 Furthermore, OCA is correct when it argued that, when determining cost effectiveness and making a cost-benefit analysis that extends over a period of many years, DLC should have included ongoing project O&M costs, in addition to the costs to upgrade current equipment, upgrade the new equipment, and deal with routine obsolescence. When all costs are added up, it became painfully obvious that the functionalities (though highly beneficial on first appearance) are not cost effective. To be more succinct, the cost to create the electric model, implement the ADMS including the OMS and DMS and cover incremental O&M costs through 2039 will total over $78 million, not $56 million averred by Duquesne Light. These costs exceed the benefits to be enjoyed by the Company and by the consumers over the useful life of the functionality.

 OCA’s argument was persuasive that the soft benefits should not be included because including soft benefits is not an industry-wide standard. Without the soft benefits included when making a cost-benefit analysis, the proposed costs do not accrue a benefit until after the life expectancy for the hardware and software has expired. However, even if the soft benefits should be included, the estimate of soft benefits provided by DNV GL was too tenuous and too obscure. This proceeding involved confidential material that was covered by a Protective Order issued earlier. Duquesne Light failed to explain why it could not reveal the factors and materials used by DNV GL in the creation of its estimate for soft benefits and have the information treated as confidential. Without knowing what DNV GL looked at, considered and weighed, its final estimation is without foundation or weight.

 The ICE calculator does meet industry standards and could be used but the weightiness of the ICE estimate is tenuous. The ICE calculator uses demographics for an EDC that is outside the Mid-Atlantic region and with old data. However, using the estimate from the ICE calculator is better than not having any estimate. Therefore, I find that – if soft benefits are considered in the cost-benefit analysis – the lower ICE calculator should be used.

 As stated previously, it is my determination that soft benefits should not be included when making the cost-benefit analysis for the changes to the smart meter charge. Those soft benefits, as they occur, will not be lost as a benefit for the customers. Eventually those benefits will be captured and incorporated into the customer’s bills as a lower charge at the next base rate. As the other EDCs in Pennsylvania have done, those benefits will be captured and incorporated into the customers’ bills as a lower charge at the next base rate. At the next base rate, Duquesne Light can quantify and validate the savings, instead of estimating based on tenuous calculations shrouded in mystery and uncertainty.

F. ADMS Cost Recovery Issues

1. Duquesne Light’s Position

 Duquesne Light argues the Commission should permit it to recover ADMS costs through its Smart Meter charge because the ADMS project will enable Duquesne Light to meet the smart meter technology requirements set forth in the Commission’s *Implementation Order* of communicating outages and restorations, and monitoring voltage. Duquesne Light contends Act 129 gives it the discretion to determine how to recover these smart meter costs, and it has elected to recover smart meter costs on a full and current basis through its SMC, which is a reconcilable automatic adjustment clause under Section 1307, a practice the Commission expressly authorized.

Duquesne Light argues OCA is wrong to argue that Duquesne Light should be required to seek to recover ADMS costs through base rates on the theory Duquesne Light already receives revenues in base rates to pay for outage and distribution management functions, and upgrade costs should be included in base rates.

Duquesne Light contends OCA’s argument is contrary to Act 129 and Commission precedent and should be denied. The ADMS will allow Duquesne Light to communicate outages and restorations, and monitor voltage. Duquesne Light insists the Commission defined these functionalities as smart meter technology and authorized Duquesne Light, as an EDC, to include this technology in its smart meter plans.[[52]](#footnote-52) Duquesne Light is

permitted under Act 129 to recover smart meter costs through automatic adjustment clauses[[53]](#footnote-53) and the Commission authorized Duquesne Light to recover its smart meter costs through an automatic adjustment clause.[[54]](#footnote-54)

Duquesne Light does not have this new technology at the moment and should be permitted to implement this technology as other EDCs in Pennsylvania already have it. In the *Implementation Order*, the Commission noted that each EDC had different capabilities and implementation challenges[[55]](#footnote-55) and Duquesne Light argues it should not be penalized for having to install a new ADMS system to meet the *Implementation Order* requirements.

Duquesne Light argues OCA’s arguments should be denied as irrelevant under Act 129. Duquesne Light claims all EDCs were recovering prior generation meter costs in base rates and now are recovering costs for new smart meters in automatic adjustment clauses. Act 129 specifically allows for recovery of new smart meter technology costs through an automatic adjustment clause, even if old technology costs are recovered in base rates. Duquesne Light avers OCA’s argument – that base rate recovery of ADMS costs will be consistent with how soft benefits are captured – is wrong because soft benefits cannot be quantified. Any savings will be reflected in rates to customers in future base rate cases through increased efficiencies. However, these later savings are not a valid reason to require actual ADMS costs to be recovered through base rates, and are contrary to the statutory cost recovery provisions.

Furthermore, Duquesne Light disagrees with OCA that ADMS costs should be allocated to customer classes based upon the estimated benefits to each class[[56]](#footnote-56) because this allocation is contrary to the Commission’s directive for Duquesne Light to allocate smart meter costs to each smart meter. The Commission ordered Duquesne Light to allocate common costs to each customer class based on the number of meters in that customer class.[[57]](#footnote-57) In addition, the Commission previously denied OCA’s arguments that smart meter costs should be allocated based upon benefits and would not require Duquesne Light to allocate smart meter technology costs to each class based upon estimated benefits.[[58]](#footnote-58) Duquesne Light argues here that similarly the Commission should deny OCA’s cost allocation proposal in this proceeding as well.

2. OCA’s Position

OCA points out that if Duquesne Light proceeds with the ADMS project, it proposes to recover the costs of the project through its existing Smart Meter Charge.[[59]](#footnote-59) OCA notes Duquesne Light does not require Commission approval to upgrade its outage management system just as it did not require prior Commission approval to upgrade its Customer Care and Billing System. These types of systems are part of a utility’s normal business operations and upgrading or replacing them is something that occurs in the regular course of doing business, particularly in the face of technological advancements. That said, however, Duquesne Light *would* need to meet the statutory requirements for recovery through the Smart Meter Charge, a special recovery mechanism established as part of Act 129, if it seeks to recover the costs of the upgrade through that charge. As set forth below, OCA argues Duquesne Light has not met this burden.

In both the First and Second Post-Hearing Orders, the presiding officer directed Duquesne Light to respond to four questions. The first two questions were:

1. How much of the reasonable and prudent costs of the installation of the OMS and ADMS relate to the voltage monitoring and outage communications capabilities and how much are related to providing the multitude of other functionalities?
2. How much of those costs should be recovered through the SMC?

Duquesne Light’s response to the first question was that all of the costs of the ADMS relate to voltage monitoring and outage communication capabilities. The Company’s response to the second question was that “all of the reasonable and prudent ADMS implementation costs related to voltage monitoring and outage communication capabilities should be recovered through the SMC.”[[60]](#footnote-60)

Duquesne Light’s position on these points ignores the many functionalities beyond voltage monitoring and outage communication that are provided by ADMS. Additionally, as the testimony at the Further Hearing shows, the outage system, OAS will have to be upgraded in the normal course of business. Duquesne Light witness Karcher acknowledged that if DLC did not have the OMS & DMS, it would continue to operate through the OAS even after its roll-out of smart meters is completely implemented. Duquesne Light eventually will need to upgrade the OAS system because it is approximately 30 years old.[[61]](#footnote-61)

Testimony from Duquesne Light witness Karcher demonstrates Duquesne Light has a reason to install an outage management system that is completely independent of the roll-out of smart meters. Furthermore, Duquesne Light witness Pfrommer admitted a portion of the OMS is nothing more than the cost of doing business as a large EDC. He acknowledged there is also a portion of the OMS that is an “adder” and provides more than what DLC must provide in order to provide safe and reliable service. This acknowledgement is obvious during the following exchange at the Further Hearing:

JUDGE DUNDERDALE: So, a portion of the OMS is just the cost of doing business as a large EDC, but you are testifying that there’s also a portion of it that is not, that it’s something in addition to providing more than what it would be just to provide safe and reliable service?

[MR. PFROMMER]: It’s providing more than we provide today.

JUDGE DUNDERDALE: Right. What you are providing today is what is necessary to provide safe and reliable service, the basic requirement just to do business?

[MR. PFROMMER]: Yes.

JUDGE DUNDERDALE: That’s what OAS does, right?

[MR. PFROMMER]: Today; the OMS will allow us to provide better service.

JUDGE DUNDERDALE: Okay, so it provides what OAS does, and…

[MR. PFROMMER]: And more. I’m sorry. Yes.

JUDGE DUNDERDALE: So, some of the answer to my question would be, yes, some of it is just the cost of doing business as an EDC, and some of it is in addition to?

[MR. PFROMMER]: Yes.

JUDGE DUNDERDALE: Because you can still do outage monitoring currently; is that correct?

[MR. PFROMMER]: Yes.

JUDGE DUNDERDALE: Just not as fast and perhaps not as –

[MR. PFROMMER]: Accurately.

JUDGE DUNDERDALE: -- efficiently, right?

[MR. PFROMMER]: Efficiently, right.[[62]](#footnote-62)

Again, the inference here is that an upgrade from the OAS to a more efficient and sophisticated OMS is simply part of the cost of doing business as an EDC rendering adequate, safe and reliable service as required under the Public Utility Code.

Another important exchange occurred between the Judge and Mr. Karcher which indicated the OMS has value and utility quite apart from being connected to smart meters:

JUDGE DUNDERDALE: If I’m in a neighborhood that doesn’t have Smart Meters, how does OMS benefit that neighborhood?

[MR. KARCHER]: Well, one of the benefits of having the OMS – in order to put OMS in, we have to build an electrical model first. Today we don’t have an electrical model of our system.

Like I said earlier, we know where our customers are and we know where our circuits are, but we don’t have an exact connection between them. Many of our streets have more than one circuit running down them, several circuits that customers can be connected to. So, just by the method today, it’s not exact where we know the customers are out of power.

However, with OMS, they would be connected to the model. Even with customers calling in, we would have better reporting and more exact, precise numbers and knowledge of the outage.[[63]](#footnote-63)

These excerpts of testimony reveal that some portion, perhaps a large portion, of ADMS costs are unrelated to the costs of establishing the voltage monitoring and outage communication capabilities recommended by the Commission in its *Implementation Order*. Indeed, the ADMS is a cost-ineffective means of achieving these additional functionalities.[[64]](#footnote-64) As was established during questioning at the Further Hearing, these ADMS costs are costs incurred in the normal course of business to provide safe, adequate and reliable service.[[65]](#footnote-65)

OCA argues Duquesne Light is attempting to bootstrap normal operating investment and expenses – incurred in the ordinary course of business and recovered through base rates – into smart meter costs recoverable through a special mechanism that accelerates recovery and limits opportunity to explore issues of reasonableness and prudence. It is mere fortuity that the Smart Meter Charge is available at the time Duquesne Light proposed to make needed upgrades to its systems.

Public Utility Code Section 2807(f)(7) addresses the recovery of costs of providing smart meter technology. The definition of “smart meter technology” is provided in 2807(g). It states, in part:

…the term “smart meter technology” means technology, including metering technology and network communications technology capable of bidirectional communication, that records electricity usage on at least an hourly basis, *including related distribution system upgrades to enable the technology.*

66 Pa.C.S. § 2807(g). (Emphasis added).

Under this definition, only the costs of distribution system upgrades that *enable* metering and network communication technology can be recovered through the Smart Meter Charge. As Duquesne Light’s testimony at the Further Hearing establishes, the ADMS is not needed to enable the smart meters. The smart meters are capable of working with the OAS. Rather this upgrade is a cost of doing business, that is, a cost an EDC must incur to provide safe, reliable and adequate service.[[66]](#footnote-66)

 OCA argues the ADMS should not be recovered through the SMC. Rather, if Duquesne Light goes forward with this project, it should seek recovery in a base rate proceeding, because the Company already receives revenues in base rates to pay for outage and distribution management. Any costs associated with the upgrades to these systems should remain in base rates because this is the standard practice for recovering these types of costs. Through base rates, operating efficiencies and associated cost reductions that accrue as a result of the investment in the ADMS will eventually flow back to customers. OCA points out that, at this time, soft benefits cannot be quantified nor is the longevity of the soft benefits quantifiable at this time. However, recovering the costs of the ADMS project as part of the base rates will allow for the forecasted soft benefits to be captured through base rates, over the same time period that the costs of the project are being collected through base rates.[[67]](#footnote-67)

Indeed, the type of costs to be incurred for ADMS are the type of normal, ongoing capital and operating expenses traditionally recovered through base rates.[[68]](#footnote-68) Moreover, if a determination of cost-effectiveness is made in this proceeding, it can only be made by incorporating the soft and difficult-to-quantify societal benefits into the analysis. Matching the recovery of costs with the occurrence of the benefits via base rates would provide a more appropriate means of recovering ADMS costs given the specific circumstances that apply here and given the uncertainty of the societal benefits. OCA contends the societal benefits appear to inure overwhelmingly to the commercial and industrial classes which raises serious questions of proper allocation of costs – a concept which can be better addressed in base rate proceedings rather than through the SMC.[[69]](#footnote-69) Accordingly, OCA submits that – in the event Duquesne Light goes forward with implementing ADMS, it should seek recovery of all of the costs of the project through base rates, not the SMC.

In summary, should the Commission disagree with OCA and decide to authorize implementation of ADMS anyway, OCA submits Duquesne Light should seek recovery of these costs through a base rate proceeding. OCA reasons that Duquesne Light already receives revenues in base rates which are intended to cover normal business operations – including outage and distribution management functions. Upgrading or replacing these management functions occurs in the regular course of business. Recovery through base rates is the standard practice for recovering these costs, and any costs associated with the upgrades to these systems should remain in base rates. Furthermore, the operating efficiencies, with the associated cost reductions that accrue as a result of the investment in the ADMS, eventually flow back to customers through base rates. Lastly, Duquesne Light has not quantified either the soft benefits or the longevity of those soft benefits. Recovering the costs of the ADMS project through the base rates will allow for the forecasted soft benefits to be captured through base rates, over the same time period that the costs of the project are being collected through base rates.[[70]](#footnote-70)

3. Citizen Power’s Position

Citizen Power questions the cost recovery of the proposed ADMS Project through the Smart Meter Charge Rider, which allocates common costs on a per meter basis as opposed to recovering ADMS costs in base rates. Duquesne Light indicated that recovering ADMS costs in base rates may be in violation of the Public Utility Code.[[71]](#footnote-71) However, Citizen Power contends that, under 66 Pa.Code § 2807(f)(7), EDCs can recover smart meter technology costs either through base rates or a reconcilable automatic adjustment clause. In this case, using base rates would be much more appropriate from the standpoint that rates should be prudent and reasonable. Duquesne Light’s proposed method of cost recovery would allocate approximately 90% of the costs to the residential class.[[72]](#footnote-72) However, based on the estimated value of reliability improvement derived from the ICE calculator, less than 2% of the societal benefits would accrue to the residential class.[[73]](#footnote-73) This extreme divergence between costs and benefits points to the propriety of allocating ADMS costs to base rates.

 4. Disposition by Administrative Law Judge

 Duquesne Light already has a basic version of both OMS and DMS because it was required to have some type of system prior to now in order to comply with the Commission’s requirements to provide safe and reliable service. In fact, the other large EDCs in Pennsylvania have implemented similar versions of the OMS and DMS but sought cost recovery for those functionalities through their respective base rates.

 Citizen Power’s argument is persuasive. Given the unquantifiable nature of estimating societal or soft benefits, these soft benefits cannot be used to calculate the cost effectiveness, especially since 90% of the costs for OMS and DMS will be borne by residential customers who will only see 2% of the benefits from these new functionalities. Duquesne Light admits it cannot quantify the benefits now. Soft benefits can be quantified better after the fact and therefore can be better recovered through a base rate proceeding when the reliability and relative costs per customer class are routinely investigated and managed.

 The decision here would be different if the costs of implementing these two functionalities (through the implementation of the ADMS and after creating the electric model) was not so high. However the Commissioners’ mandate was clear when it ordered DLC as an EDC to determine if the smart meter functionalities were cost effective. If cost effective, the Commission wanted Duquesne Light to add the functionalities and seek cost recovery through the smart meter charge. Unfortunately, the proposed implementation is not cost effective. The availability of these functionalities could be very useful but their implementation (and therefore cost recovery) cannot be made through the smart meter charge due to a failure to show cost effectiveness.

G. Recovery of Bill Ready Costs

1. Duquesne Light’s Position

In this proceeding, Duquesne Light proposes to recover the costs for implementing Bill Ready functionality through its SMC. Duquesne Light explains Bill Ready is the billing process whereby an EDC provides the EGS with usage data, receives back the total calculated EGS charges, and places those EGS charges on the joint EDC/EGS bill to the customer. Rate Ready is the billing practice whereby the EDC receives the EGS rate and the EDC calculates the EGS charges to be included on the joint EDC/EGS bill to customers. Duquesne Light contends the Commission directed EDCs to include the Bill Ready functionality as part of their smart meter plans because of the Commission’s belief that Bill Ready capabilities facilitate TOU and Real Time pricing.[[74]](#footnote-74) Implementing the Bill Ready functionality is part of Duquesne Light’s Smart Meter Plan, and Duquesne Light should be permitted to recover costs for implementing the Bill Ready functionality through its SMC.

Duquesne Light points out that OCA’s argument – that it should recover costs for implementing the Bill Ready functionality from EGSs – is contrary to the Commission’s directive to include the Bill Ready functionality in an EDC’s smart meter plan. EDCs do not recover smart meter costs from EGSs but rather recover them from all customers under Act 129. DLC contends there currently does not exist any mechanism to recover those Bill Ready costs from EGSs.

Attempting to recover Bill Ready costs from EGSs is a complex process that would need to address many issues. EGSs enter and exit the market creating uncertainty for recovery. Some EGSs may not want Bill Ready functionality for product offerings, and therefore, would not be willing to pay for Bill Ready costs. The same logic applies to EGSs who do not want consolidated billing and choose to do their own billing.[[75]](#footnote-75)

Duquesne Light points out that OCA’s argument – that Duquesne Light has not performed a cost-benefit analysis to determine if there would be a positive benefit from offering Bill Ready functionality[[76]](#footnote-76) – is an irrelevant argument because the Commission directed Duquesne Light to include Bill Ready functionality in its smart meter plan.[[77]](#footnote-77) Bill Ready functionality has been made a requirement by the Commission, and the Commission did not state that EDCs were required to perform a cost-benefit analysis before implementing the Bill Ready requirement.

2. OCA’s Position

OCA explains the essence of Bill Ready billing is to enable EGSs to: (1) take interval data from customers’ smart meters; (2) calculate the generation and transmission charges for special pricing programs that they offer (such as Time Of Use pricing); and (3) then forward those charges to Duquesne Light for the EDC to include on the bill it renders to the customer. This process contrasts with Rate Ready billing when EGSs provide their rates to the EDC and the EDC calculates customer bills using the EGS’ rate multiplied by the monthly consumption. Rate Ready billing offers EGSs no opportunity to make special pricing options available to their customers. At present, Duquesne Light offers only Rate Ready billing.[[78]](#footnote-78) Being able to provide Bill Ready billing facilitates the ability of EGSs operating in Duquesne Light’s territory to offer a greater range of products to their customers. Based on this recognition – that EGSs are the principal beneficiaries of this functionality – OCA recommended the costs to implement Bill Ready billing be recovered from the EGSs, not from the customers.

OCA contends a substantial portion of Duquesne Light’s customer base will derive no benefit from the Bill Ready functionality. OCA argues Duquesne Light ignores all of its non-shopping customers when it seeks recovery of these costs from all of its customers, whether shopping in the supply market or not. Furthermore, not all customers who do shop will avail themselves of the special rates offered by the EGSs, because many customers now prefer to remain on fixed rates that do not vary by time of use. OCA submits fundamental fairness in ratemaking requires that these costs should be borne by the entities that are the predominant beneficiaries of this capability. In this proceeding, those predominant beneficiaries are the EGSs.

3. Citizen Power’s Position

Citizen Power takes no position on this issue.

 4. Disposition by Administrative Law Judge

 Bill Ready is a billing function that is not a smart meter function, *per se*, and in that regard is not related to providing smart meters or smart meter technology to customers. Yet Bill Ready is a functionality that uses smart meter capability and was cited by the Commission in the Final *Implementation Order*. The Commission indicated that the costs of the Bill Ready functionality are related to customers who have smart meters, and Duquesne Light is correct to include this functionality in its SMP, especially since no mechanism currently exists for DLC to bill the suppliers.

 Although no mechanism is in place for DLC to “bill” suppliers for the cost of this program, this program allows EGSs to take advantage of the TOU and Real Time Pricing programs. Almost the entire benefit of having Bill Ready functionality is a benefit only the EGSs will enjoy although the cost of the function will be borne entirely by customers.

 However, DLC is correct that it was not required to do a cost-benefit analysis. In addition, although Bill Ready benefits EGSs, not EDCs, there **is** some benefit to customers. With Bill Ready, some suppliers will be able to offer competitive rates that may save customers money. The Bill Ready functionality will enable the suppliers to implement time of use (TOU) and other similar rates. To the extent Duquesne Light has customers who are willing to risk having variable rates, this functionality may encourage customers to shop and to reduce consumption. Therefore, it is appropriate and reasonable to recover these costs through the Smart Meter Charge.

H. Incremental Advanced Metering Infrastructure (AMI) Project Costs

1. Duquesne Light’s Position

Concerning the costs of the AMI project, Duquesne Light contends:

The AMI project is complex because of the system functionality, testing and operational requirements. It is important to recognize that it is very difficult to accurately forecast costs for such a significant project, especially when the project must be implemented over a number of years. The systems that are being implemented are new, complex IT systems that often require more work than anticipated to achieve the necessary functionality. In addition, costs may increase for other, unforeseen reasons. The AMI project is required by statute, and Duquesne Light should be permitted to recover all of its prudently incurred costs.[[79]](#footnote-79)

Duquesne Light argues OCA’s argument – that Duquesne Light should bear the risk for any future cost overruns related to the implementation of the AMI project beyond Duquesne Light’s contingency fund – should be denied.[[80]](#footnote-80) Duquesne Light points out OCA revised its position and stated any additional funds needed to complete its project should be subject to a prudency review when requested.[[81]](#footnote-81) Duquesne Light agrees with this position[[82]](#footnote-82) and does not believe any controversy remains regarding this issue.

2. OCA’s Position

OCA’s position with respect to the $54 million increase in AMI-related costs (unrelated to ADMS) is that – with the exception of the $7 million earmarked for the Bill Ready functionality – the increase should be approved by the Commission and recovery permitted through the SMC.[[83]](#footnote-83) These costs will enable Duquesne Light to complete implementation of the original portion of its smart meter technology program. The increase in AMI-related costs is attributed to four areas: additional hardware and software costs; higher than estimated costs for a system integrator vendor; increased internal labor costs; and higher than budgeted costs for certain outside services.[[84]](#footnote-84)

3. Citizen Power’s Position

Citizen Power takes no position on this issue.

 4. Disposition by Administrative Law Judge

 The proposed costs to cover the accelerated deployment of the smart meters are reasonable and appropriate costs which should be recovered through the SMC. Furthermore, the accelerated deployment of smart meters is a cost neutral event because the increased deployment costs will be offset by the reduced meter installation and management costs.[[85]](#footnote-85) Therefore, the $54 million in additional costs for the AMI program should be approved. Duquesne Light needs to complete the implementation of the program, and accelerated deployment is consistent with the Commission’s stated purposes for the Smart Meter Program in Pennsylvania. The cost changes are reasonable and appropriate expenses.

V. FINAL CONCLUSION OF ADMINISTRATIVE LAW JUDGE

 Duquesne Light’s petition was a complicated, amalgamated request to include in its Smart Meter Charge the acceleration of smart meter deployment, a new Bill Ready billing functionality and the implementation of a massive multi-layered functionality that would impact smart meter operation and other regulatory responsibilities. This multi-layered functionality would require a complete territory-wide mapping of Duquesne Light’s entire system before eventually overlaying an advanced automated system (i.e., ADMS) that reports outages automatically. Eventually the functionality will enable DLC to reduce capacity demand at high peak usage ties by manipulating voltage levels in its distribution system. In exchange for these new capabilities, Duquesne Light proposed spending at least $62 million more than originally permitted to spend by the Commission. Duquesne Light proposed to assess the cost of these implementations equally to its ratepayers across all rate classes even though residential customers as a rate class will carry most of the cost while receiving little of the benefit.

 Duquesne Light acknowledged at the Further Hearing that less than 100% of the cost of the installation of the ADMS is related to smart meter costs. Yet – despite specifically required by the presiding officer to present evidence that breaks out these costs as a percentage – Duquesne Light failed to present any evidence or show how much of the cost of the ADMS (which includes the costs of the OMS and DMS) is actually related to smart meter costs.

 The presiding officer essentially gave Duquesne Light a “second bite at the apple” when scheduling the Further Hearing and by specifically directing Duquesne Light to present detailed cost evidence. However, Duquesne Light’s response to the Post-Hearing Order was to present the same information presented at the Initial Hearing. In fact, the only new detailed information divulged at the Further Hearing resulted primarily from the questions asked by the presiding officer.

 Duquesne Light’s responsibility in this proceeding was to provide convincing evidence that its request for a massive increase in smart meter costs (which subsequently would be borne by all ratepayers) was a justified request. Duquesne Light failed to do so.

 It must be noted, however, that this decision to deny assessing the costs of the ADMS through the SMC is not a denial of the ADMS project. The functionalities provided by the ADMS, OMS and DMS, as outlined by Duquesne Light, will provide tools and capabilities that will permit the EDC to improve its reliability, provide more competitive opportunities for customers to save money, will likely decrease consumption and will save money for both Duquesne Light and its customers. However, seeking ADMS cost recovery through the Smart Meter Charge is the incorrect pathway for Duquesne Light to pursue.

 As modeled by the other EDCs, Duquesne Light should implement the ADMS through base rates. In base rates, the costs attributable to the various rate classes can be investigated, evaluated and appropriately allocated. Through base rates, the benefits can be quantified and validated using publically available and discernible calculation methods.

VI. CONCLUSIONS OF LAW

 1. The Commission has jurisdiction over the parties and subject matter of this proceeding pursuant to 66 Pa.C.S.A. § 2807(f), *et seq*.

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

 3. The burden of proof, also known as the burden of persuasion, imposes a duty to establish a fact by a preponderance of the evidence. *Se-Ling Hosiery v. Margulies*, 364 Pa. 45, 70 A.2d 854 (1950).

 4. The burden of proof in this proceeding is upon Petitioner, Duquesne Light Company, to establish the modifications requested to its Final Smart Meter Plan are necessary or proper for the service, accommodation, convenience or safety of the public, pursuant to 66 Pa.C.S.A. § 332(a).

 5. If a party presents evidence found to be of greater weight than the other parties, then that party will have carried its burden of proof. *See Morrissey v. Commonwealth of Pennsylvania*, 424 Pa. 87, 225 A.2d 895 (1986); *Burleson v. Pa. Pub. Util. Comm’n*, 501 Pa. 433, 436, 641 A.2d 1234, 1236 (1983); *V.J.R. Bar Corp. v. P.L.C.B.*, 480 Pa. 322, 390 A.2d 163 (1978); *Milkie v. Pa. Pub. Util. Comm’n*, 768 A.2d 1217, 1220 (Pa.Cmwlth. 2001).

6. Duquesne Light Company complied with and satisfied all requirements specified in the Pennsylvania Public Utility Commission’s *Smart Meter Procurement and Installation* Final Order, entered December 6, 2012 at Docket No. M-2009-2092655 with respect to the accelerated deployment of Smart Meters, and the Bill Ready function.

7. Duquesne Light Company failed to comply with and satisfy all requirements specified in the Pennsylvania Public Utility Commission's *Smart Meter Procurement and Installation* Final Order, entered December 6, 2012 at Docket No. M-2009-2092655 with respect to its proposed ADMS, including OMS and DMS, because the proposed ADMS is not cost effective.

8. Duquesne Light Company did not carry its burden of proof in demonstrating that the ADMS system is cost effective, and the ADMS system should not be approved as part of its Amended Smart Meter Program.

9. Duquesne Light Company did carry its burden of proof in demonstrating that the Bill Ready system should be approved as part of its Amended Smart Meter Program.

10. Act 129 of 2008 permits EDCs to fully recover the costs of providing smart meter technology, less operating and capital cost savings realized by the EDC. Act 129 permits EDCs to recover their allowable costs via a reconcilable surcharge consistent with 66 Pa. C.S. § 1307, or in its base rates. Act 129 gives EDCs the discretion to determine how to recover smart meter costs. *See* 66 Pa.C.S. § 2807(f)(7).

11. Duquesne Light may recover its smart meter costs through reconcilable automatic adjustment clauses under Section 1307. *Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123948, Order entered May 11, 2010, p. 14 (“*Duquesne Light* *2010 Smart Meter Order*”).

12. The Smart Meter Costs are to be allocated to customers based on the number of meters, not based upon benefits to each class. *Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M‑2009-2123948, Order entered May 11, 2010, at 11-12.

VII. ORDER

THEREFORE,

 IT IS ORDERED:

 1. That the Petition for Approval to Modify the Smart Meter Procurement and Installation Plan filed on August 4, 2015 is denied, in part, in that Duquesne Light Company is not authorized to implement the Automated Distribution Management System because it is not cost effective as proposed.

 2. That the Petition for Approval to Modify the Smart Meter Procurement and Installation Plan filed on August 4, 2015 is granted, in part, in that Duquesne Light Company is authorized to incur costs and implement the Bill Ready functionality and the accelerated deployment of Smart Meters.

 3. That the proceeding docketed at P-2015-2497267 shall be marked closed.

Date: October 31, 2016 /s/ Katrina L. Dunderdale

 Administrative Law Judge

Glossary of Acronyms – Attachment A

ADMS Advanced Distribution Management System

AMI Advanced Metering Infrastructure

AMR Automated Meter Reading

AVL Automatic Vehicle Location

Auto-CAD Automatic Computer Aided Design

CAIDI Customer Average Interruption Duration Index

CC&B Customer Care and Billing

CDR Capacity Demand Reduction

CSR Customer Service Representative

CVR Conservation Voltage Reduction

DAP Data Aggregation Point

DAS Distribution Automation System

DER Distribution Energy Resources

DMS Distribution Management System

DNV GL Utility’s consultant for OMS study (non-acronym)

DOC Distribution Operations Center

EDC Electric Distribution Company

EE&C Energy Efficiency and Conservation

ESC Electric Supply Company

ESRIGIS Environmental Systems Research Institute Geographical Information System

ETR Estimated Time of Restoration

FERC Federal Energy Regulatory Commission

FOCUS For Our Customers – a tool to help customers understand the billing system

FTE Full Time Employees

GIS Geographical Information System

H-ECS Head-End Collection System

ICE Interruption Cost Estimate

IVR Interactive Voice Response

LAN Local Area Network

OAS Outage Analysis System

O&M Costs Operations and Management Costs

OMS Outage Management System

PF Power Factor

PIS Plant in Service

PMO Project Management Office

PRISM Performance of Routine Information System Management

RFI Request for Information

RFP Request for Proposal

RMI Retail Market Enhancement

RTP Real-Time Pricing

SAIDI System Average Interruption Duration Index

SAIFI System Average Interruption Frequency Index

SCADA Supervisory Control And Data Acquisition

SMC Smart Meter Charge

TOU Time of Use

TRC Total Resource Cost

WAN Wide Area Network

**Attachment B**

**BEFORE THE**

**PENNSYLVANIA PUBLIC UTILITY COMMISSION**

|  |  |  |
| --- | --- | --- |
| Petition of Duquesne Light Companyfor Approval to Modify its Smart Meter Procurement and Installation Plan | **:::** | Docket No. P-2015-2497267 |

**EVIDENCE ADMITTED INTO THE RECORD**

**Duquesne Light Company Statements and Exhibits**

**1. Duquesne Light’s Petition and Amended Plan**

Duquesne Light Exhibit No. 1 - includes Petition and Duquesne Light’s Amended Smart Meter Technology Procurement and Installation Plan

**2. Direct Testimony**

Duquesne Light Statement No. 1 - Direct Testimony of Brian J. Novicki

Duquesne Light Statement No. 2 - Direct Testimony of James T. Karcher

Duquesne Light Statement No. 3 - Direct Testimony of William V. Pfrommer, including Appendix A.

**3. Supplemental Direct Testimony**

Duquesne Light Statement No. 2A – Supplemental Direct Testimony of James T. Karcher (CONFIDENTIAL JTK Exhibit 1 through JTK Exhibit 4)

Duquesne Light Statement No. 2B – Supplemental Direct Testimony of James T. Karcher (CONFIDENTIAL JTK Exhibit 5)

**4. Rebuttal Testimony**

Duquesne Light Statement No. 2-R – Rebuttal Testimony of James T. Karcher (PUBLIC and CONFIDENTIAL Versions) (Exhibits JTK 1-R through JTK 3-R)

Duquesne Light Statement No. 3-R – Rebuttal Testimony of William V. Pfrommer

**5. Rejoinder Testimony**

Duquesne Light Statement No. 2-RJ – Rejoinder Testimony of James T. Karcher

Duquesne Light Statement No. 3-RJ – Rejoinder Testimony of William V. Pfrommer

 **6. Additional Post-Hearing or Supplemental Testimony**

 Duquesne Light Statement No. 2-C – Direct Testimony of James T. Karcher

 Duquesne Light Exhibit No. 1 JTK-1PH – Confidential Exhibit of James T. Karcher

**Office of Consumer Advocate Statements and Exhibits**

**1. Direct Testimony**

OCA Statement No. 1 – Direct Testimony of Stacy L. Sherwood (PUBLIC and CONFIDENTIAL Versions) (including Attachment A and CONFIDENTIAL Exhibits SLS-1 through SLS-3)

**2. Surrebuttal Testimony**

OCA Statement No. 1-S – Surrebuttal Testimony of Stacy L. Sherwood (PUBLIC and CONFIDENTIAL Versions)

 **3. Additional Post-Hearing or Supplemental Testimony**

 OCA Statement No. 1-R – Supplemental Post Hearing Rebuttal Testimony of Stacy L. Sherwood

1. For convenience and clarity, a glossary of acronyms appearing in the decision is included after the Ordering Paragraphs. [↑](#footnote-ref-1)
2. 66 Pa.C.S.A. § 2807(f)(1). [↑](#footnote-ref-2)
3. Smart Meter Procurement and Installation, (*Implementation Order*)Docket No. M-2009-2092655, entered June 24, 2009. Also see Duquesne Light St. No. 2 at 2. [↑](#footnote-ref-3)
4. Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan, Docket No. M-2009-2123948, Order entered May 11, 2010. See also Duquesne Light St. No. 2 at 2. [↑](#footnote-ref-4)
5. Petition of Duquesne Light Company for Approval of Its Final Smart Meter Procurement and Installation Plan, Docket No. M-2009-2123948, Order entered May 6, 2013. See also Duquesne Light St. No. 2 at 2). [↑](#footnote-ref-5)
6. Duquesne Light St. No. 2 at 3. [↑](#footnote-ref-6)
7. 66 Pa.C.S.A. § 332(a). [↑](#footnote-ref-7)
8. Samuel J. Lansberry, Inc. v. Pa. Pub. Util. Comm’n, 578 A.2d 600 (Pa.Cmwlth. 1990), alloc. den., 602 A.2d 863 (Pa. 1992). [↑](#footnote-ref-8)
9. Se-Ling Hosiery v. Margulies, 70 A.2d 854 (Pa. 1950). [↑](#footnote-ref-9)
10. Se-Ling Hosiery v. Margulies, 364 Pa. 45, 70 A.2d 854 (1950). [↑](#footnote-ref-10)
11. Morrissey v. Commonwealth of Pennsylvania, 424 Pa. 87, 225 A.2d 895 (1986); Burleson v. Pa. Pub. Util. Comm’n, 501 Pa. 433, 436, 641 A.2d 1234, 1236 (1983); V.J.R. Bar Corp. v. Pa. Liq. Control Bd., 480 Pa. 322, 390 A.2d 163 (1978); Milkie v. Pa. Pub. Util. Comm’n, 768 A.2d 1217, 1220 (Pa.Cmwlth. 2001). [↑](#footnote-ref-11)
12. Duquesne Light St. No. 2-R at p. 6. [↑](#footnote-ref-12)
13. Duquesne Light Exhibit JK 1-R. [↑](#footnote-ref-13)
14. Duquesne Light Exhibit JK 2-R. [↑](#footnote-ref-14)
15. Duquesne Light St. No. 2-R at 7. [↑](#footnote-ref-15)
16. OCA St. No. 1 at 14. [↑](#footnote-ref-16)
17. Duquesne Light St. No. 2-R at 8. [↑](#footnote-ref-17)
18. OCA St. No. 1 at 12. [↑](#footnote-ref-18)
19. Duquesne Light St. No. 2-R at 8. [↑](#footnote-ref-19)
20. In this proceeding, the additional $54 million of non-ADMS related costs are referred to as Advanced Metering Infrastructure or AMI project costs. [↑](#footnote-ref-20)
21. *Petition of Duquesne Light Company for Approval of Its Final Smart Meter Procurement and Installation Plan*, Docket No. M-2009-2123948, Order entered May 6, 2013. [↑](#footnote-ref-21)
22. It should be noted that DNV GL used a proprietary formula which was not made available to the presiding officer. It is unknown what specific factors were considered or weighted in the formula. [↑](#footnote-ref-22)
23. Despite the presence of a Protective Order herein, the proprietary formula was never provided to the presiding officer or to the parties, although the factors considered by DNV GL were provided by Duquesne Light to OCA through discovery, due to the fact the formula was a unique work product of DNV GL. [↑](#footnote-ref-23)
24. OCA St. No. 1 at 11. [↑](#footnote-ref-24)
25. Duquesne St. No. 2-R at 8. [↑](#footnote-ref-25)
26. OCA St. No. 1 at 12. [↑](#footnote-ref-26)
27. OCA St. No. 1 at 13; OCA Exhibit SLS-2. [↑](#footnote-ref-27)
28. Ms. Sherwood’s analysis used a low end estimate of the projected lifetime incremental O&M costs. [↑](#footnote-ref-28)
29. It should be noted that according to OCA witness Sherwood’s analysis, even if the $6 million of societal benefits are utilized in the evaluation, benefits will not exceed costs until the year 2034.

 [↑](#footnote-ref-29)
30. OCA St. No. 1at 14. [↑](#footnote-ref-30)
31. Tr. at 171-172. [↑](#footnote-ref-31)
32. Tr. at 159-160. [↑](#footnote-ref-32)
33. Duquesne St. No. 2A; Duquesne JTK Exh. 4 at 1. (Emphasis added). [↑](#footnote-ref-33)
34. Duquesne Light JTK Exh. 4 at 2. [↑](#footnote-ref-34)
35. Duquesne Light St. No. 2-R at 4-7. [↑](#footnote-ref-35)
36. Michael J. Sullivan, Josh Schellenberg, and Marshall Blundell, *Updated Value of Service Reliability Estimates for Electric Utility Customers in the United States*, Ernest Orlando Lawrence Berkeley National Laboratory, January 2015, 48. [↑](#footnote-ref-36)
37. OCA St. 1-S at 2. [↑](#footnote-ref-37)
38. Duquesne Light St. No. 2-RJ at 2. [↑](#footnote-ref-38)
39. Although the results of the ICE Calculator are not equivalent to Duquesne Light’s study, the ICE Calculator’s results are representative of the how the benefits will be allocated by customer class. [↑](#footnote-ref-39)
40. OCA St. No. 1-S at 4. [↑](#footnote-ref-40)
41. Ms. Sherwood refers to this in her Surrebuttal Testimony, OCA St. 1-S at 5. *Also see,* Energy Efficiency and Conservation Program, Docket No. M‑2008‑2069887 (Order entered January 16, 2009). [↑](#footnote-ref-41)
42. Duquesne Light Petition at 13, § 35. [↑](#footnote-ref-42)
43. Duquesne Light Petition at 17, § 44; Duquesne Light Petition at 13, § 35. [↑](#footnote-ref-43)
44. Duquesne Light Petition at 14, § 37. [↑](#footnote-ref-44)
45. Duquesne Light Petition at 15, § 40. [↑](#footnote-ref-45)
46. Duquesne Light St. No. 2 at 12-13. [↑](#footnote-ref-46)
47. Duquesne Light Petition at 14, § 37. [↑](#footnote-ref-47)
48. Duquesne Light St. No. 2-R at 4-7. [↑](#footnote-ref-48)
49. OCA St. 1-S at 5. [↑](#footnote-ref-49)
50. OCA Exhibit SLS-3. [↑](#footnote-ref-50)
51. OCA Exhibit SLS-3.

 [↑](#footnote-ref-51)
52. *Implementation Order* at 16, 30. [↑](#footnote-ref-52)
53. 66 Pa.C.S.A. § 2807(f)(7). [↑](#footnote-ref-53)
54. *Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan,* Docket No. M-2009-2123948, Order entered May 11, 2010, at 14. [↑](#footnote-ref-54)
55. *Implementation Order* at 9. [↑](#footnote-ref-55)
56. OCA St. No. 1-S at 4. [↑](#footnote-ref-56)
57. Duquesne Light St. No. 3-RJ at 2. [↑](#footnote-ref-57)
58. In its 2010 Order approving Duquesne Light’s Initial Smart Meter Plan, the Commission stated as follows: “With regard to allocation of common costs, we agree with the positions set forth by Duquesne, DII and OSBA that the allocation of common costs should be based upon the number of meters in each group. It is our intention that the costs of the meter data management system, the information technology investments, the communications network and the support and management activities of the Plan, and other common costs be allocated to the customer classes based upon the extent to which these investments and services enable customers to participate in the smart meter program. Since the size of the network needed to reach the meters and the size of the system used to store meter data is most closely reflected by the number of meter locations that have to be connected, we find that common costs should be allocated based on the number of meters connected to the system. Even if we were to adopt OCA’s position that common costs should be allocated based on the conservation and load management benefits realized by the customers in each rate class, an allocation based on customer energy consumption and demand would not reflect those incremental benefits.” *Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123948, Order entered May 11, 2010. [↑](#footnote-ref-58)
59. Duquesne Light St. No. 3 at 5-6. [↑](#footnote-ref-59)
60. Duquesne St. No. 2C at 5; Tr. at 91-92. *See also* Tr. at 96-98. [↑](#footnote-ref-60)
61. Tr. at 98. [↑](#footnote-ref-61)
62. Tr. at 145, 146. [↑](#footnote-ref-62)
63. Tr. at 75.

 [↑](#footnote-ref-63)
64. Duquesne Light did not provide a breakdown of ADMS costs that are smart meter-related and those that are not. As indicated, above, in response to the first question in the Post-Hearing Order, the Company asserted all of the costs of ADMS are smart-meter related. Duquesne St. No. 2C at 5; Tr. at 91-92. [↑](#footnote-ref-64)
65. Tr. at 144-148. [↑](#footnote-ref-65)
66. Tr. at 98. [↑](#footnote-ref-66)
67. OCA St. No. 1 at 16. [↑](#footnote-ref-67)
68. See, e.g., Petition of Duquesne Light Company for Authorization to Defer Expenses for Accounting Purposes Only, Docket No. P-2012-2333760 (Order entered April 17, 2013). [↑](#footnote-ref-68)
69. OCA St. No. 1-S at 3-4. [↑](#footnote-ref-69)
70. OCA St. No. 1 at 16. [↑](#footnote-ref-70)
71. Duquesne Light St. 3-R at 2. [↑](#footnote-ref-71)
72. OCA St. 1-S at 4. [↑](#footnote-ref-72)
73. Duquesne Light Exhibit JK 2-R at 2. [↑](#footnote-ref-73)
74. *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655, Final Order entered December 6, 2012, at 10. [↑](#footnote-ref-74)
75. Duquesne Light St. No. 3-R at 5. [↑](#footnote-ref-75)
76. OCA St. No. 1-S at 8. [↑](#footnote-ref-76)
77. *Final Smart Meter Installation Order* at 10. [↑](#footnote-ref-77)
78. OCA St. No. 1 at 18. [↑](#footnote-ref-78)
79. Duquesne Light St. No. 3-R at 3-4. [↑](#footnote-ref-79)
80. OCA St. No. 1 at 17. [↑](#footnote-ref-80)
81. OCA St. No. 1-S at 8. [↑](#footnote-ref-81)
82. Duquesne Light St. No. 3-RJ at 3. [↑](#footnote-ref-82)
83. OCA St. No. 1 at 16. [↑](#footnote-ref-83)
84. Duquesne Light St. No. 1 at 7-8. [↑](#footnote-ref-84)
85. Duquesne Light St. No. 1 at 4, 5. [↑](#footnote-ref-85)