

Appendix Tab 1

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DUQUESNE LIGHT COMPANY
FINAL SMART METER TECHNOLOGY
PROCUREMENT AND INSTALLATION PLAN

Docket Nos. P-2012-_____
M-2009-2123948

Date: June 29, 2012

Duquesne Light Company – Final Smart Meter Plan

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I. EXECUTIVE SUMMARY

Duquesne Light Company (“Duquesne Light” or the “Company”) filed its Initial Smart Meter Procurement and Installation Plan (“Initial Smart Meter Plan”) with the Pennsylvania Public Utility Commission (“Commission”) on August 14, 2009. As part of the Initial filing, Duquesne Light received Commission approval to upgrade its customer information system and install a meter data management system. This project is known as the FOCUS Project. The new and replacement systems under the FOCUS Project are necessary in order for Duquesne Light to provide smart meter technology to customers. In addition, Duquesne Light received Commission approval to further develop a Final Smart Meter Procurement and Installation Plan to be filed with the Commission by December 31, 2011 (“Final Smart Meter Plan” or “Plan”). This date was subsequently extended to June 30, 2012 upon the request of the Company.

This filing constitutes Duquesne Light’s Final Smart Meter Plan. Below, Duquesne Light has:

- (1) Explained the steps that it has taken to develop this Plan during the Grace Period;
- (2) Provided an overview of the FOCUS Project;
- (3) Explained the Company’s Advanced Metering Infrastructure (“AMI”) Project which includes smart meters, the Local Area Network (“LAN”), the Wide Area Network (“WAN”) and the Head End Collection Engine;
- (4) Explained its plans for IT systems;
- (5) Described the AMI system capabilities;
- (6) Explained its proposed deployment schedule;
- (7) Summarized the Smart Meter Program costs and cost recovery mechanism;
- (8) Explained the Company’s Customer Education and Acceptance Strategy; and
- (9) Explained the Company’s Risk Mitigation Strategies.

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As explained herein, Duquesne Light's Final Smart Meter Plan will meet all of the requirements of Act 129, the additional requirements set forth in the *Implementation Order* and provides smart meter technology to customers in a cost-effective manner. *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655, *Implementation Order* entered June 24, 2009 ("*Implementation Order*").

Under Duquesne Light's Final Smart Meter Plan, Duquesne Light proposes to install Itron Smart Meters for all customers. The Itron Smart Meters will be connected by a Local Area Network ("LAN") that collects data from the meters and transmits it through a Wide Area Network ("WAN") to a Head End Data Collection Engine. These four components will constitute Duquesne Light's Advanced Metering Infrastructure ("AMI") system. As explained herein, Duquesne Light's AMI system will provide a technology architecture that enables the six minimum capabilities of Act 129 and the nine additional capabilities identified by the Commission in its Smart Meter Implementation Order.

Duquesne Light proposes to deploy Smart Meters to customers over a seven-year period. This includes a two-year ramp up period to allow time for the Company to test its AMI system, followed by a deployment schedule of 9,000 meters per month, with full deployment of smart meters across the Company's service territory by 2020, three years ahead of the statutory time period under Act 129. In addition, Duquesne Light proposes to phase-in meter functionalities from 2013-2017. The phase-in approach will allow the market for many of the advanced smart meter capabilities to become more mature over time.

Duquesne Light estimates that the total cost of its Smart Meter Program will be approximately \$238 million. This includes costs for both the FOCUS and AMI projects within the Smart Meter Program. In its Initial Smart Meter Filing, Duquesne Light estimated that its Smart Meter Program could cost between \$152 million and \$262 million to implement. Duquesne Light's current estimate of its Smart Meter Program cost is within the range originally identified by the Company and is \$24 million lower than the high end of its original estimate.

In the Company's Initial Smart Meter filing, the Commission approved, with certain modifications, Duquesne Light's request to recover its smart meter costs through a fully

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recoverable Smart Meter Charge (“SMC”). In this proceeding, Duquesne Light is proposing to continue to recover its smart meter costs through its Commission-approved SMC.

In addition, Duquesne Light is proposing a detailed, comprehensive Customer Education and Acceptance (“CEA”) strategy to educate customers, stakeholder groups and employees about the Company’s Smart Meter Program and its benefits. Duquesne Light is basing its CEA strategy on successful programs used by other utilities across the country. Duquesne Light believes that its CEA strategy is a vital component of its Final Smart Meter Plan.

As with all large, multi-year, multi-million dollar technology projects, the Company recognizes the multitude of risks inherent in a Smart Meter Program of this magnitude. Therefore, Duquesne Light has developed a broad set of risk mitigation strategies to minimize any potential negative impact of these risks on the program.

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II. BACKGROUND

Duquesne Light is a public utility as that term is defined under Section 102 of the Public Utility Code, 66 Pa. C.S. § 102, certificated by the Commission to provide electric service in the City of Pittsburgh and in Allegheny and Beaver Counties in Pennsylvania.

On October 15, 2008, Governor Rendell signed into law Act 129 of 2008, which took effect on November 14, 2008 and, *inter alia*, mandated a smart meter procurement and installation program. See 66 Pa. C.S. § 2807(f), et seq. (“Act 129”). Act 129 provides, among other things, that each Pennsylvania EDC with at least 100,000 customers is required to provide smart meter technology to customers in accordance with a schedule not to exceed 15 years. Act 129 defines smart meter technology as follows:

(g) Definition. – As used in this section, 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 electric distribution system upgrades to enable the technology. The technology shall provide customers with direct access to and use of price and consumption information. The technology shall also:

(1) Directly provide customers with information on their hourly consumption.

(2) Enable time-of-use rates and real-time price programs.

(3) Effectively support the automatic control of the customer's electricity consumption by one or more of the following as selected by the customer:

(i) the customer;

(ii) the customer's utility; or

(iii) a third party engaged by the customer or the customer's utility.

66 Pa. C.S. § 2807(g).

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The Commission adopted its *Smart Meter Implementation Order* on June 18, 2009, outlining its guidance for an EDC's Smart Meter Procurement and Installation program pursuant to Act 129. The *Implementation Order* established the standards that each plan must meet and provided guidance on the procedures to be followed for submittal, review and approval of all aspects of each smart meter plan. Additionally, upon the recognition that it will take time to fully develop and install the entire smart meter network, the Commission granted a grace period of 30 months following plan approval ("Grace Period") for EDCs to assess needs, select technology, secure vendors, train personnel, install and test support equipment and establish a detailed meter deployment schedule.

In the *Implementation Order*, the Commission identified six minimum functionalities that EDC smart meter systems must provide under Act 129. These six minimum functionalities are:

1. Bidirectional data communications.
2. Reading usage data on at least an hourly basis once per day.
3. Providing customers with direct access to and use of price and consumption information.
4. Providing customers with information on their hourly consumption.
5. Enabling time-of-use ("TOU") rates and real-time price options.
6. Supporting the automatic control of the customers' electric consumption.

Implementation Order, pp. 29-30.

In addition, the Commission stated that each Plan filing should include an analysis of the individual incremental costs for deploying and operating the following nine additional smart meter technology capabilities:

1. Ability to remotely disconnect and reconnect.
2. Ability to provide 15-minute or shorter interval data to customers, EGSs, third-parties and an RTO on a daily basis, consistent with the data availability, transfer and security standards adopted by the RTO.
3. On-board meter storage of meter data that complies with nationally recognized non-proprietary standards such as ANSI C12.19 and C12.22 tables.

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4. Open standards and protocols that comply with nationally recognized non-proprietary standards, such as IEEE 802.15.4.
5. Ability to upgrade these minimum capabilities as technology advances and becomes economically feasible.
6. Ability to monitor voltage at each meter and report data in a manner that allows an EDC to react to the information.
7. Ability to remotely reprogram the meter.
8. Ability to communicate outages and restorations.
9. Ability to support net metering of customer-generators.

Implementation Order, p. 30.

In the *Implementation Order*, the Commission further noted that it may waive the additional requirements for an EDC if the requirements are not cost-effective.

On August 14, 2009, Duquesne Light filed its Initial Smart Meter Plan with the Commission. In its Initial Smart Meter Plan, the Company, among other things: (1) provided a description of its current metering system, (2) explained how it would address customer requests for smart meters and installation of smart meters in new construction during the grace period, (3) explained its approach for developing a Final Smart Meter Plan within the 30-month grace period, (4) proposed a milestone and status reporting schedule during the grace period, (5) provided an estimated budget for grace period budget, and (6) proposed a cost recovery mechanism for recovering smart meter costs.

On May 11, 2010, the Commission approved Duquesne Light's Initial Smart Meter Plan, with certain modifications. *Petition of Duquesne Light Company for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123948. In summary, the Commission approved Duquesne Light's proposal to recover its smart meter costs through a reconcilable cost recovery mechanism, and set forth the details of how this mechanism would work. In addition, the Commission approved the Company's proposed smart meter implementation schedule, which the Company explained was subject to change. The

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Commission also approved the Company's proposed milestone filing dates, and the Company's proposal to file a Final Smart Meter Plan by December 31, 2011.

On July 1, 2010, the Company filed a Cost Benefit Analysis for the additional smart meter capabilities identified in the *Implementation Order*. Therein, the Company provided a detailed evaluation of the costs to implement each of the nine additional smart meter capabilities identified in the *Implementation Order*, the potential benefits of implementing these additional capabilities and the Company's recommendations regarding whether it should be required to implement these additional capabilities. In the July 1, 2010 filing, Duquesne Light explained that its cost-benefit analysis was a preliminary analysis based upon information that was available at the time. Duquesne Light requested that the Commission defer ruling on whether Duquesne Light should implement the additional smart meter capabilities at that time. Duquesne Light further explained that it would have a better estimate of its smart meter costs at a later time and that the Company would provide a refined project budget and cost estimates in its Final Smart Meter Plan filing.

On December 29, 2010, Duquesne Light filed its Application for Approval of Assessment of Needs, Technology Solutions and Vendor Selection ("Assessment Application"). In summary, in the Assessment Application, Duquesne Light proposed to replace its existing Automated Meter Reading ("AMR") system with a new AMI system that would provide two-way communication between the meter and the Company and would comply with all requirements of Act 129 and the Commission's *Implementation Order*. In the Assessment Application, the Company requested that the Commission issue an order approving: (1) the procedure used to evaluate and select a primary AMI vendor, (2) the Company's Assessment of Needs, (3) the Technology Section of RF mesh and associated findings, (4) the selection of the Company's Primary AMI vendor, (5) updated cost projections for the entire Smart Meter Project and Deployment, and (6) any other approvals that the Commission deemed to be necessary.

On January 31, 2011, the Company filed a Supplement to its Assessment Application. In the Supplement, Duquesne Light identified Itron, Inc. ("Itron") as its recommended primary contractor to design, construct, implement and oversee the Company's Smart Meter program.

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The Company explained that it had issued bids for smart meter contractors and received four bids. Iron scored the highest on a technical evaluation of the bids and provided the lowest cost solution of the four bidders. In the Supplement, Duquesne Light requested Commission approval of the initial Assessment Application and Supplement. No party objected to the Company's Assessment Application or its Supplement. The Commission did not issue an Order with respect to the Assessment Application or the Supplement thereto.

On March 31, 2011, the Company filed its Establishment of Network Design for the Duquesne Light Smart Meter Program ("Network Design") with the Commission. Therein, the Company explained that it had conducted a study to review the Company's existing communication infrastructure, review network and communication infrastructure necessary for the AMI and also review available private and public wireless communications solutions. Specifically, the Company evaluated:

- Operating Frequencies Available in its Service Territory;
- Radio Technologies/Vendors;
- Solution Cost (up front and ongoing)
- Expected capacity, bandwidth, latency and reliability of each option;
- Security provisions (public versus private wireless communications); and
- Advantages and disadvantages of available solutions.

The initial Network Design conclusions supported the use of private wireless options as the primary communication methodologies, with public wireless as a backup communication. The Company also noted that further analysis was necessary to finalize the Network Design Study conclusions and that the proposed design was subject to change based on further findings or in the event that other viable technologies would become available.

On June 30, 2011, the Company made an additional milestone filing related to the design, testing and certification of Electronic Data Interchange ("EDI") transactions. Therein, Duquesne Light explained that it would be able to provide customers with direct access to non-validated real time data directly from the smart meter through a residential customer's Home Area Network (HAN).

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Validated hourly interval data would be provided through a secure web portal within 24 hours from the completion of the data upload for the entire population of Duquesne Light's smart meters to the MDM systems. Additionally, non-validated, real time data would be provided to third parties through a secure, authenticated connection at the expense of the third party. Validated hourly interval data would be provided to third parties through a standard interface consistent with the North American Energy Standards Board within 24 hours of the completion of the data upload for the entire population of Duquesne Light's smart meters to the MDM systems. Finally, the Company would provide EDI access to smart meter data to authorized commercial operators, such as conservation service providers and electric generation suppliers ("EGS") using the 867 historical interval usage transaction.

On October 6, 2011, the Company filed an Installation, Testing and Rollout of Support Equipment and Software Update filing. The purpose of the October 6 update filing was to outline the equipment testing that the Company planned to conduct prior to deploying AMI meters across its service territory.

On November 2, 2011, the Company filed a status update related to its Establishment of Plans for Installation of Meters and Outside Communications and Training. Therein, the Company provided an overview of its smart meter deployment plan, a high level Smart Meter Program Schedule and Milestones, and an overview of its Staff Training Plan.

On November 18, 2011, the Company filed a status update with respect to its Smart Meter Plan and further requested a six month extension, from December 31, 2011 to June 30, 2012, to file the Company's Final Smart Meter Plan. With respect to the status update, the Company provided a summary of the work that it had done in the previous 18 months. In addition, the Company noted that there were several smart meter issues that it was still reviewing.

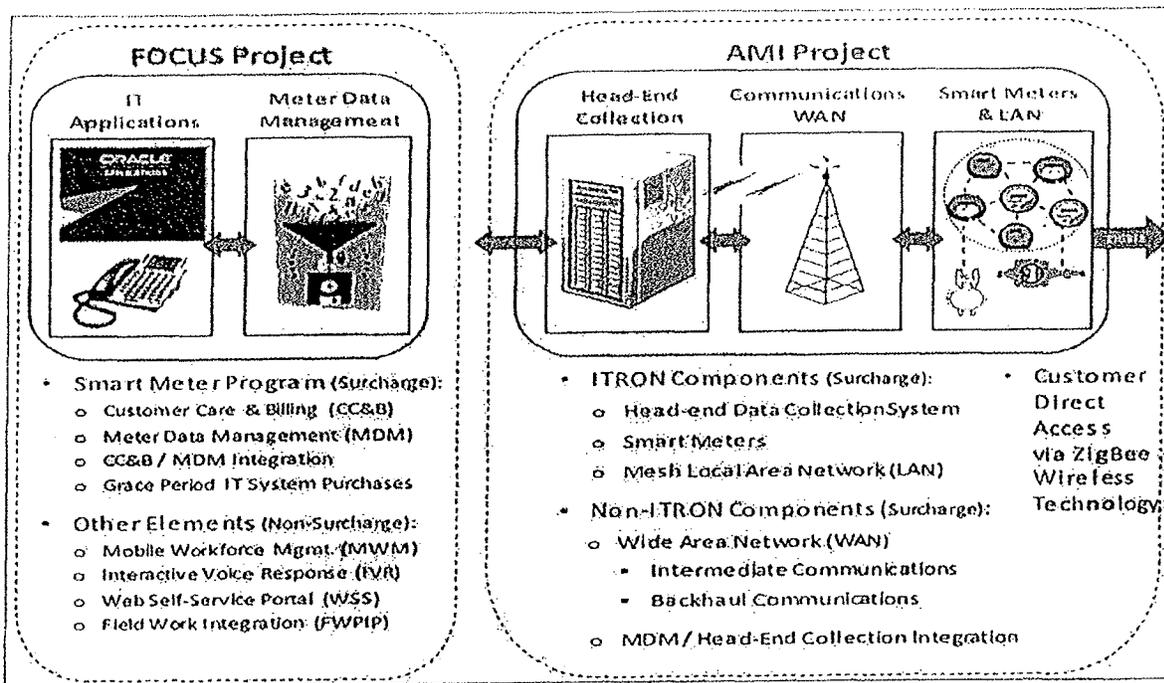
On December 13, 2011, the Commission issued a Secretarial Letter granting the Company's request for an extension, until June 30, 2012, to file its Final Smart Meter Plan. Pursuant to the Commission's December 13, 2011 Secretarial Letter, Duquesne Light hereby files its Final Smart Meter Plan.

III. FINAL SMART METER PLAN

A. INTRODUCTION

Duquesne Light’s Smart Meter Program consists of two major projects, FOCUS and AMI. Diagram #1 provides a high-level overview of the scope of Duquesne’s Smart Meter Program.

Diagram # 1: Duquesne Smart Meter Program – Two Major Projects



Under the FOCUS project, Duquesne Light is replacing its customer information system with a Customer Care and Billing (“CC&B”) system and is implementing a new Meter Data Management (“MDM”) system. The Commission approved the upgrade of these Information Technology (“IT”) systems in the Company’s Initial Smart Meter Plan. The upgrade of these IT systems is necessary in order for Duquesne Light to provide smart meter technology to customers.

Under the AMI project, Duquesne Light will install Itron smart meters, develop necessary communication networks and install a head-end data collection engine for smart meter data. In addition, Duquesne Light will hire a systems integrator to integrate all of the separate

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components of the Company's Smart Meter Program. This is a critical function in order to ensure seamless operation of the AMI system.

As explained below, Duquesne Light proposes to deploy its AMI System over a seven-year period. The seven-year period includes a two-year ramp up period to allow systems testing before they are implemented on a broader scale. At the end of the two-year ramp up period, the Company proposes a deployment schedule of 9,000 meters per month with full deployment by the end of 2020. In addition, the Company proposes to phase-in AMI functionalities over time to allow the markets for these functionalities to become more mature. The Company's AMI System will meet all of the requirements of Act 129 and provide all of the additional capabilities set forth in the Commission's *Implementation Order*, after all functionalities are phased-in.

The total Smart Meter Program will cost approximately \$238 million. The Company has provided additional details regarding these costs herein. In addition, the Company proposes to continue to recover its smart meter costs through its SMC.

These topics are discussed in more detail below.

B. FOCUS PROJECT

In its *Implementation Order*, the Commission recognized that a fully functional smart meter involved more than just the meter hardware attached to the customer's premises. *Implementation Order*, p. 6. Therein, the Commission stated as follows:

A fully functional smart meter that supports the capabilities required by Act 129 and as outlined below, involves an entire network, to include the meter, two-way communication, computer hardware and software, and trained support personnel.

Consistent with this direction from the Commission, Duquesne Light explained in its Initial Smart Meter filing that it was required to replace its billing, data collection and back-office systems in order to provide smart meter technology to customers. This project is called the FOCUS Project.

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The FOCUS project encompasses significant upgrades to the Company's existing IT system architecture in order to provide the back-office foundation necessary to successfully deploy smart meters. Duquesne Light's current customer information system ("CIS") is adequate for sustaining existing business requirements, but is insufficient for meeting Act 129 and the Commission's *Implementation Order* Smart Meter requirements. Functionality enhancements such as TOU rates, real-time price programs, remote disconnect and reconnect, direct access to price and consumption information, and the automatic control of customer's electric consumption cannot be supported without replacing Duquesne Light's existing CIS. Furthermore, Duquesne Light's existing back-office IT architecture is not designed for the proliferation of data inherent in providing hourly or even more granular interval usage information to all of our customers on a daily basis. Therefore, in conjunction with replacing our CIS, Duquesne Light must implement an MDM system as well as integrate this new system with the replacement CIS.

As part of FOCUS project scope within Duquesne Light's Smart Meter Program, the Company is now implementing the Oracle Customer Care and Billing ("CC&B") module within the Utility Application Suite to replace our existing CIS. In addition, Duquesne Light has purchased the Oracle MDM module and is currently implementing this component of the Utility Application Suite as well as integrating it with CC&B as a part of the FOCUS project. The implementation and integration of these two modules provides the necessary IT system foundation components to support the subsequent extension of this architecture for AMI system capabilities. The FOCUS project is an integral part of Duquesne Light's Plan for meeting Act 129 and the Commission's *Implementation Order* requirements.¹

The FOCUS project started in July 2010 after Commission approval of the Company's Initial Smart Meter Plan and is projected to be completed by the end of the second quarter of 2013. There are five general phases during the FOCUS project lifecycle and timeline is as follows:

¹ The FOCUS project also includes several supporting scope components that are not part of Duquesne Light's Smart Meter Program. Some of these more significant components include the implementation of the Oracle Mobile Workforce Management ("MWM") module as well as its integration with CC&B, the replacement of our existing Interactive Voice Response ("IVR") system, and the redesign of our Outage Analysis System ("OAS") and Web Portal ("WSS") to work with CC&B.

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- Discovery (Define Scope): July 2010 to November 2010
- Analysis (Gather Requirements): December 2010 to August 2011
- Assembly (Design & Build): August 2011 to May 2012
- Acceptance (Test & Train): June 2012 to March 2013
- Deployment (Go-Live & Support): April 2013 to June 2013

C. AMI PROJECT

1. Introduction

There is a growing demand for sophisticated metering (e.g., net metering), meter data management and price responsive rates as customers have a greater interest in reducing their electric bill. These new demands and requirements cannot be met with Duquesne Light's current meter and system infrastructure.

Pursuant to the milestones detailed in the Company's Initial Smart Meter Plan, Duquesne Light filed an assessment of its AMI technology requirements and potential solutions on December 29, 2010. In this filing, Duquesne Light describes the comprehensive process it undertook with its AMI advisor, SAIC, Inc. ("SAIC") (formerly R. W. Beck), to assess its current AMR technology environment as well as explicitly document the Company's requirements for a future AMI technology environment in the form of a formal Request for Proposal (RFP). The December 2010 filing also described the rigorous RFP process that the Company followed with its AMI advisor to create a short-list of two AMI vendors with similar solutions that best addressed Duquesne Light's needs ranked exclusively on technical merit. In a supplemental filing submitted on January 31, 2011, Duquesne Light advised the Commission concerning the selection of ITRON's OpenWay solution as the most cost effective AMI system for addressing its needs.

In the first step of defining the AMI project scope, a technology needs assessment was performed to identify the necessary AMI requirements to minimally meet ACT 129 smart meter requirements, as well as the additional requirements outlined in the Commission's *Implementation Order*. The requirements assessment was performed by outlining the current

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state of Duquesne Light's technology, including AMR and back-office supporting systems, either currently installed, or planned for installation, that would either directly or indirectly integrate with AMI during the Smart Meter deployment phase. By understanding the current environment, AMI requirements could be defined and outlined in a detailed RFP which would ensure that the solutions AMI vendors proposed succinctly addressed Duquesne Light's needs.

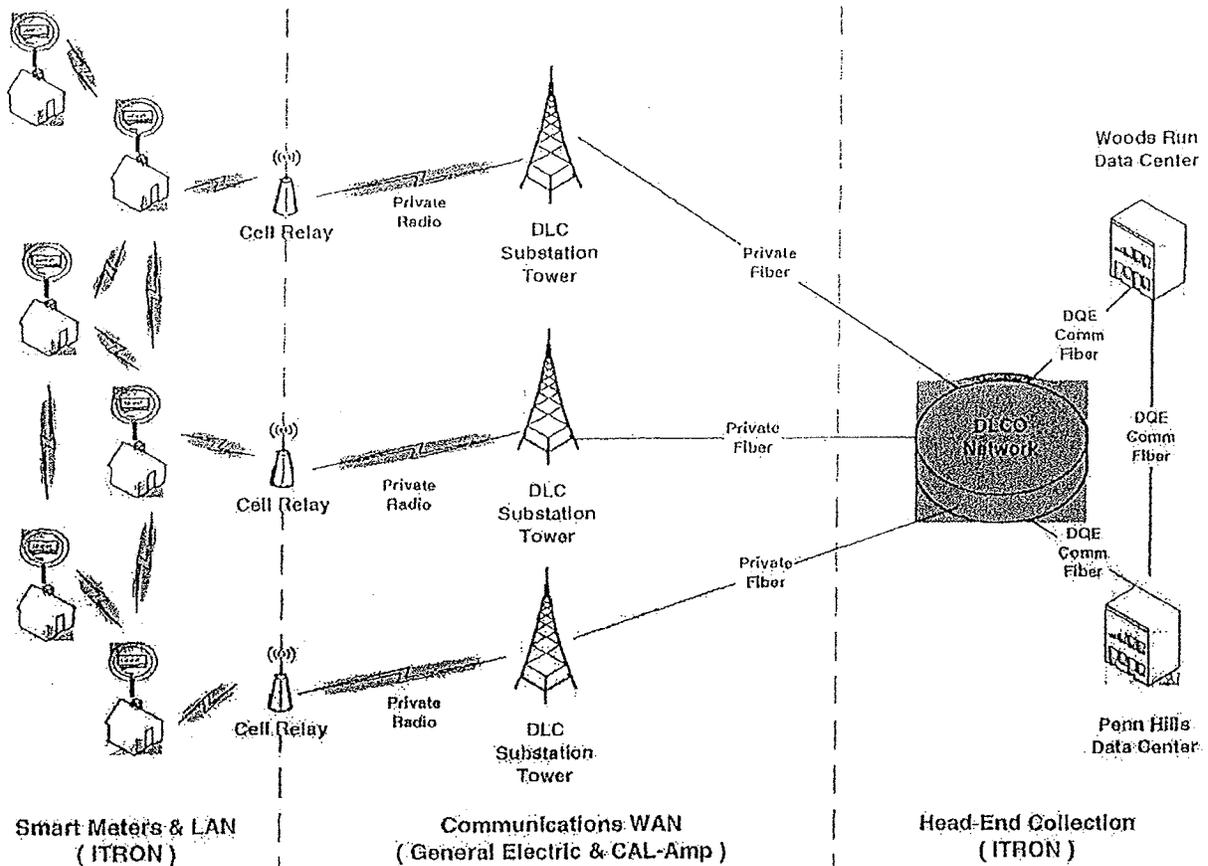
Duquesne Light's proposed AMI solution includes four components. These four components are:

- Smart Meters
- Local Area Network
- Wide Area Network
- Head End Data Collection Engine

Diagram 2 below provides an overview of the AMI System Components.

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Diagram # 2: Duquesne AMI System Architecture



Duquesne Light plans to replace all existing AMR meters with new smart meters that will provide two-way communication between each customer premise and the utility. All single phase meters will be equipped with ZigBee² data channels to enable customers direct access to interval usage data, and provide a platform for future HAN applications. The selected AMI solution is capable of providing interval data for all meters, and single phase meters will be equipped with an internal switch for remote connections and disconnections.

² ZigBee is a commonly used communication specification for advanced metering systems. ZigBee has the ability to link smart meters with devices such as thermostats, household appliances, HVAC and other equipment that uses electricity.

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2. Smart Meters

Duquesne Light proposes to install ITRON smart meters for all customers. The ITRON Smart Meters include the latest advanced metering technology, including bidirectional data communications, ZigBee direct access capabilities and a remote connect/disconnect switch. The ITRON smart meters and related advanced metering infrastructure discussed below will meet all of the six minimum smart meter requirements set forth under Act 129, including:

1. Bidirectional data communications.
2. Reading usage data on at least an hourly basis once per day.
3. Providing customers with direct access to and use of price and consumption information.
4. Providing customers with information on their hourly consumption.
5. Enabling TOU rates and RTP options.
6. Supporting the automatic control of the customers' electric consumption.

In addition, the ITRON Smart Meters and related advanced metering infrastructure will meet all of the nine additional smart meter requirements set forth in the *Implementation Order*, including:

1. Ability to remotely disconnect and reconnect.
2. Ability to provide 15-minute or shorter interval data to customers, EGSs, third-parties and an RTO on a daily basis, consistent with the data availability, transfer and security standards adopted by the RTO.
3. On-board meter storage of meter data that complies with nationally recognized non-proprietary standards such as ANSI C12.19 and C12.22 tables.
4. Open standards and protocols that comply with nationally recognized non-proprietary standards, such as IEEE 802.15.4.
5. Ability to upgrade these minimum capabilities as technology advances and becomes economically feasible.
6. Ability to monitor voltage at each meter and report data in a manner that allows an EDC to react to the information.
7. Ability to remotely reprogram the meter.

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8. Ability to communicate outages and restorations.
9. Ability to support net metering of customer-generators.

Further explanation regarding how Duquesne Light's AMI system will meet all of the six minimum smart meter requirements set forth under Act 129 and will meet all of the nine additional smart meter requirements set forth in the *Implementation Order* is provided in Section E below. In addition, the specific technical capabilities of the ITRON smart meters, including the AMI standards supported by the ITRON smart meters are set forth in Appendix A.

3. Mesh or Local Area Network ("LAN")

The LAN consists of the transmission of data between ITRON smart meters and ITRON cell relays. The LAN has the following features:

- An RF mesh based solution that is capable to being Upgraded to an IPv6 based mesh solution
- Bi-directional communication
- Operates in the unlicensed 900 MHz band
- 902-928 MHz Bandwidth (with frequency hopping signaling)
- Supports 142-153 kilobits per second ("kbps") throughput
- Each cell relay supports up to approximately 2,000 meters
- Support of IP and native DNP protocols when running the full IPv6 solution

4. Wide Area Network ("WAN")

The WAN provides data communications between the LAN and the Head-End data collection system. A diagram of the AMI system architecture, including the WAN, is shown on Diagram 2 above.

The solution for the WAN component of the AMI system was determined with the assistance of SAIC. Pursuant to the milestones detailed in the Company's Initial Smart Meter Plan, Duquesne Light filed a preliminary design for the AMI communication network on March 31, 2011. In this preliminary design of the WAN component of the AMI system, Duquesne Light proposed a private radio solution as opposed to a public wireless solution for the intermediate portion of the WAN, which connects the cell relays that are part of ITRON's LAN to existing Duquesne Light owned communication towers. See Diagram # 2. The preliminary design also

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proposed leveraging the private fiber currently leased by Duquesne Light from DQE Communications that already exists between Duquesne Light's communication towers and data center for the back-haul portion of the WAN. At the time of the March 31, 2011 filing, this preliminary design was determined to be the most cost-effective solution for the WAN component of Duquesne Light's AMI system. The following is a bulleted summary of the Company's preliminary due diligence efforts.

- Engaged SAIC in November 2010 to assist with the AMI Communication Network technology and cost assessment
- Analyzed multiple Private Licensed Wireless (Radio), Private Unlicensed Wireless (Radio) and Public Wireless alternatives for the LAN Cell Relay to Tower communication network
- SAIC recommended a combination of two Private Licensed Wireless solutions (3.65 GHz & 220 MHz) as cost effective alternatives that best met Duquesne Light's technological requirements
- Recognizing the potential unavailability of 220 MHz spectrum in DLC territory, the recommendation also included 900 MHz as a replacement
- It was noted that public wireless could be used as a back-up to the private wireless solution
- Filed preliminary communications network design with PA PUC in March 2011 based on SAIC's recommendation

In requesting and subsequently receiving a six month extension for filing our Final Smart Meter Plan, Duquesne Light committed to performing additional due diligence related to private versus public WAN solutions in light of new information that public carrier price offerings were becoming more cost competitive. After several more months of analysis, Duquesne Light confirmed that a private wireless solution as originally proposed is the best solution because it provides Duquesne Light with more control over the security and reliability of the system as well as strategic opportunities to utilize available bandwidth for other data communication applications including mobile workforce, SCADA, and corporate security. The private wireless solution has more initial costs than a public wireless solution. However, the private wireless solution has considerable annual O&M savings which offset the initial upfront costs over the life

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of the system. A financial analysis between private versus public networks was too close to conclusively drive the decision of one type over the other.

The following is a bulleted summary of our additional due diligence efforts.

- Met with WAN vendors to determine availability of licensed spectrum in Duquesne territory
- Determined that 220 MHz was not an available spectrum
- Reserved 900 MHz spectrum from Space Data through a 15 month lease with an option to buy upon termination
- Worked with SAIC and ITRON to develop a Propagation study to evaluate coverage capabilities of the 3.65 GHz and 900 MHz Private Licensed Wireless solution
- Finalized capital and on-going O&M cost estimates of private and public solutions based on the propagation study
- Developed a detailed cost comparison between the Private Licensed Wireless solution and the Public Wireless solution
- Determined that the private wireless solution was still the best value for Duquesne Light
- Filed a private wireless solution for the WAN component of our AMI system as part of this Plan

5. Technical Advantages of the New AMI System

There are several distinct technical advantages associated with the proposed AMI system architecture network over the existing AMR system. First and foremost, the existing AMR system architecture only supports a single directional data flow (from meter to head-end data collection engine), whereas the proposed AMI System architecture supports a bi-directional data flow.

Secondly, the existing AMR system LAN solution requires each meter to be in the line of sight of a Cell Control Unit (“CCU”) in order to communicate. The new AMI system LAN solution uses mesh network technology which enables meters to communicate to each other. A meter that is not in line of sight of a cell relay communicates its data to a neighboring meter that in turn communicates its data to a neighboring meter and this process continues until the data is

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consolidated at a meter that does have line of sight to a cell relay. This mesh network technology only requires a portion of the meters to be in the line of sight of a cell relay in order for all meters to be read. Since most meters have several neighboring meters, the mesh network technology also provides redundant paths for communicating data to a cell relay. Therefore, the AMI system solution greatly reduces the amount of LAN components that need to be installed in order to cover all of Duquesne Light's service territory. This will make it more cost effective to read 100% of Duquesne Light's meters at least once daily rather than the 80 to 90% that are being read daily with the AMR system.

Finally, the existing AMR system architecture requires multiple, disparate solutions to communicate with all of Duquesne Light's meters. These solutions differ for all three system components including the type of meter data communications; the WAN communication protocols; and the head-end collection engine applications. The AMI system architecture uses a single type of meter data communications; a common WAN communication protocol and the same head-end data collection engine application to communicate with all of Duquesne Light's meters.

6. Head-End Data Collection Engine

As part of its AMI Project, Duquesne Light must install a Head-End Data Collection Engine. The Head-End Data Collection Engine performs network management and coordinates data collection and operations. The Head-End Data Collection Engine has the following characteristics:

- Collects interval meter usage data for all single phase and three phase meters.
- Support scheduled (automatic) and unscheduled (operator-initiated) meter reads.
- Remotely downloads updates to meter settings, configuration, security settings, and firmware for all AMI devices.
- Obtains meter data, such as register and power status, on demand.
- Communicates with groups of AMI meters and consumer owned control devices to enable load management.

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- Collects and reports measurement data, control events, self-test data and alerts, service continuity data and alerts, power quality data and alerts (including tamper), programming events, configuration settings, etc.
- Monitors, analyzes, and manages service continuity.
- Supports and reports service continuity and voltage interruptions.
- Supports monitoring, analyses, and management of customers' power quality.
- Supports customer (scheduled and unscheduled) load control functions.
- Provides automatic self-registration of AMI endpoints/meters.
- Supports meter self testing, system performance monitoring and reporting.
- Effectively employs Service Oriented Architecture ("SOA") and/or Enterprise Service Bus ("ESB") technologies for communication among its application modules and for interoperation of its system components with Duquesne's other information systems.

D. IT SYSTEMS

I. Introduction

In addition to the AMI Project scope described in the section above, Duquesne Light's Final Smart Meter Plan includes the implementation, ongoing support and multifaceted integration of several IT systems. Some of the more significant of these IT systems such as Oracle's CC&B and MDM will be implemented and integrated as part of the Focus Project but will also require further systems integration and functional enhancements as part of the AMI project.

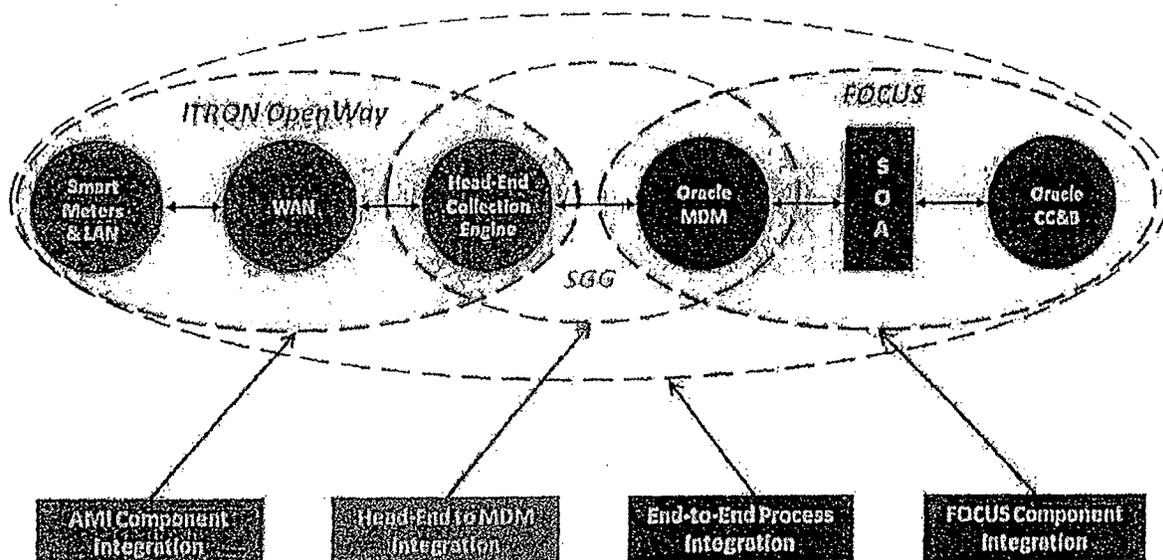
Much of the systems integration and ongoing support work requires specific expertise and technology skills that are not available within Duquesne Light's existing internal IT staff. Therefore, the Plan supplements Duquesne Light's resources with third party IT vendor delivery and support resources as well as third party Systems Integrator ("SI") resources. Duquesne Light will embark on a formal RFP process to select a qualified SI in the latter half of 2012. Duquesne Light also plans to negotiate a contract with the selected SI that will be executed upon approval of our final Smart Meter Plan.

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2. Systems Integration

As shown on Diagram #3 below, Duquesne Light's Smart Meter Program has four levels of complex systems integration that must work both independently as well as in conjunction with each other in order for the entire solution to function properly.

Diagram #3: Duquesne Light Systems Integration



The first level of systems integration is to establish a bidirectional interface between the CC&B and MDM components of the FOCUS project. The integration of these two components is facilitated through Oracle's Services Oriented Architecture ("SOA"). All meter usage data is validated, edited and estimated ("VEE") by the MDM module before it is passed to CC&B on a request basis for billing purposes. This cleansed usage data along with meter events such as tamper notifications is also utilized to support other customer oriented transactions such as high bill complaints, meter inspections and the automated completion of service orders that require a meter read.

The second level of systems integration is to establish a bidirectional interface between the Smart Meters deployed at customer premises and the Head-End Collection Engine installed at Duquesne Light's data center. The integration of these two components is facilitated through the AMI system communication network, which includes the LAN and the WAN. The Smart Meter

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records interval data on at least an hourly basis which then must be collected from the field at least once daily by the Head-End Collection Engine. The LAN and WAN provide the connectivity necessary to accomplish this automated data collection. This bidirectional interface is also used for collection of meter events and alerts as well as to perform firmware upgrades within the meter.

The third level of systems integration is to establish a bidirectional interface between the Head-End Collection Engine and the MDM module. The integration of these two components is facilitated through Oracle's Smart Grid Gateway ("SGG"). SGG provides standard adapters for data exchange between Head-End Collection Engines from leading AMI vendors and Oracle's MDM module. All requests for meter usage data, events and alerts from Smart Meters are initiated from the MDM module. Therefore, the Head-End Collection Engines receives all of its instructions on what data to collect from the field as well as when to collect this data through the SGG.

The fourth level of systems integration is to establish end-to-end business processes that leverage the bidirectional interfaces between all of the components that were implemented and interfaced in the previous three levels. These end-to-end business processes include base metering functions such as monthly billing; daily displays of usage data on a customer web portal; commissioning and decommissioning of meters; and on-demand meter reads as well as advanced metering functions such as remote connects and disconnects; automated control of electric consumption; and provisioning of HAN devices.

3. Functional Enhancements

There are many functional enhancements to IT systems required to meet the smart meter requirements of ACT 129 and the Implementation Order, which are described in more detail in the AMI System Capabilities section of this plan. In addition, there are other functional enhancements to IT systems that leverage these AMI system capabilities to provide expanded self-service offerings to our customers as well as better information for our customer service representatives. These functional enhancements are described in more detail in the following appendices to this Plan:

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- Bill-to-Date & Projected Bill – Appendix B
- Bill Alerts – Appendix C
- Smart Meter Usage Display – Appendix D
- Web Dashboard – Appendix E

4. Systems Integrator

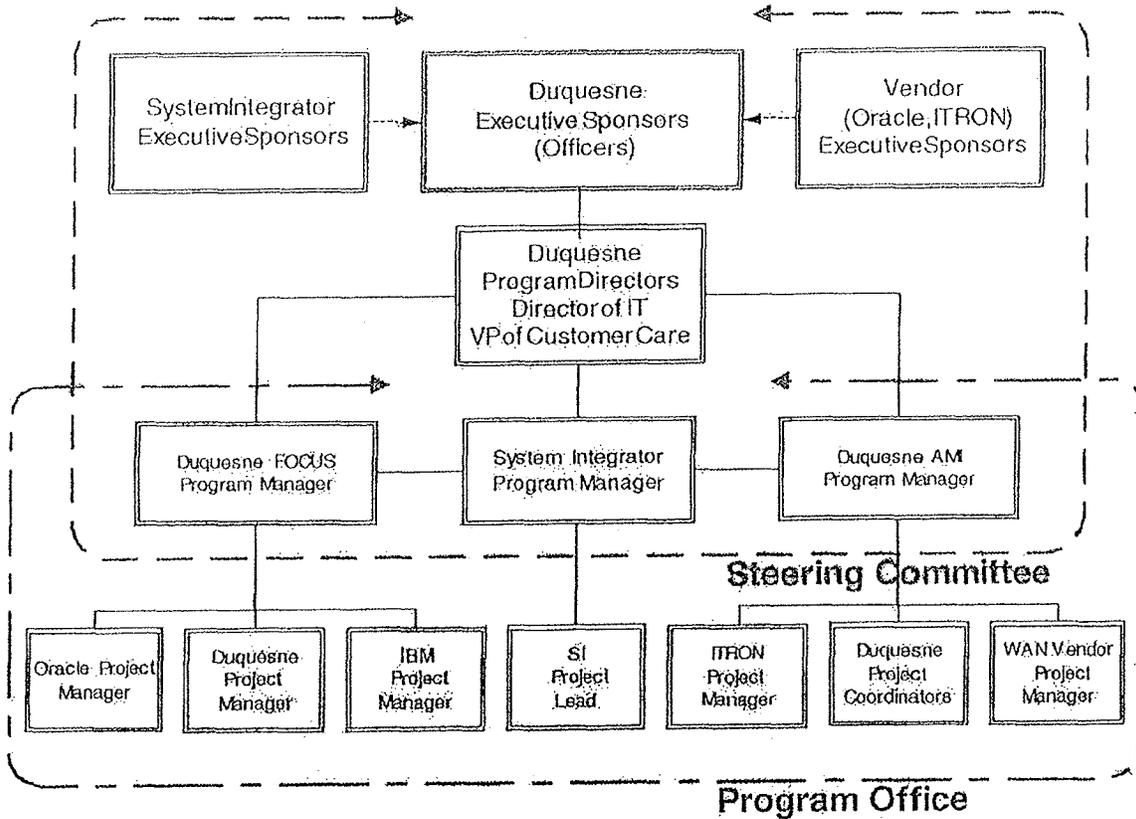
The complexity of integrating multiple IT systems from multiple vendors across several lines of business such as customer care and metering operations along with deploying all new advanced meters and communication networks requires specific expertise across several technology disciplines that does not exist internally within Duquesne Light. Therefore, Duquesne Light plans to engage a Systems Integrator (SI) to manage the IT systems work effort within the AMI project. The success of the AMI project is highly dependent on engaging an SI that has utility industry experience with both AMI technology projects as well as with Oracle Utility Application Suite implementations. The SI will have ultimate responsibility for the implementation of the remaining three levels of integration (the first level will be complete upon implementation of the FOCUS project) of Duquesne Light's Smart Meter Program. This responsibility includes oversight of the IT system integration and functional enhancement work being performed by other vendors including Oracle and ITRON.

Working with Duquesne Light, one of the initial tasks for the SI will be to finalize the phased implementation approach for the AMI Project. Phased scope definition is established by considering a variety of factors including business criticality and benefit, regulatory mandates, customer needs, overall program risk mitigation, technology availability and delivery, incremental change that users can adapt to and embrace, and other key considerations.

Once the implementation approach and individual phase scopes are confirmed, a detailed project plan will be developed including main tasks, deliverables, milestones and schedule. A Program Management Office (PMO), consisting of Duquesne Light, SI, Oracle, ITRON and other vendor resources will be established to manage and monitor the execution of this plan.

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Diagram #4: Duquesne Light Smart Meter Program Management Office



Simply defined, System Integration looks beyond a single, independent system or solution delivery with the knowledge, responsibility, and accountability to validate the enterprise solution delivers as planned and is maintainable and supportable over the useful life of the system. System integration encompasses both business and technical integration of applicable processes. Duquesne Light's Final Smart Meter Plan proposes that the SI will act as an implementation advisor driving day-to-day results by validating constant and consistent alignment of the business vision to the technical solution; managing to an integrated program view vs. individual project views; managing overall program dependencies and interactions between related projects and initiatives; balancing competing interests to provide solutions delivering optimal enterprise results; seeking to eliminate overlap, duplication, and redundancy in program activities; and ensuring individual component applications (new, existing, third party) can support end-to-end

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business processes. The specific services provided by the SI are detailed in Appendix F to this plan.

5. On-going Support

The IT systems being implemented as part of both the FOCUS project and AMI project require significant ongoing support. Duquesne Light's Final Smart Meter Plan provides for this support through the end of the deployment period in the form of annual maintenance agreements with Oracle and ITRON as well as managed service agreements with a third party IT support vendors.

E. AMI SYSTEM CAPABILITIES

In the Commission's *Implementation Order*, the Commission identified six minimum smart meter capabilities that are required by Act 129. *Implementation Order*, pp. 29-30. The commission directed EDCs to quantify the costs to deploy and operate these six minimum capabilities in EDCs' Smart Meter Plans.

In addition, the Commission listed nine additional capabilities that EDCs were to evaluate. The Commission also directed EDCs to quantify the individual incremental costs for deploying these additional capabilities. The Commission further noted that it may waive these additional capabilities to the extent that an EDC or another party demonstrated that the additional capabilities were not cost-effective.

Duquesne Light addresses each of the minimum and additional capabilities set forth in the *Implementation Order* below.

1. Minimum Capabilities Under Act 129

a. Bidirectional data communications

The Company's existing AMR system provides one-way communication from the meter to the head-end data collection engine hosted at Duquesne Light's data center. The new AMI system will provide two-way communication between the meter and the head-end data collection engine hosted at Duquesne Light's data center.

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b. Recording usage data on at least an hourly basis once per day

The Company's existing AMR system records usage data on a daily basis for most of our single-phase meters and on at least an hourly basis for all of our three-phase meters. The new AMI system will have the capability of recording usage data at 5, 10, 15, 30 or 60 minute intervals. The Company's AMI communication network will provide the capability to retrieve this data at least once per day for all meters.

c. Providing customers with direct access to and use of price and consumption information

The Company's existing AMR system does not have any direct access capabilities. The new AMI system will include ZigBee enabled smart meters that under current data communication standards can facilitate direct access from the meter to a customer's HAN device for price and consumption information. Duquesne Light will remotely provision and enable the direct access interface once the customer request for direct access has been authenticated. The customer will be responsible for purchasing and installing their own HAN devices as well as establishing the network connection with the ZigBee interface.

d. Providing customers with information on their hourly consumption

The Company's existing AMR system provides most customers with validated daily consumption information through Duquesne Light's secure customer web portal. The new AMI system will provide all customers with validated hourly consumption information within approximately 24 hours after the data has been collected from all meters through Duquesne Light's secure customer web portal.

e. Enabling time-of-use (TOU) rates and real-time price (RTP) programs

The Company's existing AMR system only supports TOU or hourly rates for customers with three-phase meters. The new AMI system will support TOU rates and RTP programs for all customers. As part of the company's Act 129 Smart Sense pilot, Duquesne Light will develop TOU and/or RTP tariffs for our default service customers with smart meters. Duquesne Light

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will also be able to support TOU rates and/or RTP programs offered by EGS's for our customers with smart meters that switch to an alternate supplier.

f. Supporting the automatic control of the customer's electric consumption

The Company's existing AMR system cannot support the automatic control of the customer's electric consumption. The new AMI system, with its bidirectional data communication and ZigBee enabled smart meters, can be utilized to support demand response or load limiting programs. Duquesne Light plans to enable third party access to our AMI system for these types of programs through a secure web portal. However, Duquesne Light does not plan to commit to any service level agreements with third parties using our AMI system to facilitate these types of programs.

2. Additional Capabilities under Implementation Order

a. Ability To Remotely Disconnect And Reconnect

Remote disconnect and reconnect functionality allows utilities to turn off or turn on a customer's service at the meter without a physical visit to the premise. This capability is accomplished through additional hardware (a switch) integrated into the meter. This capability is only available for single-phase meters having a 240 volt service with a rating of 200 amps or less.

There are many benefits to implementing the remote disconnect and reconnect functionality. These benefits include improved safety, operational efficiency, revenue collection, employee efficiencies and improved customer experience.

There is an additional cost of approximately \$30 per single phase meter to install the switch to enable the remote disconnect/reconnect functionality. In addition, the Company's FOCUS system would require upgrades costing approximately \$500,000 to provide this functionality. The expected cost to install this functionality on a system wide basis is approximately \$17.5 million.

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Duquesne Light believes that the benefits of this functionality support implementation. For these reasons, Duquesne Light proposes to implement the remote connect/disconnect functionality for all single-phase meters.

b. Ability To Provide 15-Minute Or Shorter Interval Data

As previously stated, the Company's Smart Meters will be capable of recording data in 15 minute intervals at no incremental cost as compared to recording usage at hourly intervals. However, the bandwidth of the AMI communication network as well as the storage capacity of the Head End Data Collection Engine and Oracle MDM system would have to be expanded at an incremental cost to accommodate intervals more granular than hourly.

Duquesne Light does not believe these incremental costs are justified at this time since there are no existing requirements for interval data more granular than hourly. However, since expansion of network bandwidth and storage capacity is scalable, the Company proposes implementing an AMI system based on hourly interval data and then expanding it later if future applications require more granular intervals.

c. On-Board Storage Of Meter Data That Complies With Nationally Recognized Non-Proprietary Standards Such As ANSI C12.19 and C12.22 Tables

The ANSI C12.19 standard provides a common data structure for use in transferring data to and from meters. The ANSI C12.22 standard defines how to transmit standardized tables of meter data across wired or wireless networks. This standard uses encryption to enable secure communications, protecting confidentiality and data integrity.

The Company's AMI System will comply with these standards without any additional implementation costs.

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d. Open Standards And Protocols That Comply With Nationally Recognized Non-Proprietary Standards, Such As IEEE 802.15.4

IEEE 802.15.4 is a communication standard for low rate wireless personal networks such as ZigBee. ZigBee has the ability to link smart meters with devices such as thermostats, household appliances, HVAC, lighting systems and other household appliances or systems.

The Company's AMI system will comply with the IEEE 802.15.4 standard without any additional implementation costs.

e. Ability To Upgrade Minimum Capabilities As Technology Advances And Becomes Economically Feasible

The capability is whether existing equipment can adopt or be modified to incorporate new capabilities as technology advances. Duquesne Light cannot predict all future needs or technologies. However, the Company is implementing an AMI system that is flexible and expandable. Moreover, Duquesne Light will be able to upgrade the software for its AMI system, including meter firmware and configuration.

f. Ability To Monitor Voltage At Each Meter And Report Data In A Manner That Allows An EDC To React To The Information

The AMI system that Duquesne Light is implementing will provide the capability to monitor voltage at each meter. This monitoring can be accomplished by establishing a register within the Smart Meter for voltage related interval data or by programming the Smart Meter to send an alert if the voltage measurements are outside a normal range.

In order to report voltage data in a manner that allows an EDC to react to the information, an interface needs to be developed between the AMI Head-End Collection Engine and the FOCUS project MDM system. Duquesne Light's approach to developing these type of interfaces is to participate in Oracle's Smart Grid Gateway ("SGG") Customer Validation Program. This program enables Duquesne Light to influence the development of productized integration between ITRON and Oracle applications. At this point in the development cycle, Oracle has not

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committed to a date for implementing the voltage monitoring interface requirements as part of their SGG roadmap so incremental cost information is unavailable.

In addition to developing the integration between AMI and FOCUS systems, new reporting functionality will need to be developed within the MDM application in order for Duquesne Light to react to the voltage monitoring. At this point in the MDM development roadmap, Oracle has not committed to a date for adding enhanced reporting functionality for voltage monitoring.

Since Oracle has not committed to dates for voltage monitoring capabilities, the incremental cost for developing the required productized integration and reporting functionality is unknown. However, Duquesne Light anticipates that it will implement the voltage monitoring capability, as a supplement to existing power quality systems, once the necessary software becomes available.

g. Ability To Remotely Reprogram The Meter

Firmware within the meter controls all of the functions and capabilities of the meter. Firmware is the software that interfaces the meter's hardware and the network application, enabling the meter to perform its functions. The firmware in the Company's Smart Meters can be reprogrammed remotely through the communications network or at the meter.

There are no additional meter or network costs to be able to remotely program the Smart Meter's firmware.

h. Ability To Communicate Outages And Restorations

The AMI architecture provides the capability to communicate outages and restorations from the Smart Meter to the Head-End Collection system. This communication is based on a "last gasp" alert that the meter sends when it loses power along with a subsequent "first gasp" alert when power is restored. This functionality does not exist in Duquesne Light's existing AMR system.

In order to incorporate AMI outage and restoration alerts into the Company's real-time reliability and customer notification processes, Duquesne Light would need to replace its current Outage Management System ("OMS") as well as develop and maintain a distribution system "Electrical Model". This replacement initiative is not included in the scope of the FOCUS project.

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Duquesne Light estimates that the incremental cost to create an Electrical Model are not justified as part of the Company's Final Smart Meter Plan, but will be further evaluated as the AMI system is deployed.

Duquesne Light does plan to implement the capability to communicate outages and restorations from the Smart Meters to the Head-End Collection Engine as part of the AMI project. In addition, Duquesne Light plans to extract the data from the Head-End Collection Engine into an AMI data warehouse on a near real-time basis. The data warehouse will include reporting functionality that provides the Company's Operations Center with the following data:

- Number of customers that are out of power at any given time during an outage event.
- A list of customers that have been restored at any given time during an outage event.
- The length of time between when a customer lost power and when that customer's power was restored.

This reporting functionality in the AMI data warehouse will replace and improve the accuracy of all of the information that the Company's Operations Center currently receives from its existing AMR system. This initiative is estimated to cost approximately \$250,000.

i. Ability To Support Net Metering Of Customer Generators

Duquesne Light's Smart Meters will support net metering of customer generators. The ITRON Smart Meters will have multiple channels and bi-directional capability that will allow the Company to measure both the excess energy that is being generated by the customer and also measure energy that is delivered by the Company to the customer. The ITRON Smart Meters come equipped with this capability, and therefore, there are no additional costs to implement this capability.

F. AMI IMPLEMENTATION TIMELINE

1. System Wide Roll-Out

A chart showing the Company's proposed AMI implementation timeline is provided as Appendix G. The timeline includes a smart meter deployment schedule that begins with a 5,000 smart meter acceptance roll out in 2014 followed by ramp up to 90,000 meters by year end 2015.

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A full scale deployment of 9,000 meters per month will begin in the first quarter of 2016. The Company anticipates that it will complete full deployment of its smart meters by the end of 2020. In its Initial Smart Meter Filing, Duquesne Light noted that it was premature to develop a final system-wide deployment schedule given the substantial tasks that the Company was undertaking to: (1) assess needs, and (2) select technology, a vendor, software, hardware and other smart meter components. Therefore, the Company noted its intent to meet the 15 year deployment schedule set forth in the Commission's *Implementation Order*. See Duquesne Light Initial Smart Meter Plan, pp. 36-37. The Company did provide an initial estimated date of December 31, 2018 for full system roll out of smart meters. However, the Company explained that this date was not final and that the Company would provide a detailed description of its plans for full system-wide roll out of smart meter technology as part of its Final Smart Meter Plan. See Duquesne Light Initial Smart Meter Plan, p. 37.

In the Commission's Order approving the Company's Smart Meter Plan, the Commission noted that Duquesne Light had provided an approximate date of December 31, 2018 to complete system-wide deployment of smart meters. The Commission further noted that Duquesne Light had explained that the dates were approximate and that it was the Company's intent to meet the 15 year deployment schedule provided by Act 129. *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. 27.

The Company is extending full deployment of smart meters to allow for the two-year ramp-up period described above. This ramp-up period will give the Company time to test systems and functions before implementing technology on a system-wide basis. The Company believes that this is a prudent and reasonable approach and that it will mitigate the risk of technology glitches that could create a negative experience for customers.

In addition to the ramp-up period, Duquesne Light is proposing a phased functional implementation of Smart Meter features starting with the most basic capabilities such as monthly billing from smart meter usage data and ending with the most advanced capabilities such as automatic control of electric consumption. This phased functional implementation is designed to

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allow the market for many of the advanced smart meter capabilities to become more mature, which will then provide a better definition of the requirements. Requirements that are not fully defined result in rework, which ultimately results in additional costs for customers. Duquesne Light believes that this potential rework and associated costs can be avoided by our proposed phased functional implementation approach.

At the same time, however, the Company anticipates that much of the functionality throughout deployment will be valuable. The Company will integrate available functionality, to the extent it has been fully tested and accepted throughout the process, into business practices where possible. This will allow the Company to take advantage of the benefits early in the process. For example, the Company plans to integrate hourly data into its processes used for daily reconciliation and PJM settlements. Similarly, the Company plans to implement the remote connect / disconnect functionality in select areas as it become available. This extension of the phased-in approach of smart meter functionality throughout the deployment will ensure implementation obstacles are removed throughout the entire process rather than defer until the last stage of deployment. The Company and customers will be able to take advantage of the benefits of AMI as deployed throughout the service area.

The following table provides a high-level overview of Duquesne Light's proposed phased functional implementation approach by requirement.

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Type	Requirement	2014	2015	2016	2017
Basic	Commissioning and decommissioning of smart meters in the field	x			
Basic	Collection of usage data for billing and events such as tamper alarms	x			
Basic	Monthly billing from smart meter usage data	x			
Basic	Manual disconnects and reconnects	x			
ACT 129	Bi-directional data communications	x			
ACT 129	Record usage data on at least an hourly basis once per day	x			
ACT 129	Provide direct access to and use of price and consumption information				x
ACT 129	Provide customers with information on their hourly consumption		x		
ACT 129	Enable time-of-use (TOU) rates and real-time price (RTP) programs		x		
ACT 129	Automatic control of the customer's electric consumption				x
PA PUC	Remote disconnects and reconnects			x	
PA PUC	Provide 15-minute or shorter interval data			x	
PA PUC	On-board meter storage that comply with national standards	x			
PA PUC	Open standards and protocols	x			
PA PUC	Upgradable capabilities	x			
PA PUC	Voltage monitoring				x
PA PUC	Remote reprogramming of the meter	x			
PA PUC	Outages and restorations				x
PA PUC	Net metering of customer generators		x		

2. New Construction And Customer Requests

Pursuant to Act 129 and the Commission's *Implementation Order*, EDCs are required to deploy smart meter technology at the end of the 30-month grace period in new construction and upon customer request. As part of Duquesne Light's grace period planning efforts, the Company has designed interim solutions to comply with these deployments outside of the Company's planned smart meter deployment schedule since the AMI project will not start until the Final Smart Meter Plan is approved.

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a. New Construction.

Duquesne Light installs approximately 2,000 meters annually in new construction sites throughout its service territory. At the end of the grace period, Duquesne Light plans to install ITRON smart meters at all new residential construction sites and communicate with these meters through its existing AMR ITRON Fixed Network system. These meters will be transitioned to the new AMI system at the time that the new communication network is extended to these locations as part of the full deployment schedule. Smart meters that communicate through the AMR system will provide daily reads until they are transitioned to the AMI system at which time they will provide hourly reads and AMI functionality that is available at that time. The transition from the AMR system to the AMI system will be determined by the Duquesne Smart Meter Program full deployment schedule. Duquesne Light will continue to deploy Alpha meters that communicate through its existing AMR ITRON MV-90 system for all new commercial and industrial (“C&I”) construction sites until the new communication network is extended to these locations as part of the full deployment schedule.

b. Customer Requests

Since the enactment of Act 129 smart meter legislation in 2008, Duquesne Light has only received a few customer requests for a smart meter. To honor customer requests for direct access to un-validated usage data after the grace period, Duquesne Light plans to install ITRON smart meters that communicate with its existing AMR ITRON Fixed Network system for billing purposes but enable HAN connectivity through ZigBee for direct access purposes. To honor customer requests for next day access to validated hourly usage data through a web portal, Duquesne Light plans to install Alpha meters (currently used on C&I accounts) and communicate with them through its existing AMR ITRON MV-90 system for both billing and next day usage data access purposes. After the Smart Meter Program Final Smart Meter Plan is approved by the Commission, Duquesne Light will purchase, implement and integrate the ITRON Head-End Data Collection Engine with the MDM. Once this work is complete, Duquesne Light will install ITRON smart meters for all customer requests and communicate with them directly via a public cellular network. This solution is projected to be available during the smart meter deployment ramp-up period and will be utilized until the new communication

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network is extended to these locations as part of the full deployment schedule. Customers that request a smart meter outside of the Company's full deployment schedule will be charged the incremental communication and deployment costs but not the cost for the meter. The Company will develop a fee for this scope and update Rule 14.2 of its tariff.

G. SMART METER PROGRAM COSTS

The total cost of Duquesne's Smart Meter Program is estimated at \$238 million spent over an 11 year period beginning in 2010 and ending in 2020. The following table provides a breakdown of the total Smart Meter Program estimated costs by scope component and operating versus capital expenditures.

Cost Estimates (\$ millions)	Total
Smart Meter Program Planning	3.0
FOCUS Project	35.0
AMI Project Vendor Components (ITRON)	97.5
AMI Project Communication Network (WAN)	8.0
AMI Project IT Systems including PMO	63.4
AMI Project Customer Acceptance	3.1
AMI Project Contingency	28.0
Total	\$238.0

The Smart Meter Program planning costs encompass all of the grace period expenditures necessary to develop the Final Smart Meter Plan. A significant portion of these planning costs are the engagement of third party subject matter expertise such as SAIC, IBM and other

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consulting resources. These planning costs also include the technology proof of concept with ITRON to prove the viability of the proposed AMI system solution.

The FOCUS Project costs encompass all of the IT system costs necessary to replace Duquesne Light's CIS and implement a new MDM. These IT system costs include software and hardware purchases and maintenance during the grace period; outside services involved in the implementation and integration of CC&B and MDM; and an allocation of other ancillary project expenditures such as facilities, training, organizational change management and installation of supporting IT products.

The AMI Project Vendor Component costs encompass all of the equipment and services being provided by ITRON as described in Section C of this Plan. These cost estimates are based on the contract negotiations that have been conducted to date between Duquesne Light and ITRON. These negotiations are expected to conclude in the third quarter of 2012 with a completed contract that can be executed upon Commission approval of the Company's Final Smart Meter Plan.

The AMI Project WAN costs encompass all of the equipment and services described in Section C.4 of this Plan. These cost estimates are based on analysis, including preliminary propagation studies, conducted by Duquesne Light and ITRON with the assistance of SAIC.

The AMI Project IT Systems costs encompass all of the implementation and integration services described in Section D of this Plan. In some instances where it is cost justified, the third party delivery services may be replaced with the purchase of additional software and hardware products. These cost estimates are based on analysis conducted by Duquesne Light with the assistance of IBM.

The IT Systems costs also encompass the responsibilities of the PMO which includes third party SI resources as well as the following seven Duquesne Light internal resources which are all incremental to the Company's current staffing levels:

- AMI Program Manager (1)

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- AMI IT Systems Coordinator and IT Systems Analyst (2)
- AMI Metering Coordinator and Metering Engineer (2)
- AMI Communication Network Coordinator and Telecom Engineer (2)

The AMI Project Customer Acceptance costs encompass all of the work efforts described in Section I of this Plan. These cost estimates are based on analysis conducted by Duquesne Light with the assistance of Customer Performance Group (“CPG”).

The AMI Project contingency costs encompass industry standard funding reserves for third party services as well as specific funding reserves for areas of the program where meter deployment, communication protocol, and security appliance decisions still need to be finalized based on emerging or evolving additional information.

A further breakdown of the estimated costs for the FOCUS and AMI projects by year is provided in Appendix H.

H. SMART METER COST RECOVERY

In its Initial Smart Meter Plan the Company proposed to recover its costs to implement smart meter technology via a Section 1307 Smart Meter Charge. By order dated May 11, 2010, the Commission approved Duquesne Light's Initial Plan with certain modifications. In addition, the Commission approved the Company's SMC, with certain modifications, which provides for full and current cost recovery of smart meter costs. The first SMC was implemented effective August 1, 2010.

The SMC uses a formula to calculate the revenue requirement for the quarter for each component. The SMC is updated quarterly, effective January 1, April 1, July 1 and October 1 each year. Common costs are then allocated to the revenue requirement for each meter type based on the number of each type of meter. A description of the SMC is provided in Rider No. 20, Smart Meter Charge, of the Company's retail tariff.

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The formula to compute the revenue requirement for single phase, three-phase and common plant each includes four primary components. The first component is the pre-tax return on average projected net plant in-service ("PIS") for the upcoming quarter. Net PIS includes eligible smart meter plant and supporting systems adjusted for accumulated depreciation and accumulated deferred income taxes associated with that plant. The second component of the revenue requirement includes the projected expenses for depreciation, operation and maintenance for the upcoming quarter. The third component is an adjustment to the revenue requirement made for expected operating cost savings, if any, realized by the Company by implementing smart meter technology. The fourth component is a reconciliation adjustment, developed through an annual filing, to reconcile for the actual revenue requirement for the previous reconciliation year versus the billed revenue for the same period.

The revenue billed under the SMC for each quarter of the reconciliation period is compared to the actual revenue requirement calculated for each quarter using actual data for each of the four components of the formula. The over or under collection of revenue is recouped or refunded as appropriate with interest over a one year period beginning on January 1 of the following year. All over and under recovery calculations include interest at the legal rate of 6%.

The Company is proposing to recover the costs for implementing its Final Smart Meter Plan through its existing SMC without modification.

I. CUSTOMER EDUCATION AND ACCEPTANCE STRATEGY

1. Introduction

In early 2011, Duquesne Light engaged Customer Performance Group (CPG) to assist the company with development of a strategy that minimizes the risk of customer resistance to smart meter technology that many utilities throughout the country have previously experienced. CPG has worked with several utilities in California, Nevada and Illinois to successfully deploy smart meters in a manner that increases customer awareness, understanding and confidence with the new AMI technologies. A primary component of the customer confidence model is the communication of AMI technology benefits to customers soon after they receive their new smart meter.

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As part of our planning efforts with CPG, we identified several new enhanced products and services such as Bill-to-Date reporting, Usage threshold alerts, Usage graphs, TOU rates, RTP programs and HAN offerings that are all facilitated by leveraging the investment in AMI technologies. Duquesne Light will offer select, cost-effective enhanced products and services for our customers that also provide transactional benefits to the company. These services are signed to increase customer participation and acceptance of smart meter technology. Additionally, The CPG deployment approach also strives to minimize customer inconvenience and provide a neutral, if not positive overall customer experience related to smart meters.

2. Target Audiences

Duquesne Light's three primary target audiences are employees, stakeholders and customers. A description of these three audiences and their relationships to smart meter technology is below:

Audience	Role
Employees	
• Installers	Installers install the smart meters. They have customer contact prior to installation and when the work is completed.
• Field Liaison	The field liaison is a person skilled in energy audits who accompanies the installers to provide door-to-door outreach to customers and troubleshoot customer complaints.
• Call Center	The call center provides customers information and education regarding smart meters and processes customer complaints and claims.
• Other	All other employees serve as ambassadors who can explain the smart meter system to family, friends, and neighbors.
Stakeholders	
• Elected Officials and Staff	Elected officials and their staffs are a source of information about the smart metering system for constituents and a channel for receiving customer complaints.
• Community Leaders	Community leaders include political organizations, special-interest organizations, business organizations, service organizations, faith-based organizations, and schools. They act as third-party communicators to customers.
• Media	Media includes representatives of newspapers, television, and radio who communicate with customers.
• Electric Generation Suppliers (EGS)	EGS's are the retailers who sell the electric commodity to customers and may develop new products and services based upon the smart metering system.
• Curtailment	CSPs provide energy and demand response products to

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Service Providers (CSPs)	encourage customers to curtail usage at times of peak load.
• Service Providers	Service providers include contractors, electricians, aggregators, and others who act on behalf of customers and provide information to customers about electric appliances and services.
• Union Leaders	Union leaders are the representatives of DLC employees who are represented under collective bargaining agreements. They act as third-party communicators to employees.
Customers	
• Residential	Residential customers include customers who live in single-family and multi-family premises who take service on rates RS, RH, and RA.
• Commercial and Industrial (C&I)	C&I customers include those who take service on rates GS/GM and GMH.

3. 90-60-30 Day Communication Strategy

Duquesne Light's CEA plan focuses on the creation of a neutral-to-positive customer experience. The foundation of this customer experience is the 90-60-30 day strategy. 90-60-30 refers to the number of days prior to installing a smart meter during which specific information, education, and customer experience tactics are implemented.

90 Days. At least 90 days before installing smart meters in a specific community or geography, Duquesne Light will:

1. Establish a website that contains information about the smart meter system.
2. Continue to educate employees about the smart meter system and its deployment.
3. Continue to educate stakeholders about the smart meter system and deployment.

Duquesne Light's approach for employees will be to provide information and education so that all employees can act as advocates for the smart meter system. To achieve this objective, Duquesne Light will use a variety of methods to build employee awareness and understanding. These methods include:

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- Town hall meetings
- Training classes
- Internal newsletters
- Office signage
- Employee intranet
- Involving employees in testing smart meter products and services

For front-line employees, Duquesne Light will employ additional educational methods that teach specific skills associated with the employee's job role. This may include advanced training classes for call center representatives, field liaisons, and installers, and daily briefings for field liaisons and installers.

Duquesne Light's approach for stakeholder education will be one of personalized meetings, group presentations, and events (such as stakeholder collaboratives). Duquesne Light will support these activities with collateral materials, props, videos, and demonstrations of smart meter services.

60 Days. Approximately 60 days before deploying smart meters in a specific region, Duquesne Light will conduct outreach events and presentations for both residential and business community members. The media Duquesne Light plans to use for community outreach includes PowerPoint presentations, trade show-style booths, and a mobile display (similar to other mobile smart meter/grid displays used by utilities, such as Oncor's Mobile Experience Center and Reliant Energy's Smart Home Solutions recreational vehicle). The likely venues for these outreach presentations include community groups (Chambers of Commerce, Rotary, citizens' councils, political groups), homeowners' associations, and community events (street fairs, farmers' markets, and athletic events). Content presented during these events will focus on features and benefits, function (how the system works), and confidence (accuracy, security, privacy, health, and value). To increase participation in these community presentations, Duquesne Light may use paid and non-paid media to generate interest and awareness.

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30 Days: Thirty days before installing a smart meter at a customer's premises, Duquesne Light will implement a targeted direct media campaign. The first element is a direct mail letter which informs customers of the forthcoming smart meter installation. It also provides the customer information about the function, benefits, and confidence associated with the smart metering system. All communication materials will include Duquesne Light's call center website address and phone number for additional information.

Three days before deploying meters at a customer's premises, customers will receive an automated phone call and/or email reminding them of the smart meter installation. This communication will provide customers as precise a time as possible for when the meter will be installed.

At the time of installation, installers will perform the installation according to a customer experience script (knock, explain, install, and leave record of work). A Duquesne Light field liaison will be available to provide immediate, on-call support to customers or, when not otherwise engaged, door-to-door outreach.

Five days after installation, Duquesne Light will survey a sample of customers regarding installation satisfaction and their attitudes toward the smart metering system (as compared to the baseline survey).

Thirty five days after installation, customers who have signed up for Duquesne Light's My Account service or otherwise provided Duquesne Light an email address will receive a notification that their smart meter services (bill-to-date, bill alerts, projected bill, and hourly usage data) are now available to them online.

4. Measuring Success

The measure of success for a smart meter deployment project is a neutral-to-positive customer experience. Duquesne Light will measure the success of its customer experience and education efforts through three specific methods.

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First, prior to launching the CEA plan, Duquesne Light will conduct focus group tests to ensure that the approach, themes, messages, media, and methods meet customer requirements. Additionally, Duquesne Light will administer a baseline survey that gathers customer attitudes toward the smart meter system prior to implementation. This baseline survey will enable Duquesne Light to then determine the impact of the CEA plan on consumer attitudes.

Second, after implementing the 90-60-30 strategy, Duquesne Light will track the:

- Number of website visits it receives
- Number of calls it receives from customers
- Classification of those calls in appropriate categories such as complaints, claims, high bill, and opt-out.

Subsequent analysis of the volume and type of these calls will enable the Duquesne Light to maintain or adjust its customer experience, customer education, and customer support efforts. Additionally, Duquesne Light will collect customer feedback during outreach presentations regarding customer attitudes toward the smart meter system.

Third, five days after the installation of smart meters, Duquesne Light will survey a sample of customers regarding their satisfaction with the installation experience. Analysts will integrate the survey results into a weekly dashboard report for Duquesne Light. This report will guide Duquesne Light in taking appropriate action to correct deficiencies in the customer experience.

J. RISK MITIGATION STRATEGIES

Duquesne's Smart Meter Program is a multi-year, multi-million dollar endeavor that will greatly impact several key stakeholders including our customers and employees. Therefore, a large part of the grace period planning effort has been spent identifying program risks as well as developing strategies for mitigating the impact of these risks. Duquesne's risk mitigation strategies include:

- Engaging Industry Subject Matter Expertise throughout the planning effort
- Commissioning an AMI Technology Proof of Concept (POC)

Duquesne Light Company – Final Smart Meter Plan

- Instituting a ramp-up period along with a phased functional implementation within the Smart Meter Program deployment schedule
- Development of a Customer Acceptance Strategy aligned with the PA PUC Retail Market Investigation (RMI) Directives
- Engagement of an experienced Systems Integrator to own the end-to-end integration between the FOCUS and AMI projects

Industry Subject Matter Expertise

As a first step in our Smart Meter Program planning effort, Duquesne issued a Request for Proposal (RFP) in order to obtain the services of a utility industry advisor with extensive planning experience for AMI technology projects. R.W. Beck, Inc. (now SAIC) was selected for this advisory role and assisted Duquesne with our milestone flings as well as with our AMI vendor RFP process and AMI communication network extended analysis. Duquesne has also engaged industry subject matter expertise during our contract negotiations with ITRON. Eckert Seamans is providing external legal counsel while IBM is providing contract assistance from a business risk assessment perspective. IBM was also engaged to provide Duquesne with “lessons learned” from other Smart Meter Programs where they have served as the Systems Integrator as well as to assist Duquesne with developing our systems integration cost estimates for the AMI project. Finally, Customer Performance Group (CPG) is assisting Duquesne with development of a customer acceptance strategy designed to minimize the risk of customer backlash against smart meters that other utilities throughout the country have previously experienced.

AMI Technology Proof of Concept

In the latter half of 2011, Duquesne entered into a one year contract with ITRON to conduct an AMI Technology Proof of Concept (POC). This POC enables Duquesne to test the various components of the AMI System outlined in section IV of this plan. The POC is designed to validate the following data.

- Meter configurations/settings
- Captured interval data using ITRON AMI Service Test

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- Captured event messages/alerts/alarms in the ITRON OpenWay Collection Engine
- Firmware download using the ITRON OpenWay Collection Engine
- On demand reads; remote disconnects and reconnects using ITRON AMI Service Test

In addition to testing the ITRON OpenWay components of Duquesne's proposed AMI System, this POC will also test various AMI communication network solutions. The scope of the POC is 36 residential meters and 16 commercial meters. These meters are installed in a dual-socket environment so that the customer's existing meter is still used for production billing purposes. The POC local area network (LAN) consists of four cell collectors and two range extenders. The POC wide area network (WAN) utilizes various private wireless solutions for intermediate transmittal to Duquesne owned communication towers as well as public wireless solutions for direct connect functionality. As part of the POC, Duquesne is also performing laboratory tests on several Home Area Network (HAN) devices. These devices include:

- Two Smart Thermostats
- Two In-Home Displays (IHDs)
- Two Load Control Devices

Ramp-up Period and Phased Functional Implementation

In order to minimize the risk of any potential unforeseen technology glitches having a mass negative impact on our customers, Duquesne is proposing a ramp-up period for Smart Meter deployments. This period will begin with a 5,000 smart meter acceptance roll-out in the latter half of 2014 followed by a gradual build-up to a full deployment of 9,000 meters per month by the end of 2015. In addition to the ramp-up period, Duquesne is proposing a phased functional implementation of Smart Meter features starting with the most basic capabilities such as monthly billing from smart meter usage data and ending with the most advanced capabilities such as support for Home Area Networks. This phased functional implementation is designed to allow the market for many of the advanced smart meter capabilities to become more mature, which will then provide a better definition of the requirements.

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Customer Acceptance Strategy

In early 2011, Duquesne engaged Customer Performance Group (CPG) to assist the company with development of a strategy that minimizes the risk of customer backlash against smart meters that many utilities throughout the country have previously experienced. CPG has worked with several utilities in California, Nevada and Illinois to successfully deploy smart meters in a manner that increases customer awareness, understanding and confidence with the new AMI technologies. Duquesne Light's Customer Acceptance Strategy is explained in more detail in Section I above.

System Integrator

As explained in Section D above, Duquesne's Smart Meter Program has four levels of complex systems integration that must work both independently as well as in conjunction with each other in order for the entire solution to function properly. The Company believes that the success of our AMI project is highly dependent on engaging an SI that has utility industry experience with both AMI technology projects as well as with Oracle Utility Application Suite implementations.

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IV. CONCLUSION

As explained herein, during the Grace Period, Duquesne Light has been implementing billing system and information technology changes that are necessary to provide customers with Smart Meter Technology. In addition, Duquesne Light has been carefully and thoroughly investigating ways to meet the Act 129 Smart Meter Technology requirements. Duquesne Light's Final Smart Meter Plan will provide all of the smart meter capabilities required under Act 129 and the Commission's *Implementation Order* to customers in a cost-effective manner.

Appendix Tab 2

PENNSYLVANIA
PUBLIC UTILITY COMMISSION
Harrisburg, PA 17105-3265

Public Meeting held April 4, 2013

Commissioners Present:

Robert F. Powelson, Chairman
John F. Coleman, Jr., Vice Chairman
Wayne E. Gardner
James H. Cawley
Pamela A. Witmer

Petition of Duquesne Light Company for
Approval of Its Final Smart Meter
Procurement and Installation Plan

M-2009-2123948

OPINION AND ORDER

BY THE COMMISSION:

Before the Pennsylvania Public Utility Commission (Commission) for consideration and disposition is the Initial Decision (I.D.) of Administrative Law Judge (ALJ) Katrina L. Dunderdale, issued on January 14, 2013, relative to the Petition of Duquesne Light Company (Duquesne or the Company) for Approval of Its Final Smart Meter Procurement and Installation Plan (Final SMP). A Joint Petition for Approval of Full Settlement of All Issues (Joint Petition) was filed on December 7, 2012, by Duquesne and the Office of Consumer Advocate (OCA) (Joint Petitioners). For the reasons fully delineated herein, we shall grant Duquesne's Petition as modified by this Opinion and Order.

I. Background

On October 15, 2008, House Bill 2200 was signed into law as Act 129 with an effective date of November 14, 2008. Among other requirements, Act 129 required Electric Distribution Companies (EDCs) to file smart meter plans within nine months after the effective date of Act 129. On June 24, 2009, the Commission issued its Smart Meter Implementation Order at Docket No. M-2009-2092655 (*Implementation Order*), which established the standards that EDCs must meet for providing smart meter technology to customers and also provided guidance for meeting those standards.

On August 14, 2009, Duquesne filed its Initial Smart Meter Procurement and Installation Plan (Initial SMP) with the Commission. The Commission entered an Order on May 11, 2010, approving Duquesne's Initial SMP, with certain modifications. Pursuant to the May 11, 2010 Order, Duquesne was required to file certain periodic updates with the Commission detailing its smart meter implementation status. First, on July 1, 2010, Duquesne filed a Cost Benefit Analysis for the additional smart meter capabilities identified in the Implementation Order. Next, on December 29, 2010, Duquesne filed its Application for Approval of Assessment of Needs, Technology Solutions and Vendor Selection. In that Application, the Company provided a detailed assessment of its Advanced Meter Infrastructure (AMI) technology requirements, possible solutions and selection of technologies and vendors. Duquesne then filed a Supplement to its Assessment Application on January 31, 2011, wherein it identified Itron, Inc. as its recommended primary contractor to design, construct, implement and oversee the Company's SMP.

On November 18, 2011, Duquesne filed a status update with respect to its SMP and requested a six month extension, from December 31, 2011 to June 30, 2012, to file the Company's Final SMP. Duquesne's request for an extension was granted via a Commission Secretarial Letter issued on December 13, 2011.

II. Procedural History

On June 29, 2012, Duquesne filed its Petition for Approval of its Final Smart Meter Plan in which it requested final approval from the Commission of its Final SMP. On July 23, 2012, the OCA and Citizen Power, Inc. (Citizen Power) filed Answers to Duquesne's Petition. By Secretarial Letter issued August 17, 2012, the Commission notified the Parties that this matter had been referred to the Office of ALJ for further proceedings.

An initial Prehearing conference was held on September 17, 2012, and a further Prehearing Conference was held on November 15, 2012, wherein representatives from Duquesne, the OCA, Duquesne Industrial Intervenors (DII) and Citizen Power attended. Subsequent to the further Prehearing Conference, the Parties were able to reach a settlement in principle of all issues. On December 7, 2012, the Joint Petitioners filed the Joint Petition in which the Parties agreed to resolve all issues related to Duquesne's Final SMP. The record closed on December 21, 2012, upon expiration of the time in which interested Parties could object or comment on the Petition. All of the active Parties in this proceeding either support or do not oppose the settlement.

On January 14, 2013, ALJ Dunderdale issued an Initial Decision wherein she granted the Joint Petitioners unopposed settlement without modification. No Exceptions to the Initial Decision were received. Nevertheless, we have exercised our right to review the Initial Decision pursuant to 66 Pa. C.S. § 332(h).

III. Discussion

We note that any issue that we do not specifically address has been duly considered and will be denied without further discussion. It is well settled that the

Commission is not required to consider, expressly or at length, each contention or argument raised by the parties. *Consolidated Rail Corporation v. Pa. PUC*, 625 A.2d 741 (Pa. Cmwlth. 1993); *see also, generally, University of Pennsylvania v. Pa. PUC*, 485 A.2d 1217 (Pa. Cmwlth. 1984).

A. Legal Standards

As the proponent of a rule or order, the Company has the burden of proof in this proceeding in accordance with Section 332(a) of the Public Utility Code (Code), 66 Pa. C.S. § 332(a). Courts have held that “[a] litigant’s burden of proof before administrative tribunals as well as before most civil proceedings is satisfied by establishing a preponderance of evidence which is substantial and legally credible.” *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Cmwlth. 1990), *alloc. denied*, 529 Pa. 654, 602 A.2d 863 (1992). That is, the Company’s evidence must be more convincing, by even the smallest amount, than that presented by the other Parties. *Se-Ling Hosiery, Inc. v. Margulies*, 364 Pa. 45, 70 A.2d 854 (1950). Additionally, this Commission’s decision must be supported by substantial evidence in the record. More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established. *Norfolk & Western Ry. Co. v. Pa. PUC*, 489 Pa. 109, 413 A.2d 1037 (1980).

Because the Joint Petitioners have reached a full settlement of the issues and claims that arose in this proceeding, the Joint Petitioners have the burden to prove that the Settlement is in the public interest. Pursuant to our Regulations at 52 Pa. Code § 5.231, it is the Commission’s policy to promote settlements. Settlement terms often are preferable to those achieved at the conclusion of a fully litigated proceeding. In addition, a full settlement of all the issues in a proceeding eliminates the time, effort and expense that otherwise would have been used in litigating the proceeding, while a partial settlement may significantly reduce the time, effort and expense of litigating a case.

Regulatory proceedings often are expensive to litigate, and the reasonable cost of such litigation is an operating expense recoverable in the rates approved by the Commission. Partial or full settlements allow the parties to avoid the substantial costs of preparing and serving testimony, cross-examining witnesses in lengthy hearings, and preparing and serving briefs, reply briefs, exceptions and reply exceptions, together with the briefs and reply briefs necessitated by any appeal of the Commission's decision, yielding significant expense savings for the company's customers. For this and other sound reasons, settlements are encouraged by long-standing Commission policy.

The Commission must, however, review proposed settlements to determine whether the terms are in the public interest. *Pa. PUC v. Philadelphia Gas Works*, Docket No. M-00031768 (Order entered January 7, 2004); *Pa. PUC v. C.S. Water and Sewer Assoc.*, 74 Pa. P.U.C. 767 (1991); *Pa. PUC v. Philadelphia Electric Co.*, 60 Pa. P.U.C. 1 (1985). In order to accept a settlement such as that proposed here, the Commission must determine that the proposed terms and conditions are in the public interest. *Pa. PUC v. York Water Co.*, Docket No. R-00049165 (Order entered October 4, 2004); *Pa. PUC v. C.S. Water and Sewer Assoc.*, *supra*.

B. Joint Petition for Approval of Full Settlement

1. Introduction

As stated previously, on December 7, 2012, the Joint Petitioners filed the Settlement. The Joint Petitioners state that the Settlement has been agreed to, or is not opposed, by all active Parties in this proceeding, noting that the Office of Small Business Advocate (OSBA), DII and Citizen Power have indicated that they do not oppose the Settlement. According to the Joint Petitioners, the Settlement resolves all issues in this proceeding and is in the best interests of Duquesne, the Joint Petitioners and the Company's customers. Settlement at 6. The Settlement provides for the approval of Duquesne's Final

SMP with certain clarifications and modifications that provide for additional customer education regarding smart meter technology and deployment and that provide for additional protection of customer data and the security of the distribution system. In addition, the Settlement provides that the Company will meet with stakeholders to obtain input on a plan to allow low-income customers to use smart meter technology to reduce their energy bills.

2. Terms and Conditions of the Full Settlement

The Settlement consists of the Joint Petition containing the terms and conditions of the Settlement, and five appendices. Appendices A and B to the Settlement are the Statements in Support of Settlement submitted by Duquesne and the OCA, respectively. Appendices C through E to the Settlement are the letters of non-opposition of the OSBA, DII and Citizen Power, respectively.

The essential terms and conditions of the Settlement are set forth in Section II, as follows:

II. SETTLEMENT TERMS AND CONDITIONS

19. Duquesne Light's Final Smart Meter Plan is approved with the following clarifications and/or revisions.

a. Customer Education and Research Metrics

20. Within 60 days from the final order in this proceeding, the Company shall arrange to meet with the OCA and interested parties to obtain input on a plan to research the actual experiences of low-income customers to determine how such customers may be able to use smart meter technology to reduce their energy bills and to incorporate information regarding such customers into the Company's Customer Acceptance and Education Plan performance metrics. The Company also agrees to meet with the OCA and

interested parties to obtain input to research the actual experiences of low use (base load usage below 500 kWh), medically needy (customers with Chapter 56 medical certifications at the time a smart meter is installed) and other vulnerable customers to the extent such customers can be reasonably identified, and as agreed to between the Company and the OCA, provided that the Company will not be required to research other vulnerable customers if such agreement cannot be reached. The meeting(s) will establish a review and reporting process and a timeline for deliverables. The timeline in the plan will align with scheduled smart meter deployment estimated to begin in the fourth quarter of 2014. With regard to researching the experiences of customers described above, the parties may consider the Company's gathering and sharing with interested parties' non-confidential information regarding such customers' load shapes and usage characteristics as a means of informing the design of potential programs to enable such customers to benefit from smart meter technology.

21. The Company will propose any potential customer education measures for Time-of-Use ("TOU") rates when it files for Commission approval of a TOU program under Act 129. The Company will seek Commission approval of such measures in conjunction with such TOU program. All Parties to this Settlement reserve their rights to contest the Company's proposed allocation of customer education costs in that filing.

b. Reasonable and Adequate Service

22. Duquesne Light shall comply with all provisions of Chapter 14 of the Pennsylvania Public Utility Code (66 Pa. C.S.A. Chapter 14) and Chapter 56 of the Commission's regulations (52 Pa. Code Chapter 56) with respect to the application of remote connect and disconnect. Specifically, Duquesne Light will:

- a) Send an appropriately trained representative to the customer premise before any termination is scheduled to occur. The representative will use reasonable efforts to make personal contact with a

responsible adult occupant of the premise prior to the termination.

b) Where personal contact is not made prior to termination, the representative shall leave conspicuously at the residence a notice informing the customer that utility service is being disconnected and how the customer can effect reconnection. The notice shall include the number of a hotline where low-income and vulnerable customers can receive information on all Duquesne Light Universal Service and Energy Conservation programs and related payment information.

c) Service shall not be terminated if the customer can show confirmation of payment through either authorized agent or automated payment systems. The representative shall be fully trained to direct low income and vulnerable customers to a hotline where they can receive information on all Duquesne Light's Universal Service and Energy Conservation program and related payment information.

d) On or before October 1, 2016, Duquesne Light shall make a tariff filing with the Commission to reduce its restoration fee for reconnection where the remote feature is used.

23. Duquesne Light will investigate alternatives for Voltage Monitoring functionality if the capability doesn't exist within the Oracle software solution by 2016.

c. Privacy and Security

24. During the first quarter of 2013, the Company shall hire a third party consultant to assist the Company in developing a privacy policy for customers' smart meter data. The development of said policy shall be carried out in consultation with interested stakeholders and shall be the subject of at least semiannual meetings with stakeholders during the development of the privacy policy. The third party consultant will be asked to report on the range of practices of

other U.S. EDCs with respect to privacy policies for smart meter data. The allowed cost for this study shall not exceed \$40,000.

25. Duquesne Light will conduct a vulnerability assessment across the entire Advanced Metering Infrastructure (AMI) solution including penetration testing at the meter to validate the cyber security of its AMI system.

d. Miscellaneous Issues

26. Duquesne Light will adopt the “Green Button Initiative” in providing consumption data to customers. This standardized data format will enable customers to utilize smart phone applications developed by third parties.

27. The Company shall be permitted to recover any additional costs associated with implementing the terms and conditions of this Settlement through its SMC, except as limited herein.

28. The Joint Petitioners aver that the petitions and applications at Docket No. M-2009-2123948, that preceded the Company’s Final Smart Meter Plan, have been incorporated therein, as modified by the Final Smart Meter Plan, and all issues associated with those filings have been fully resolved by the instant Settlement. The Joint Petitioners further aver that no further action is required on the petitions and applications that preceded the Final Smart Meter Plan.

Settlement ¶¶ 19-28 at 6-10.

On the basis of these and other provisions of the Settlement, the Joint Petitioners request that the Commission approve the Company’s Final SMP including all the terms and conditions embodied in the Joint Petition for Settlement, without modification.

3. Disposition of the Full Settlement

The Joint Petitioners assert that approval of the Settlement is in the public interest because it provides for: (1) additional customer education regarding smart meter technology and deployment and ensures stakeholder input on these issues, and (2) the protection of customer data and the security of the distribution system. The Joint Petitioners further assert that the Settlement reduces administrative burden on the Parties and the Commission by avoiding the expense and uncertainty attended with a fully litigated proceeding and administrative adjudication. Settlement at 10.

The proposed Settlement is conditioned upon Commission approval of its terms and conditions without modification. According to Paragraph 31 of the Settlement, in the event that the Commission modifies the Settlement, any Joint Petitioner may elect to withdraw from the Settlement and proceed with litigation. In that event, the entire Settlement automatically shall be void and of no effect. Paragraph 31 provides that this Settlement may be withdrawn upon written notice to the Commission and all Parties five days from the date of the entry of the Commission Order denying or modifying the Settlement. The Settlement is made without any admissions against, or prejudice to, any position that any Joint Petitioner may adopt in any future litigation. In addition, the Joint Petitioners have agreed that the terms of the Settlement may not be cited as precedent in any future proceeding, and that the Commission's approval of the Settlement shall not be construed to represent approval of any Joint Petitioner's position on any issue, except as required to implement the terms of the settlement in this and future proceedings involving Duquesne. The Joint Petitioners agree that the Settlement is a compromise, and does not necessarily represent the position that a Joint Petitioner would advance in a litigated proceeding. *Id.* at 11.

As stated above, all Parties to this proceeding either support, or do not oppose, the terms of the Settlement. The Settlement provides for certain modifications to

the Final SMP Plan initially proposed by Duquesne, and represents a compromise among the Joint Petitioners that resolves all of the issues that have been raised in this proceeding. The Parties are to be commended for reaching an amicable Settlement on such a complex filing.

Based on our review of the record, we conclude that the proposed Settlement is in the public interest, and we shall approve it with the exception of several issues which remain to be addressed in order for Duquesne's SMP to comply with its statutory objectives. First, pursuant to Act 129 of 2008, Smart Meter Technology must enable the use of time-of-use (TOU) rates and real time pricing (RTP). 66 Pa. C.S. § 2807(g). Customers can elect to participate in TOU rates and real time pricing. See 66 Pa. C.S. § 2807 (f) (5). In our *Implementation Order*, we established additional meter capability requirements including, *inter alia*, that the smart meter must have the capability to support the net metering of customer generators. It is unclear whether Duquesne's SMP satisfies these criteria.

To satisfy the statutory smart meter capability requirements and requirements set forth in the *Implementation Order*, it is necessary that Duquesne's SMP provide for changes to Duquesne's settlement and customer profile processes. Currently, for monthly metered customer accounts, Duquesne uses a standard customer class average profile when allocating energy costs to customers. Individual customer hourly usage is interpolated from this standard class profile. As such, if an individual customer reduces usage during an on-peak hour, that monthly metered customer does not get the benefit of any cost savings for that on-peak reduction when Duquesne allocates hourly energy payment responsibility to the electric generation supplier serving that customer. This is why TOU rates and RTP programs cannot be effectively implemented without using hourly interval meters.

However, the meter alone is not enough for Duquesne to be capable of providing TOU rates and RTP and supporting net metering of customer-generators. Duquesne must also modify its settlement processes to allocate energy to each customer according to their actual usage profile, for each hour, as recorded by the installed smart meter. This is exactly what Duquesne does for its existing large customers with currently installed interval meters. Without adjusting these settlement and profiling processes, incentives and efforts for customers to receive TOU and RTP offers, as well as the successful marketing of net metering offers, will be thwarted in contravention of the statute and the *Implementation Order*.

Duquesne proposes to gradually install smart meters between 2014 and 2020. Because of this long installation period, it will be necessary for Duquesne to implement these settlement and profiling process changes prior to the completion of all smart meter installations. Accordingly, Duquesne should file a supplemental SMP with the Commission providing a reasonable period, after installation of each smart meter, in which it will ensure that each customer gets its energy and capacity assignments based on the actual hourly energy usage of that customer. Customers should not be forced to wait years to be capable of receiving TOU, RTP and net metering pricing products.

The second unresolved issue with Duquesne's SMP relates to third-party access to customer meter data. This filing is designed as Duquesne's "Final Smart Meter Procurement and Installation Plan." Duquesne's Final SMP properly provides for the development of a web portal for the purpose of efficiently sharing certain limited customer authorized usage and service data with service providers of that customer.¹ However, the Final SMP does not provide the specifics of the web-based solution or how and when it will be implemented.

¹ Information sharing does not include sensitive customer financial data. Data access is limited to usage data required to efficiently and accurately price service offerings to customers.

By Order entered on December 6, 2012, at Docket No. M-2009-2092655, we directed the Electronic Data Exchange Working Group (EDEWG) to initiate a web-portal working group to develop a standardized solution for acquisition of interval usage data via a secure web-portal. It is our expectation that Duquesne and the other EDCs will be directed to update their smart meter technology and implementation plans when the work of this web-portal group has concluded. Any such updates would be for the purpose of implementing a standardized web-based solution, arising out of the working group and approved by the Commission, to provide authorized third parties with secure access to customer interval usage data.

Finally, we note that we previously directed that each plan shall include the individual costs for deploying and operating nine additional smart meter technology capabilities. *Implementation Order* at 30. Duquesne has indicated that the cost of the Voltage Monitoring and Communication of Outages and Restorations capabilities are not justified at this time. However, Duquesne failed to provide specific cost effectiveness data supporting its decision not to include these capabilities in the SMP.² Based on the record as developed, we are unable to determine whether Duquesne's circumstances merit a waiver of these capabilities.

Therefore, we shall direct Duquesne to make a compliance filing within ninety days of the date of entry of this Opinion and Order, specifying its proposed changes to settlements and profile processes, and providing data supporting whether or not inclusion of the Voltage Monitoring and Communication of Outages and Restorations capabilities are cost effective. We shall approve Duquesne's Final Smart Meter Plan as

² The Commission directed that deployment and operating costs of the additional capabilities be presented including a breakdown of all incremental costs and any associated potential operational and maintenance cost savings. *Id.* "All cost estimates must be supported by estimates from at least two vendors where available. To the extent that an EDC or another party demonstrates that a particular Commission imposed requirement is not cost-effective, the Commission will have the option of waiving a particular requirement for that EDC or all EDCs." *Id.* at 30-31.

modified by the Joint Petition for Full Settlement of all Issues in all other respects. We direct that the Parties to the Joint Petition provide written notice to the Commission and all Parties within five days from the date of the entry of this Opinion and Order whether they intend to withdraw from the Settlement based upon our directed modifications.

IV. Conclusion

For the reasons set forth, *supra*, we will grant Duquesne's Petition, approve the Joint Petition for Full Settlement, and approve Duquesne's Final Smart Meter Plan, as modified by, and consistent with, this Opinion and Order. Duquesne is directed to make a compliance filing within ninety days of the entry of this Opinion and Order, specifying its proposed changes to settlements and profile processes, and providing data supporting whether or not inclusion of the Voltage Monitoring and Communication of Outages and Restorations capabilities are cost effective; **THEREFORE,**

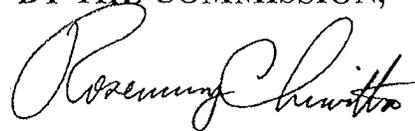
IT IS ORDERED:

1. That the Petition of Duquesne Light Company seeking approval of its Final Smart Meter Plan is granted, as modified by this Opinion and Order.
2. That the Joint Petition for Approval of Full Settlement of All Issues filed on December 7, 2012, is approved, as modified by this Opinion and Order.
3. That the Parties to the Joint Petition for Approval of Full Settlement of All Issues provide written notice to the Commission and all Parties within five (5) days from the date of entry of this Opinion and Order, whether they intend to withdraw from the Settlement based upon the Commission directed modifications. In the event no adverse comments are filed regarding the directed modifications, this Order shall be deemed final without further Commission action.

4. That Duquesne Light Company shall make a compliance filing within ninety (90) days of the date of entry of this Opinion and Order, specifying its proposed changes to settlements and profile processes, and providing data supporting whether or not inclusion of the Voltage Monitoring and Communication of Outages and Restorations capabilities are cost effective.

5. That any other interested Parties are directed to file comments on Duquesne Light Company's compliance filing submitted in response to Ordering Paragraph No. 4, above, within 120 days of the date of entry of this Opinion and Order.

BY THE COMMISSION,



Rosemary Chiavetta

Secretary

(SEAL)

ORDER ADOPTED: April 4, 2013

ORDER ENTERED: May 6, 2013

Appendix Tab 3

PENNSYLVANIA
PUBLIC UTILITY COMMISSION
Harrisburg, PA 17105-3265

Public Meeting held March 2, 2017

Commissioners Present:

Gladys M. Brown, Chairman, Statement
Andrew G. Place, Vice Chairman
John F. Coleman, Jr.
Robert F. Powelson, Statement
David W. Sweet, Statement

Petition of Duquesne Light Company
for Approval to Modify its Smart Meter
Procurement and Installation Plan

P-2015-2497267

OPINION AND ORDER

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BY THE COMMISSION:

I. Matter Before the Commission

Before the Pennsylvania Public Utility Commission (Commission) for consideration and disposition are the Exceptions of Duquesne Light Company (Duquesne or the Company) and the Office of Consumer Advocate (OCA) filed on November 28, 2016, to the Initial Decision of Administrative Law Judge (ALJ) Katrina L. Dunderdale issued on November 8, 2016, relative to the above-captioned proceeding. On December 8, 2016, Replies to Exceptions were submitted by Duquesne and the OCA. For the reasons stated below, we shall deny the Exceptions and adopt the ALJ's Initial Decision.

II. Background

On October 15, 2008, House Bill 2200 was signed into law as Act 129 with an effective date of November 14, 2008. Among other requirements, Act 129 specifically directed that within nine months of its effective date, electric distribution companies (EDCs) were to file, with the Commission for approval, a smart meter technology procurement and installation plan (SMP). 66 Pa. C.S. § 2807(f)(1). On June 24, 2009, the Commission issued its Smart Meter Procurement and Implementation Order at Docket No. M-2009-2092655 (*Implementation Order*), which established the standards that EDCs must meet for providing smart meter technology to customers and also provided guidance for meeting those standards.

On August 14, 2009, Duquesne filed its Initial Smart Meter Procurement and Installation Plan (Initial SMP) with the Commission. The Commission entered an Order on May 11, 2010, approving Duquesne's Initial SMP, with certain modifications. Thereafter, on June 29, 2012, Duquesne filed its Petition for Approval of its Final Smart Meter Plan. As a result, by Order entered on May 6, 2013, the Commission granted Duquesne's Petition to implement its Final SMP with certain modifications, at Docket No. M-2009-2123948, as required by Act 129. That Order directed Duquesne to make a compliance filing providing data supporting whether or not the inclusion of communication of outages and restoration and voltage monitoring capabilities were cost effective. Duquesne submitted its Compliance Filing on August 2, 2013, and the Commission approved the Compliance Filing by Order entered January 9, 2014.¹

¹ Duquesne St. No. 2 at 3.

III. History of the Proceeding

Duquesne filed the instant Petition on August 4, 2015, seeking approval to modify its SMP. The Petition seeks to implement changes to its approved SMP 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 August 24, 2015, Answers to the Petition were submitted by the OCA and Citizen Power, Inc. (Citizen Power). On September 4, 2015, the Office of Small Business Advocate (OSBA) filed a Notice of Intervention. Thereafter, on October 14, 2015, the ALJ issued a Prehearing Order and issued a Hearing Notice scheduling the matter for evidentiary hearings on February 17, 2016, through February 19, 2016.

On January 21, 2016, Duquesne filed a Motion for Protective Order. On January 22, 2016, the ALJ issued the requested Protective Order due to the presence of proprietary and/or confidential information.

On February 18, 2016, the ALJ conducted an initial evidentiary hearing, wherein the Parties agreed to waive cross-examination of the written testimonies served previously. During this hearing, the ALJ admitted the written testimonies of Duquesne and OCA into the record.

On March 17, 2016, Main Briefs (M.B.) were filed by Duquesne, the OCA and Citizen Power. Reply Briefs (R.B.) were filed by Duquesne, the OCA and Citizen Power on April 7, 2016. The record was closed on April 11, 2016, upon the issuance of the Interim Order Closing the Record.

Subsequently, on May 4, 2016, the ALJ issued a Post-Hearing Order which reopened the record and scheduled a call-in telephonic post-hearing conference for

May 17, 2016, at which time the Parties were ordered to be prepared to discuss and agree to a revised litigation schedule. The ALJ stated that more cost information was needed to further evaluate Duquesne's smart meter costs and directed Duquesne to answer the following four questions:

- 1) How much of the reasonable and prudent costs of the installation of the [Outage Management System (OMS)] and [Advanced Distribution Management System (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 [Smart Meter Charge (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?

The ALJ also directed the Company and the OCA to discuss whether information marked as "Confidential" was properly characterized in certain written testimonies. At the request of the Parties, the date of the post-hearing conference was moved to May 24, 2016.

On May 24, 2016, the ALJ conducted a post-hearing conference wherein the Parties considered the issues raised in 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 ALJ issued the Second Post-Hearing Order which suspended the litigation schedule, directed Duquesne 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 30, 2016, the ALJ conducted the Further Hearing at which all Parties were present. Duquesne and the OCA presented additional written testimony which was admitted into the record. During this hearing, Duquesne requested the opportunity to submit a brief and, possibly, a reply brief. The other Parties agreed and a briefing schedule was agreed to by the Parties. Thereafter, on July 1, 2016, the ALJ 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. On July 20, 2016, Main Briefs were filed by Duquesne, the OCA and Citizen Power. On July 27, 2016, Reply Briefs were filed by these same Parties.

On August 15, 2016, the ALJ issued the Fourth Interim Order which closed the record. On November 8, 2016, the Commission issued the ALJ’s Initial Decision that granted Duquesne’s Petition, in part, and denied it, in part.

On November 21, 2016, Citizen Power filed a Petition to Withdraw from this proceeding pursuant to the Rules of Practice and Procedure at 52 Pa. Code § 5.94.

Citizen Power explained that it has temporarily suspended their legal advocacy operations effective October 31, 2016, due to funding shortages. Citizen Power further explained that the OCA actively participated in this proceeding and had addressed the issues on which Citizen Power was concerned. As such, Citizen Power requested that the Commission grant its Petition to Withdraw.

Exceptions to the Initial Decision were filed by Duquesne and the OCA on November 28, 2016. Replies to Exceptions were received on December 8, 2016, from Duquesne and the OCA.

IV. Discussion

We note that any issue that we do not specifically address has been duly considered and will be denied without further discussion. It is well settled that the Commission is not required to consider, expressly or at length, each contention or argument raised by the parties. *Consolidated Rail Corporation v. Pa. PUC*, 625 A.2d 741 (Pa. Cmwlth. 1993); *see also, generally, University of Pennsylvania v. Pa. PUC*, 485 A.2d 1217 (Pa. Cmwlth. 1984).

A. Legal Standards

As the proponent of a rule or order, the Company has the burden of proof in this proceeding in accordance with Section 332(a) of the Public Utility Code (Code), 66 Pa. C.S. § 332(a). Courts have held that “[a] litigant’s burden of proof before administrative tribunals as well as before most civil proceedings is satisfied by establishing a preponderance of evidence which is substantial and legally credible.” *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Cmwlth. 1990), *alloc. denied*, 529 Pa. 654, 602 A.2d 863 (1992). That is, the Company’s evidence must be more convincing, by even the smallest amount, than that presented by the other Parties. *Se-Ling Hosiery, Inc. v. Margulies*, 364 Pa. 45, 70 A.2d 854 (1950). Additionally, this Commission’s decision must be supported by substantial evidence in the record. More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established. *Norfolk & Western Ry. Co. v. Pa. PUC*, 489 Pa. 109, 413 A.2d 1037 (1980).

B. Duquesne’s Petition

In its Petition to modify its SMP, Duquesne proposed to install an ADMS to achieve enhanced communication, outage restoration and voltage monitoring

capabilities, and to recover Bill Ready costs through the Company's SMC. The Company stated that it had conducted a study of the costs and benefits of implementing enhanced outage communications and voltage monitoring capabilities and that based on the results of the study, it is proposing the implementation in its Petition. Duquesne explained that it had issued a Request for Proposal (RFP) to conduct a comprehensive study of these costs and benefits and chose DNV GL as the vendor to complete the requested study. Petition at 1-11.

Duquesne explained that the proposed ADMS is an integrated system with a common user interface that provides the operator with the ability to analyze the distribution network and includes outage management functionality, Supervisory Control and Data Acquisition (SCADA) functionality, and Advanced Distribution Applications functionality such as real time load flow analysis, Volt/VAR Optimization, fault analysis, and switching order solutions. According to Duquesne, implementation of ADMS will be a multi-year and multi-million dollar project that will improve accuracy, timeliness and consistency of outage and restoration information provided to customers and stakeholders. Duquesne asserted that the system is also expected to reduce manual outage analysis, response times and customer outage duration. Further, Duquesne maintained that ADMS provides enhanced load balancing, fault location isolation, service restoration, interactive Volt/VAR optimization and voltage regulation and conservation. Petition at 11.

Next, Duquesne explained that it must implement certain foundational systems to achieve the proposed functionality. First, the Company stated that it must develop an electrical model which is necessary as it connects the customer to the grid and models the electrical connectivity from the substation breaker all the way to the meter. Additionally, Duquesne claimed that it must replace its current Outage Analysis System

(OAS)² with an Outage Management System (OMS). Duquesne explained that an OMS uses the electrical model to automatically determine what protective device has operated during a power outage and then automatically groups all customers affected by this device together. Petition at 12. Finally, Duquesne proposed to accelerate its smart deployment schedule by one year so that its residential meters will be fully deployed by the end of 2018 and commercial and industrial meters by the end of 2019.

Duquesne projected that these changes will increase the overall cost of its original SMP from \$203 million to \$319 million. The Company stated that \$54 million of this projected increase will be for the completion of smart meters and supporting technology, and \$7 million is needed to implement Bill Ready billing. The \$55 million balance of the increase represents the projected cost of the ADMS project. Petition at 16-17.

C. Positions of the Parties

Duquesne requests that its modified SMP be approved because (1) the customers' savings were reliably quantified when Duquesne 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;³ (2) the estimate of customer savings calculated by DNV GL is supported by a second model – the Interruption Cost Estimate (ICE) calculator – and based upon these two independent models, implementing the ADMS will provide substantial customer savings that 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

² The OAS is used to track emergency trouble calls, provides a means to manually group these calls to protective devices and enables real time updating of the interactive voice response (IVR) with useful outage information for customers.

³ Duquesne St. No. 2-R at 6.

ability to duplicate the model; (4) Duquesne provided considerable detail to the OCA regarding what factors DNV GL considered in estimating customer benefits in order to address their concerns about the proprietary DNV GL model;⁴ and (5) Duquesne 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.⁵

The OCA asserted that Duquesne failed to meet its burden of proving the ADMS project as proposed is cost-effective. The OCA pointed out that the Commission, in its *Implementation Order*, 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. The OCA maintained that 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. According to the OCA, unless Duquesne 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 under the Smart Meter requirements. However, the OCA recommended that should the Commission not reject the ADMS project, the recovery of the project's costs should be sought through a base rate case and not Duquesne's SMC. Also, the OCA submitted that the costs of Bill Ready functionality are properly recovered from Electric Generation Suppliers (EGSs) who are the overwhelming beneficiaries of this capability.

Citizen Power agreed with the OCA that Duquesne failed to demonstrate that its ADMS project is cost-effective. Citizen Power urges the Commission to reject that aspect of the Petition. In the alternative, Citizen Power recommended that if the

⁴ Duquesne Exhibit JK 1-R.

⁵ Duquesne Exhibit JK 2-R.

Commission does determine that the ADMS is cost-effective, Duquesne should be required to recover the associated costs through base rates.

D. ADMS Project Approval Issue

1. Positions of the Parties

Duquesne asserted that the Commission directed EDCs to adopt enhanced abilities to communicate outages and restorations, and to monitor voltage as part of the Smart Meter program. According to Duquesne, in its *Implementation Order*, the Commission required EDCs to evaluate the cost effectiveness of these capabilities. Duquesne noted that the Commission thought these capabilities would further facilitate the consumer's ability to control their electric use and costs, but reserved the authority to waive these requirements if they were not cost effective. Duquesne M.B. at 9-11, 18-19 (citing *Implementation Order* at 17, 31).

Duquesne opined that the OMS will create substantial benefits for customers and for the Company. Duquesne asserted that the OMS is expected to produce savings of approximately \$300,000 per year due to reduced phone calls at the Company's call center and increased effectiveness during and after storm events. Also, Duquesne submitted that based upon the DNV GL societal benefits, the OMS is estimated to create customer savings of approximately \$6 million per year due to a reduction in outage time. Duquesne stated that there are also numerous other safety and other non-quantifiable benefits associated with implementing the OMS. Duquesne M.B. at 12.

Duquesne noted that the ICE calculator, which is a publicly available model that was developed for the U.S. Department of Energy to calculate societal or customer cost savings of reduced outage time, determined that the range of annual customer savings in 2013 was \$4 million but would increase to approximately \$6 million by 2039.

However, Duquesne recommends using the DNV GL study because the customer benefits are calculated based upon more specific information about the Company's distribution system. Duquesne M.B. at 15.

Next, Duquesne submitted that the DMS component of the ADMS enhances the Company's voltage monitoring functions and will provide significant benefits. Duquesne estimated that the Volt/VAR optimization using real time smart meter data is expected to achieve an electric system benefit of \$2 million per year in capacity demand reduction once the DMS is fully implemented and utilized. Duquesne explained that the capacity demand reduction will be passed on to customers through reduced power costs. Duquesne also submitted that the transformer loading analysis using smart meter real time usage data is expected to achieve a benefit of \$285,000 per year due to asset management savings and overtime savings. Duquesne M.B. at 12.

Duquesne estimated that the OMS is expected to cost approximately \$42 to \$51 million, and it is expected that benefits will exceed costs in approximately seven to nine years. Additionally, Duquesne estimated that the DMS is expected to cost approximately \$3.8 to \$4.4 million, and it is expected that benefits will exceed costs in less than two years. Therefore, the total projected cost of the ADMS project is estimated by the Company to be between \$46 to \$56 million. Duquesne asserts that the ADMS system is cost effective and should be approved. Duquesne M.B. at 22.

The OCA recounted that the Commission's *Implementation Order* at 30 directed that an EDC's smart meter technology should support nine functions in addition to those mandated by Act 129. The OCA stated that due to its concern that some smart meter technological functions or capabilities might not be cost-effective, the Commission directed that each SMP filing include cost data that quantifies the costs to meet the minimum requirements set forth in Act 129, as well as the individual incremental costs of each added function, less any operating and capital cost savings. The OCA noted that the

Commission further stated that if an EDC or other party demonstrates that a Commission-imposed smart meter function is shown not to be cost-effective, the Commission would retain the option of waiving that particular requirement for the affected EDC. OCA M.B. at 8 (citing *Implementation Order* at 31).

Accordingly, it is the OCA's view that the ADMS project is not cost-effective and should not move forward as a smart meter project. The OCA asserted that as a cost-ineffective project, the Commission should waive the requirement for these functionalities for Duquesne. The OCA stated that in evaluating the costs and benefits of the ADMS project, the Company combined the estimated costs of the OMS (\$42.2 - \$51.6 million) with those of the DMS (\$3.8 - \$4.4 million) to reach a total of \$46 - \$56 million. The OCA pointed out that Duquesne also stated that the Company would incur ongoing operating costs of \$5 to \$6 million during the implementation phase of the project. Next, the OCA explained that over the projected twenty-year life of the ADMS system, Duquesne expected the benefits to total \$46.3 million (\$300,000 x 20 years of OMS benefits plus \$2.285 million x 20 years of DMS benefits). According to the OCA, the amount of expected benefits exceeds the lower end of the total cost estimate by only \$300,000, and only if the \$5 to \$6 million of ongoing operating costs associated with the implementation phase are not considered. OCA M.B. at 9-10.

The OCA identified three issues with regard to Duquesne's cost/benefit analysis: (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'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. OCA M.B. at 11.

Regarding the first issue, the OCA questioned whether the ADMS project would be completed at the low end of its projected cost range which would allow projected benefits to exceed the projected costs. The OCA pointed to a statement in Duquesne witness Karcher's Direct Testimony noting that 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. OCA M.B. at 11.

Secondly, the OCA is concerned because Duquesne did not include the ongoing project O&M costs as part of the cost-benefit analysis. Instead, the OCA claimed that Duquesne compared implementation costs only, not ongoing costs, to benefits. The OCA argued that the *Implementation Order* required Duquesne 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*." OCA M.B. at 11-12 (quoting OCA St. No. 1 at 12) (internal quotations omitted).

The OCA asserted that the cost for the ADMS project rises from Duquesne's initial estimate of \$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, the OCA asserted that the cost of the project substantially outstrips the objective benefits Duquesne has identified. The OCA further noted that according to its analysis, even if the \$6 million of societal benefits are utilized in the evaluation, benefits will not exceed costs until the year 2034. OCA M.B. at 13.

Concerning the third issue, the OCA questioned whether the societal benefits should be relied upon at all to justify the ADMS project costs based on the theory that societal benefits should not be used in a cost-benefit analysis if those benefits cannot be quantified reliably. The OCA opined that determinations of cost-effectiveness should be based on quantifiable operational improvements as the savings produced by these improvements offset costs that are included within rates. The OCA asserted that 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 the Company. However, the OCA claimed that the same cannot be said for the societal benefits estimated by the Company as these savings exist outside of the ratemaking function. The OCA averred that as non-system benefits, these cost savings should not be included as part of the cost-effectiveness evaluation utilized by the Commission. OCA M.B. at 13-14.

Citizen Power argued that an analysis of the benefits and costs provided by Duquesne does not demonstrate that the ADMS Project is cost effective. First, Citizen Power stated that the Commission did not specify what type of cost/benefit analysis should be performed and that there are many instances where the Commission does not take societal benefits into account when looking at the cost-effectiveness of a proposal. Also, Citizen Power opined that even taking societal benefits into account, the cost effectiveness is unclear as the combined cost of the ADMS project and the ADMS Run Operations could be as high as \$62 million, while the quantifiable benefits, many of which are far into the future, are only estimated at \$46.3 million. According to Citizen Power, 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. Citizen Power M.B. at 7-8.

2. ALJ's Decision

The ALJ concluded that the ADMS project was not cost effective. The ALJ stated that the OCA was correct that when determining cost effectiveness and making a cost-benefit analysis that extends over a period of many years, Duquesne 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. According to the ALJ, when all costs are added up, it becomes obvious that the functionalities are not cost effective. The ALJ stated that 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 as averred by Duquesne. Thus, the ALJ concluded that these costs exceed the benefits to be enjoyed by the Company and the consumers over the useful life of the functionality. I.D. at 43.

Additionally, the ALJ found persuasive the OCA's argument that the estimated soft benefits should not be included within the cost benefit analysis because including soft benefits is not an industry-wide standard. The ALJ stated that without the soft benefits included, the proposed costs would not accrue a benefit until after the hardware and software life expectancies have expired. The ALJ further asserted that even if the soft benefits were included in the cost benefit analysis, the estimate of soft benefits provided by DNV GL was too tenuous and obscure because Duquesne failed to explain why it could not reveal the factors and materials used by DNV GL in the creation of its estimate. The ALJ noted that Duquesne could have provided this information under the terms of the Protective Order that had been issued earlier but it chose not to divulge the supporting confidential information. Thus, the ALJ concluded that "without knowing what DNV GL looked at, considered and weighed, its final estimation is without foundation or weight." I.D. at 43.

The ALJ noted that contrary to Duquesne's contentions, the Commission's *Implementation Order* only required EDCs to analyze the cost effectiveness of OMS and DMS functionalities, but did not require that they implement these functionalities. In addition, the ALJ pointed out that the *Implementation Order* does not require that cost recovery for the OMS and DMS functionalities be incorporated into the SMC, but rather, the EDC may choose to incorporate it into the SMC. I.D. at 41.

The ALJ reiterated that by including both the hard and soft benefits in the cost benefit analysis, Duquesne's plan to implement the ADMS will not become cost effective until at least 2034. However, the ALJ stated that when excluding the soft benefits, the ADMS will never become cost effective prior to its 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. I.D. at 42 (citing OCA Exhibit SLS-3).

With regard to Duquesne's use of ICE, the ALJ noted that while ICE is an industry-acceptable standard, its calculation of \$4 million carries limited weight because it is based on old data and data collected outside of the Mid-Atlantic region. However, the ALJ was of the opinion that using the estimate from the ICE calculator is better than no estimate. Therefore, she concluded that if soft benefits are considered in the cost-benefit analysis, the lower ICE calculator should be used. I.D. at 42-44.

In conclusion, the ALJ determined that soft benefits should not be included when making the cost-benefit analysis for the changes to the smart meter charge. She noted that those soft benefits, as they occur, will not be lost as a benefit for the customers. According to the ALJ, those benefits eventually will be captured and incorporated into the customers' bills as a lower charge in the next base rate case, just as other EDCs in Pennsylvania have done. The ALJ opined that Duquesne can quantify and validate the

savings in the context of a rate base proceeding “instead of estimating them based on tenuous calculations shrouded in mystery and uncertainty.” I.D. at 44.

3. Exceptions and Replies

In its Exceptions, Duquesne asserts that the ALJ erred in concluding that the proposed ADMS project was not cost-effective. Duquesne maintains that its proposed ADMS project will provide substantial and significant tangible benefits for customers. First, Duquesne submits that the OMS will allow the Company to fully utilize the newly installed smart meters for outage restoration and communication. Duquesne states that the Company will be aware of outages and locations of outages sooner with the OMS and will be able to dispatch outage restoration crews earlier and prioritize crews to larger outages, which will reduce outage time. Duquesne estimates that the average duration of outages will decrease by five minutes with the OMS, which produces significant savings for customers. Duquesne avers that no Party in this proceeding disputed this Company estimate. Duquesne Exc. at 4-7.

Next, Duquesne explains that it presented the results of two independent studies as evidence of estimated customer savings. According to Duquesne, its consultant, DNV GL, performed a comprehensive study of the Company’s distribution system to estimate savings that will be achieved by a reduction in average outage time of five minutes. Duquesne asserts that the study evaluated Company specific data and estimated cost savings to customers of approximately \$6 million per year from reduced outage time. Duquesne states that it also presented results from a separate model, the ICE calculator, which was developed for the U.S. Department of Energy to estimate cost savings for customers due to reduced outage time. Duquesne explains that the ICE calculator is designed to estimate interruption costs and benefits associated with reliability improvements in the U.S. Duquesne states that the range of annual customer savings estimated by the ICE calculator is approximately \$4 million in 2023 increasing to

approximately \$6 million in the year 2039. However, Duquesne recommends using the DNV GL study because the customer benefits are calculated based upon more specific information about the Company's distribution system. Duquesne opines that it is clear based upon these two independent models that there will be substantial customer savings from implementing the OMS component of ADMS. Duquesne Exc. at 7-8.

In response to the ALJ's recommendation that the DNV GL results cannot be relied on because its formulas are proprietary, Duquesne states that this does not mean that the savings should be ignored. Duquesne opines that if DNV GL were to release the details of the model, their competitors would be able to duplicate the model. As such, Duquesne avers that DNV GL was not willing to release its formulas. Duquesne explains that to address these concerns it provided considerable detail to the Parties regarding what factors DNV GL considered in estimating benefits and further supported its level of estimated savings through the publicly available ICE calculator. Duquesne claims that the ICE model results conclusively demonstrate the reasonableness of the DNV GL results. Duquesne Exc. at 8-9.

In response to the ALJ's criticism of the ICE model, that it was outdated and did not rely on Duquesne specific data, the Company avers that this is no basis to reject this model. Duquesne posits that it presented the ICE model as support for the DNV GL estimates and maintains that the results from both models provide substantial evidence that customers will experience significant savings from implementing the OMS. Duquesne submits that it is undisputed that customers will experience benefits with reduced outage time and that neither the OCA nor any other Party in this proceeding presented any independent analysis of benefits customers will experience from the ADMS. Duquesne maintains that the DNV GL results combined with the ICE model results provide substantial evidence that customers will experience savings of approximately \$6 million per year. Also, Duquesne states that it presented evidence that it will achieve an additional estimated savings of \$300,000 per year due to increased

efficiencies during and after storm events and due to reduced call volume at its call center. Duquesne Exc. at 9-10.

Furthermore, Duquesne submits that it also provided a list of non-quantifiable benefits from the OMS which could result in savings, but were not included in the cost-benefit analysis. Duquesne states that no Party in this proceeding disputed that the OMS would provide these benefits, but the ALJ failed to consider them. Duquesne disagrees with the ALJ's conclusion that it failed to demonstrate that these non-quantifiable benefits are significant. Duquesne opines that the significance of the non-quantifiable benefits is self-evident and does not require further explanation. The Company explains that it did not attempt to quantify these benefits because they are difficult to accurately quantify. However, Duquesne opines that it is appropriate for the Commission to consider these many benefits in determining whether to approve the OMS project. Duquesne Exc. at 10-13 (citing Duquesne Exh. JK 3-R).

Next, Duquesne avers that the DMS component of the proposed ADMS project will also provide significant benefits for customers. First, Duquesne states that the Volt/VAR functionality of the DMS is expected to achieve an electric system benefit of \$2 million per year in capacity demand reduction, which will result in reduced power costs for customers. Second, Duquesne points out that the transformer loading functionality of the DMS is expected to reduce costs by approximately \$285,000 per year due to Asset Management and overtime savings. In addition, Duquesne asserts that the DMS will enhance fault location, which will reduce the time needed to find damage to the distribution system when the trouble location is otherwise unknown. Duquesne Exc. at 13.

Duquesne also contends that the ALJ erred in excluding consideration of soft or customer benefits as estimated by both the DNV GL study and the ICE Model from the cost-benefit analysis. Duquesne explains that soft benefits are benefits

experienced by customers that are not part of utility rates, *i.e.*, customer savings for increased production time or food spoilage from reduced outages. Duquesne points out that the ALJ recognized that if these soft benefits are included in the cost-benefit analysis, the proposed ADMS project would be cost effective. Duquesne asserts that there is no dispute in this proceeding that customers will experience benefits from the ADMS project due to reduced outage time. Duquesne maintains that the ALJ's conclusion that it is not industry standard to include customer benefits in evaluating the cost-effectiveness of a smart meter program is unsubstantiated and is based upon statements made by the OCA with respect to energy efficiency and conservation (EE&C) programs, not with implementing smart meter programs. Duquesne claims that it is appropriate to exclude customer benefits from evaluating the cost-effectiveness of EE&C programs because the statute limits the evaluation to costs associated with supplying energy.⁶ According to Duquesne, there is no such statutory prohibition for considering customer benefits for smart meter functionalities. Duquesne Exc. at 13-14.

Finally, Duquesne claims that the Commission's *Implementation Order* takes a broad view of smart meter functionalities and requires EDCs to include these functionalities in their smart meter plans. Duquesne notes that the Commission reserved the authority "to waive" the additional smart meter functionalities if they were not cost-effective. Duquesne further notes that the Commission, on page 31 of the *Implementation Order*, also stated that it had the option to waive a requirement if it is not cost-effective. Based upon this language from the *Implementation Order*, Duquesne opines that the Commission desires that EDCs implement all of the smart meter functionalities identified therein. Therefore, Duquesne posits that the Commission should take a broader view of cost savings in discerning whether smart meter functionalities are cost-effective as opposed to the factors that the Commission considers

⁶ Duquesne Exc. at 14 (citing *Energy Efficiency and Conservation Program Implementation Order*, Docket No. M-2008-2069887 (Order entered January 16, 2009) (*EE&C Order*) at 15-16).

when approving an EE&C program. Duquesne cites to the *Joint Petition of Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company and West Penn Power Company for Approval of Their Smart Meter Deployment Plan*, Docket No. M-2013-2341990, *et al.* (Order entered June 25, 2014) at 16, where the Commission considered the potential for additional operating savings in approving the FirstEnergy Companies' accelerated smart meter deployment plan. Duquesne Exc. at 15-16.

In its Replies to Exceptions, the OCA states that the ALJ correctly determined that the proposed ADMS project was not cost-effective. The OCA states that the cost of the ADMS will range from \$46 to \$56 million, plus ongoing O&M costs of \$5 to \$6 million during the implementation phase of the project, through the year 2020. The OCA provides that the Company estimated that the ADMS will produce \$46.3 million in what the OCA terms "hard" benefits, that is, projected cost savings directly tied to Duquesne's electrical system. In addition, the OCA asserts that the Company estimated that the OMS will yield \$6 million of annual "societal" benefits to customers as a result of an expected reduction of five minutes in the average duration of power outages. The OCA also points out that the Company identified other non-quantifiable benefits it expects will result from implementing the ADMS. OCA R. Exc. at 3-4 (citing Duquesne St. No. 2 at 7, 15-16).

The OCA opines that if focusing on just the hard benefits and comparing them with the cost of the project (the \$46 to \$56 million, plus the \$5 to \$6 million in implementation phase operating costs), it is apparent that costs will exceed benefits. Furthermore, the OCA maintains that Duquesne did not include in its cost-benefit analysis the ongoing incremental O&M costs that it will incur throughout the life of the ADMS project beyond the implementation phase through 2039. According to the OCA, these costs range from \$3.203 million in 2021 to \$4.582 million in 2039. The OCA provides that the total O&M costs for the life of the project equals \$78.455 million. The OCA cited the following rationale for including these costs in the cost-benefit analysis:

The *Implementation Order* [at 30] requires that “the deployment and operating costs to be presented shall include 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*. The Company is projecting that the ADMS will generate enough benefits to surpass costs by the conclusion of 2039; however, this comparison excludes costs that will be incurred through 2039, but are beyond the implementation period.

OCA R. Exc. at 4-5 (quoting OCA St. No. 1 at 12).

The OCA explains that when one adds the \$46 to \$56 million identified by Duquesne as the installed cost of ADMS to the \$78.455 million in incremental O&M costs, the total costs of the project of between \$124.5 and \$134.5 million dwarfs the projected hard benefits of \$46.3 million. The OCA maintains that if the ADMS can be found to be cost beneficial at all, it can only be done through inclusion of the claimed \$6 million of annual “societal” benefits in the analysis and ignoring the incremental O&M costs. The OCA argues that these societal benefits should not be considered in the cost-benefit analysis and does not believe that they could be reliably quantified. Moreover, the OCA opines that these benefits do not offset costs that are included in customers’ rates and they are not benefits realized by all customers. OCA R. Exc. at 5-6.

Next, the OCA asserts that in order for benefits to be included in a cost-benefit analysis, they should be based on quantifiable operational improvements that offset costs that are incorporated in the rates customers pay. The OCA points out that this is true of the hard benefits that Duquesne cites for both the OMS and DMS as 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 rates. However, the OCA avers that this is not true for the societal benefits the Company cites as these savings exist outside of the ratemaking function. According to the OCA, costs related to lost production time, food spoilage, hotel stays are not things that all customers pay for in their rates. As non-system benefits, the OCA states that these cost savings should not be included as part of the cost-effectiveness evaluation conducted by Duquesne or by the Commission. OCA R. Exc. at 6-7.

Next, the OCA submits that the estimated societal benefits of the DNV GL and ICE models presented by the Company are ultimately too speculative to warrant inclusion in a rigorous cost-benefit analysis of the ADMS project. The OCA points out that even Duquesne's own study recognized that the \$6 million of societal benefits as being "soft" and difficult to quantify. Also, the OCA reiterates that the \$6 million of societal benefits was the result of DNV GL's use of proprietary formulas to calculate the benefit figure. The OCA noted that the Commission has traditionally not recognized claims of societal benefits in other contexts, such as the analysis of the cost-effectiveness of EE&C Programs. OCA R. Exc. at 9 (citing *EE&C Order*). According to the OCA, without inclusion of these benefits in the evaluation, ADMS cannot possibly be found to be cost-effective. Therefore, the OCA states that in the absence of a cost-effective proposal, the Commission should exercise its authority to waive the "additional" capabilities of outage and restoration communication and voltage monitoring for Duquesne. OCA R. Exc. at 7-9.

Finally, in response to the assertions made in Duquesne's Exceptions that the OCA failed to meet its burden of presenting contrary evidence by not offering an independent analysis of societal benefits, the OCA submits that it is under no such burden in this proceeding. The OCA asserts that as the proponent of a Commission order in this

case, the burden of proof rests and remains on the Company to show that the ADMS is cost-effective. OCA R. Exc. at 9-10 (citing 66 Pa. C.S. § 332(a)). The OCA states that the only burden on it is to come forward with evidence to rebut the assertion that “societal benefits” are hard benefits worthy of inclusion in a cost-benefit analysis. The OCA posits that it is under no obligation to produce its own independent analysis of potential societal benefits. The OCA submits that it has met its burden of going forward with the evidence. OCA R. Exc. at 9-10.

4. Disposition

Upon our review of the evidence of record, we shall adopt ALJ Dunderdale’s well-reasoned conclusion that the Duquesne-proposed ADMS project is not cost effective as submitted in this proceeding. We conclude that Duquesne has failed to meet its burden of proving that this project is in the public interest at this time. In reaching this determination, we are in agreement with the position of the ALJ that the projected soft benefits identified by Duquesne are speculative and should not be included within the cost-benefit analysis of the ADMS project. Furthermore, we are also in agreement with the ALJ that the ongoing, projected O&M costs as identified by the OCA should have been included within any cost-benefit analysis of this project.

It is important to note that in our *Implementation Order*, the Commission did not require EDCs to implement the functionalities which Duquesne’s OMS and DMS are designed to accomplish, only to analyze their cost effectiveness. We specifically stated in our *Implementation Order* that while we believed that the smart meter capabilities we delineated will further facilitate the consumer’s ability to control their electric use and costs, we were aware that the costs of some of the added capabilities may exceed any benefit they may provide. As such, we reserved the authority to waive the requirement for any of the Commission imposed requirements to the extent that an EDC or another party demonstrates that a particular requirement is not cost effective.

Therefore, based upon the record within this proceeding and our conclusion that Duquesne failed to demonstrate that its proposed ADMS project is cost effective, at this time we shall waive the additional Commission-imposed capabilities of outage and restoration communication and voltage monitoring for Duquesne. However, Duquesne is not precluded from future development of these smart meter related capabilities, and seeking cost recovery in a base rate case, after demonstrating that such investments are prudent, as more fully discussed below.

Accordingly, we shall deny the Exceptions filed by Duquesne on this issue and adopt the ALJ's determination that the ADMS project proposed by Duquesne is not cost effective.

E. ADMS Cost Recovery

1. Positions of the Parties

Duquesne argued that the Commission should permit it to recover ADMS costs through its SMC because this project will enable the Company to meet the smart meter technology requirements set forth in the Commission's *Implementation Order* of communicating outages and restorations and monitoring voltage. Duquesne asserted that Act 129 gives the Company the discretion to determine how to recover these smart meter costs and explained that 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 of the Code, a practice the Commission expressly authorized. Duquesne stated that it does not have this new technology at the moment and asserted that it should be permitted to implement this technology as other EDCs in Pennsylvania already have it. According to Duquesne, the Commission, in its *Implementation Order* at 9, noted that each EDC had different capabilities and implementation challenges. As such, Duquesne

argued that it should not be penalized for having to install a new ADMS system to meet the *Implementation Order* requirements. Duquesne M.B. at 22-24.

The OCA first noted that Duquesne 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. According to the OCA, 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, the OCA further asserted that Duquesne would need to meet the statutory requirements for recovery through the SMC, a special recovery mechanism established as part of Act 129, if the Company seeks to recover the costs of the upgrade through that charge. The OCA opined that Duquesne has not met this burden. OCA M.B. at 17-18.

Next, the OCA claimed that the record evidence revealed 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*. The OCA further asserted that the ADMS is a cost-ineffective means of achieving these additional functionalities.⁷ According to the OCA, these ADMS costs are costs incurred in the normal course of business to provide safe, adequate and reliable service. OCA M.B. at 21 (citing Tr. at 144-148).

The OCA argued that Duquesne 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

⁷ OCA argues that Duquesne did not provide a breakdown of ADMS costs that are smart meter-related and those that are not. As indicated in response to the first ALJ 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.