U-35877

DIRECT TESTIMONY

of

J. GREGORY JOHNSON
Katama Technologies, Inc

In support of the Application of

Pointe Coupee Electric Membership Corporation

For Approval to Acquire and Install an Automated Metering System and Request for Cost Recovery and Related Relief

REDACTED TO PROTECT RULE 12.1 CONFIDENTIAL INFORMATION

February 03, 2021

DIRECT TESTIMONY OF J GREGORY JOHNSON
ON BEHALF OF
POINTE COUPEE ELECTRIC MEMBERSHIP CORPORATION

Q PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION AT KATAMA TECHNOLOGIES INC. (KTI)

A J Gregory Johnson, 16100 Whitesail Drive, Charlotte, North Carolina, 28278. My position is President/CEO.

Q HOW LONG HAVE YOU HELD THE POSITION OF PRESIDENT/CEO AT KTI?

A I founded KTI in August 2003.

Q PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A In 1977, I received a BS-EE in Biomedical Engineering from University of Rhode Island which is in Kingston, RI. I also received an MBA from Duke University located in Durham, North Carolina in 1985.

I worked at Westinghouse Electric Corporation from 1977 – 1986 and held various Engineering, Marketing and Business development positions in Pittsburgh, Pennsylvania, Saudi Arabia and Raleigh, North Carolina. In 1986, I transferred to Process Systems, Inc (PSI) in Charlotte, North Carolina where I served in various positions including Vice President of Sales. In 1997, Siemens Corporation acquired PSI and I held various positions in Charlotte and then was promoted to

Vice President – General Manager of Energy Management and Information Systems in Minneapolis, Minnesota. In 2003, I left Siemens and founded KTI to serve as a technology planning and implementation consultant for public power companies including Cooperative and Municipal utilities. KTI is the partner to NRECA's National Consulting Group and the APPA's Hometown Connections.

Q. PLEASE STATE THE PURPOSE OF YOUR TESTIMONY.

A The purpose of my testimony is to support the application of Pointe Coupee Electric Membership Corporation (PCE) for approval to install an Advanced Metering System (AMS). My testimony will be broken into four (4) separate categories: (1) review the existing meter reading technology and process in place at PCE, (2) describe the process used to select the preferred provider of AMS for PCE's future needs, (3) review the cost-benefit analysis for the proposed AMS implementation and (4) review other miscellaneous details associated with the proposed AMS implementation.

Q. WHAT WERE THE SOURCES OF YOUR DATA AND INFORMATION?

A The sources of data used for this study were: 1) financial, asset, labor and other associated data provided by PCE, 2) proposals and other documentation provided by AMS vendors.

Q PLEASE DESCRIBE THE HISTORY OF THE EXISTING METERING SYSTEM.

A PCE has approximately 10,500 meters that are manually read by a combination of employees and contract meter readers using Itron's FC300 handheld meter reading system. Itron has announced that support for the FC300 meter reading system will cease, therefore PCE will need to replace it in 2022. In addition, the meter reading process is labor intensive in an operational area where there is a high turnover of personnel resulting in continuous and significant requirement for training and quality control. Finally, the current meter reading technology is limited to providing monthly meter readings; the current system is not capable of innovative rates such as time-of-use or prepay nor is it capable of remote disconnect functionality.

As a part of a long-term vision and since PCE must upgrade or replace the current FC300 system, PCE has reviewed its options and the resulting impact on its members, operational efficiencies, and future rates. An upgrade for the FC300 manual meter reading system would be the simplest and lowest cost alternative; however, this alternative is not aligned with the strategic vision of PCE's management nor does it deliver the functionality that has come to be expected by electric consumers or employees. Therefore, PCE is proposing to implement an Advanced Metering System (AMS) compliant with the directive from the Louisiana Public Service Commission General Order R-29213. It is my understanding that this will be PCE's first AMS.

Q WOULD PCE'S EXISTING METERING SYSTEM HAVE QUALIFIED UNDER THE LA PSC'S 2009 ORDER DEFINING AN AMS SYSTEM?

A No the current Meter Reading system is a manual process which only provides monthly meter readings.

Q WHAT PROCESS WAS USED TO CHOSE THE NEW VENDOR(S)?

A In 2018, PCE began the consideration of four leading AMS providers: Aclara, Honeywell (formerly Elster), Itron and NexGrid (through Anixter). These four providers use varying types of Radio Frequency (RF) technologies for bi-directional communications with the meters.

A brief overview for each of these providers is shown in the tables below:

AMI Provider	**Aclara Point to MultiPoint (Licensed RF)** St. Louis, NC www.aclara.com
System Overview	Aclara is one of the pre-eminent providers of AMI solutions to the electric utility industry and offers a variety of technologies including AMI using Cellular, Power-Line-Carrier and RF technologies. They have over 500 customers in nine countries and are now owned by Hubbell. Aclara's RF AMI system is based on the 450 – 470 MHZ licensed radio band which employs a fixed two-way point-to-multipoint (P2MP) architecture for metering endpoints where data is directly transmitted from the meter communications card to a collector (referred to as a DCU) and then to the head-end (software).
Strengths	✓ Aclara's meters (which were acquired from GE) are among the best in the industry including high reliability and solid functionality. ✓ Service and support from Aclara are very strong. ✓ Aclara owns a meter installation service company which has a strong reputation. ✓ Delivered many systems to cooperatives throughout the US. ✓ Numerous ancillary applications such as load control.
Weaknesses	✓ Limited field experience with new network.

	✓ Lower bandwidth communication network which is not IPV6 compliant. ✓ Costs are slightly higher than the competition.
Conclusion	Aclara offers a strong product and was invited to participate in the Request for Proposal (RFP) process.

1

AMI Provider	**Honeywell (RF-Mesh AMI)** Raleigh, NC www.honeywellsmartgrid.com
System Overview	Honeywell bought Elster which was previously ABB metering. Elster was the first vendor to use RF Mesh technology at commercial scale with Salt River Project in 2003. They have since introduced a couple of new generations of their RF Mesh product line. Today they have a new RF Mesh based network that is IPV6 compatible and offers high data throughput with a smaller communications hardware footprint. They have large cooperative customers and a strong support service network.
Strengths	✓ Honeywell's software platform is called Connexo and offers strong communications management and data presentation functionality. ✓ IPV6 positions Honeywell well for interoperability integration with WISUN. ✓ Higher-bandwidth communication network. ✓ Network uses the lowest quantity of components resulting in lower maintenance costs. ✓ Numerous ancillary applications such as thermostat controls. ✓ Have contracted with a neighboring utility (SLEMCO) to deliver an AMI system.
Weaknesses	✓ Limited field experience with new network.
Conclusion	Honeywell offers a strong product and was invited to participate in the Request for Proposal (RFP) process.

2

AMI Provider	**Itron (RF Mesh)** Spokane, WA www.itron.com
System Overview	Historically, Itron had a large market share with investor-owned and municipal utilities but they did not have a strong presence with cooperative utilities. Their OpenWay AMI system had inherently high costs and was not

	effective in rural areas. In addition, their service and support were not effective at smaller utilities. In late 2017, Itron acquired SilverSpring Networks (SSN) due to their superior mesh-network architecture and market leadership with investor-owned utilities. SSN's mesh network was developed as a standards-based, high-speed architecture. Regarding the management of the Itron and SSN technologies, it is expected that Itron will use their own innovative AMI meter technology developed for a product function called RIVA and combine that with the network strengths of SilverSpring.
Strengths	✓ Meter quality. ✓ Itron has a track record of creating strong value from acquired companies. ✓ Standards-based, high-speed network.
Weaknesses	✓ Itron's presence in the cooperative market is inconsistent. ✓ Itron's acquisition of SilverSpring Networks has created significant uncertainty. ✓ Integration/interoperability is limited. ✓ Service/support reputation is poor.
Conclusion	Due to Itron's lack of experience with cooperatives, limited integration experience and uncertainty regarding the convergence of the Itron and SilverSpring networks, Itron was not invited to the RFP process.

1

AMI Provider	**NexGrid (RF Mesh)** Fredericksburg, VA www.Nexgrid.net
System Overview	NexGrid solutions "utilize high speed, standards-based communications to provide the most reliable energy data communication networks that enable energy management and utility operations in real time. NexGrid is a manufacturer and integrator of self-managing devices that offer utilities unrestricted monitoring and control of metering and data for electric, water, and gas." Their ecoNet Multi-Mash solution is built on a premise that takes advantage of numerous standards-based devices and technologies to deliver meter reading data to the utility's software application. The standard technologies that they use include ethernet and Zigbee.
Strengths	✓ Standards-based, high-speed network.

	✓ Emerging company includes a strategic direction that matches the needs of PCE.
Weaknesses	✓ Do not make their own meter. ✓ Very small company with very few cooperative customers. ✓ No existing integration with NISC. ✓ Standard communication technologies that they have selected are not in wide use in Louisiana.
Conclusion	Due to NexGrid's lack of experience with cooperatives and limited integration experience, they were considered as a dark-horse candidate; however, they declined to submit budgetary pricing claiming that the PCE "footprint is not a good match for our solution and have other opportunities that will be a better use of our resources at this time." Therefore, NexGrid was eliminated from further consideration.

In early 2020, PCE selected Katama Technologies, Inc. (KTI) to lead PCE through the finalization of a thorough and objective assessment and selection process for the most suitable AMS provider. KTI led PCE through a multi-step process that reviewed the prior work and then finalized the selection of the best fit AMS provider from those that were initially considered.

The initial stages of KTI's deliberate process included:

1. A review of the vendors that had been considered.
2. Evaluation of the original budgetary pricing
3. Discussions with PCE management about the strategic interests and expectations for AMS.
4. Assessment of the expected benefits to be derived from AMS.
5. Assessment of the expected impact of AMS on the PCE organization.

As discussed in the earlier tables, of the four vendors that had originally been considered, Aclara, Honeywell, Itron and NexGrid, it was determined that Aclara

and Honeywell warranted further consideration. However, Aclara and Honeywell systems are based on different types of RF technologies which required evaluation and consideration. Aclara uses a Point to MultiPoint or Tower technology and Honeywell uses a Mesh technology.

Tower RF systems use frequency bands that are licensed and allow for signal strengths that are a higher power and which are directed back to a small number of concentration points located throughout the service area. Essentially, Tower systems create a large communications umbrella in which all the meters report back to the focal point (i.e., Tower) of the umbrella. Tower systems typically have smaller bandwidths and communicate over distances of up to ten miles for each meter back to the tower. In general Tower systems perform better under outage conditions than Mesh systems.

Mesh RF systems are based on unlicensed frequency bands which use very low power and are distant cousins to the technology used for cordless phones, residential garage door openers and baby monitors. These RF systems have a high degree of interconnectivity and signal repeatability between all the deployed meters and are therefore referred to as Mesh Systems. Mesh systems typically have higher bandwidths and typically communicate over distances of less than one mile from meter to meter. In general Mesh systems are faster than Tower systems and have stronger adherence to standards of the communications industry.

A table showing the general attributes for Tower and Mesh technologies is shown below.

Attribute	RF Mesh	RF Tower
Vendors Considered	Honeywell, Itron, NexGrid	Aclara
Data Throughput	High	Medium
Experience with Coops	Variable	Variable
Hardware Footprint	Medium to high	Low to medium
Capacity	250 - 500 kbps	100 kbps
Rural Coverage	Good	Excellent
Scalability	Excellent	Good
Latency	5-30 sec	5-15 sec
Spectrum	Unlicensed, No Fee	Licensed, Fee

The review and assessment for the 2 finalists was performed jointly by KTI and PCE, it included obtaining a final proposal for each which formalized the requirements for:

1) Communications performance – to ensure that the vendors provide a communications network that will meet the present and future needs of PCE, it is critical that the specifications clearly articulate a robust network.

2) Product warranties – currently AMI providers are willing to provide 5-year warranties for meters along with a cost recovery clause that is triggered if there is a latent defect that affects a large quantity of meters. As an example, if a

production process, meter component or other aspect of manufacturing is faulty and creates excessive failures after 2 years, then the AMI provider will replace all the parts and reimburse PCE a fee for each meter to assist with the costs to uninstall and reinstall new meters.

3) Standardization of meter installation services – to ensure that the meter installation services were consistent and compliant with PCE needs, a formal requirements document was issued to Aclara and Honeywell.

4) Delivery of the software application – since the PCE runs a lean IT staff, it was decided that the software applications should be cloud based.

The technical assessment of the vendors based on the updated offers is shown in the table below.

	Aclara		Honeywell	
	Pros	**Cons**	**Pros**	**Cons**
Network	• P2MP network offers strong performance during outages • Licensed network	• Limited operating experience with electric meters in RF network • History of Hexagram-based RF solution has been poor	• Network has been selected by numerous other cooperatives based on a high-bandwidth and standards-based platform	• Performance during outages is based on Mesh technology which will be slightly worse than P2MP
HES/Apps	• 13 months of data storage	• Aclara is transitioning from a 3rd party software company to a self-produced application	• Software is modern design with intuitive screens that has been available for 3 – 4 years.	• <90 days of local data storage, must use NISC MDM

	Aclara		Honeywell	
	Pros	Cons	Pros	Cons
Meters	• Market leader in technology and share • Ability to detect phase of service	• Requote uses local hire contractors with limited training	• Strong meter history • New A4 meter is feature rich	
Future		• Ability to support standards-based requirements, e.g., WISUN is questionable.	• Design is 3rd. generation which is standards-based, e.g., IPv6	
General / Commercial	• Aclara has strong commitments to Cooperatives • Local service and support	• Small RF AMI market share	• Strong corporate backing and complementary products	• Local service and support have recently expanded in Louisiana due to implementation of AMS at Entergy.

In addition to the updated technical review, the AMI vendors submitted new pricing to PCE based upon the above requirements and the data was analyzed, with the results shown in the table below.

	Aclara	Honeywell
12-year summary of:		
Capital costs ($)	[redacted]	[redacted]
Operational Costs ($)	[redacted]	[redacted]
Finance costs ($)	[redacted]	[redacted]0
Total Capital, Financial and Operational Costs	[redacted]	[redacted]

Notes for the table above:

1. Costs for the conversion assume 10,500 meters.
2. All residential meters include remote disconnect/reconnect functionality.

The summary of the above technical and financial analyses is that Honeywell offers:

- Stronger meter functionality – the Honeywell A4 meter line offers a single platform for residential and commercial/industrial applications with significantly greater functionality including instrumentation grade power quality.
- Greater adherence to communications standards specifically IPV6 which provides numerous benefits to PCE:
    - Maintenance and operations do not require specialty training for PCE employees to learn a customized technology
    - The communications industry is moving towards greater standardization through the Wireless Smart Utility Network (Wi-SUN) which is a wireless communication standard that enables seamless connectivity between smart-grid devices. Honeywell is compliant with these standards which simplify the effort for 3rd-party providers to integrate products to the AMS network. This could include products for lighting controls, distributed energy resource management, load control and more.

- By using a standards-based technology, PCE will have options for future product sourcing making it less reliant on Honeywell.
- Honeywell has a strong presence in Louisiana, e.g., they are currently installing 2.9 million meters for a Louisiana investor owned utility and have been selected by another Louisiana electric utility as their preferred AMS provider. These local initiatives will provide opportunities for synergies, lessons learned and other collaborations.
- Lower implementation costs and annual expenses

As a result, Honeywell has been selected as PCE's AMS partner and a suitable contract has been negotiated contingent upon a successful outcome with the LPSC.

Q DOES THE REPORT ASSOCIATED WITH THIS FILING ADDRESS ALL OF THE REQUIREMENTS OF LA-PSC GENERAL ORDER R-29213 and R-29213 Subdocket A FOR THE APPROVAL AND COST RECOVERY?

A Yes, it does.

Q DID YOU PREPARE A NET BENEFIT ANALSYS FOR THE AMS IMPLEMENTATION?

A Yes, a net benefit analysis has been prepared and is described below.

Q PLEASE SUMMARIZE THE RESULTS OF THE NET BENEFIT ANALYSIS.

A In collaboration with the PCE AMS team, KTI used its Business Planning Model that has been used by well over 125 utilities nationwide. In PCE's case, these savings are derived from 5 distinct areas: reduced meter reading costs, Improved cash flow and financial performance, reduced overtime expense, Miscellaneous Savings and Reduction of Diversion. A discussion of each of these follows:

Reduced meter reading costs

Currently, a 3rd-party contractor reads approximately 44% of the PCE meters with an annual cost of nearly $74,000. In addition, PCE uses multiple employees for meter reading and billing services which results in an additional annual cost of $165,000. Due to implementation of AMS and attrition, these staff members will not need to be replaced which will result in an annual savings of nearly $239,000. To accommodate the attrition rate, the business model estimates that it will take 3 years for all the personnel changes to be completed.

Improved cash flow and financial performance

- Reduction in delinquency write-offs

As is the case with most utilities, delinquencies occur that can be mitigated with a modern AMS project which includes the ability to support remote disconnect and reconnect meters. The planned wide-scale availability of these meters allows PCE to be more pro-active with the disconnect process without the additional labor and to offer functions such as prepay metering to individuals that might benefit. By

being more proactive and reducing the time between delinquency and disconnect, PCE will limit its exposure.

Prepay metering has been broadly accepted by consumers to avoid large deposits and to take control of their own energy use. Cooperatives have been in the forefront of implementation of this technology, Brunswick EMC in North Carolina has offered these rates for nearly 20 years. Anecdotal evidence among Cooperatives gives an indication that with greater knowledge of their energy consumption, customers reduce their energy consumption between 10% and 15%. With freedom to pay when it is convenient, no worries about credit checks and with no penalties or reconnection fees, prepay metering is an ideal tool for some customers. The benefit to the utility is that this has a significant impact on delinquency write-offs.

As stated earlier, the PCE AMS project includes disconnect functionality for all applicable residential meters being acquired in the proposed project. 100% disconnect meters has become an industry standard. The cost differential between meters with and without this capability has dropped to the point where it is on average approximately [redacted].

Currently, PCE's delinquency expense is $43,400 per year. New AMS meters will be applied to all PCE members and wherever possible, remote disconnect meters will be used. Currently, disconnect meters are available for residential and small retail/commercial meter applications. It is expected that there will be a 25% reduction in delinquency expenses at those locations where disconnect meters are

employed. Based on these assumptions we estimate that PCE should see a savings of $10,850 per year.

- Improved cash flow

For a variety of reasons including the use of contract meter readers, the lag between the time the meter is read, and a bill is issued is excessive, i.e., over one month. This results in two areas of impact, the first being that the member is being sent a very "stale" bill that provides poor feedback about his/her energy consumption. As an example, if a member's meter is read on August 31 for consumption during that "hot" month and the bill is not issued until early October, they are likely to see a high bill when the actual temperature/climate may be very comfortable. It can be difficult for the member to correlate what happened on August 4th with that bill that they open on October 4th.

In addition, this lag means that PCE actually paid for the energy and has not yet billed the end-user. For PCE, improving the billing turnaround by 25 days will result in an annual savings of $30,500

- Reduced interest expense on customer deposits

By law, PCE must pay 5% interest on customer deposits. While some member may regard this as a good rate of return on their "investment" many would prefer to have the money made available to them for uses that they prefer. Once PCE has implemented the AMS solution and the pre-pay meter option, it is expected that some members will select prepay and eliminate this interest expense.

Currently, PCE pays nearly $20,500 of interest and by reducing this by 15% will save the utility $3,000 annually.

Reduced overtime expense

A major benefit of AMS systems occurs during outage from "last-gasp" and subsequent power restoration messages. Meters can be programmed to provide an affirmation that a sustained outage has occurred. For large outages, AMS provides significant detail to the OMS to define the location and severity of the event. For isolated outages, AMS can frequently identify the outage even if the customer is not home and aware that it has occurred. In these cases, PCE may be able to fix the outage during normal business hours avoiding an after-hours trip and associated overtime expenses.

When a major storm occurs, the full damage to the distribution network is not readily available until the crews get to the field and begin the restoration process. Frequently, there are numerous sources of damage that can result in "nested" outages. This is a case where a device serving a smaller number of customers is damaged early in the event and then a larger problem occurs. The crews can fix the larger problem and miss the smaller problem; if they are not made aware, they can leave the scene to go to another damaged area and leave customers in the dark. When it is finally apparent that there are still customers without power, the costs to return to the area may be more expensive. AMS solves the problem of nested outages and reduces crew times.

Through 2-way on-demand communications, AMS enables the utility to verify that all customers have electric power. This provides numerous benefits:

- Customers are served by a more reliable network,
- PCE has greater knowledge of the status of its distribution system and
- Overtime costs are reduced.

In this case, we project that PCE will reduce its overtime hours by 15% which would save an estimated $23,248 per year.

Miscellaneous Savings

Due to the implementation of AMS, PCE will not upgrade its existing handheld meter reading system and associated annual expenses. The annual expenses were considered earlier in the reduced meter reading costs but the capital costs for a one-time $20,250 upgrade is added here. In addition, since the AMS system will preclude PCE from having to purchase meters to replace those that are retired. This savings is $26,420/year.

Reduction of Diversion

As with all utilities, during routine site visits, PCE will find sites where a member is diverting (stealing) energy at the meter site. Industry estimates of diversion savings are 0.5% - 2.0% of kWh generated are stolen for all utilities nationwide and it is perceived that cooperatives are on the lower end of the scale. Diversion is especially problematic for cooperatives since the members are harming other members and creating inequity. AMS has historically been effective at reducing

diversion since the meters can detect items such as inexplicable outages, reverse power rotation, sudden changes in load and more. To be conservative we assumed diversion at PCE is 0.25% and captured this as $46,000 for the business case.

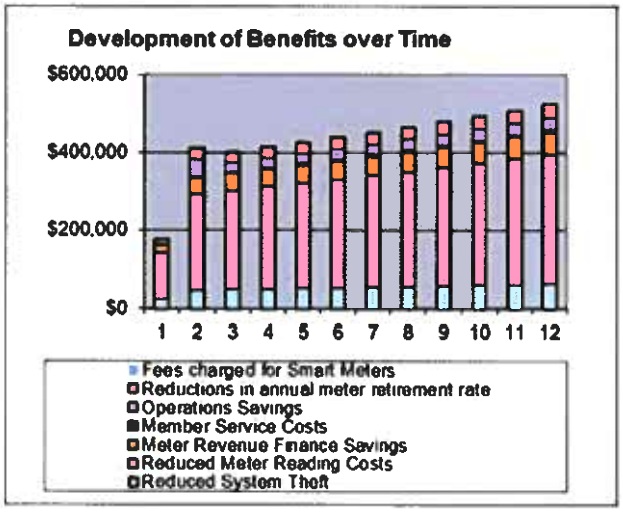
Results

The summary results for annual system savings are shown in the table below.

Pointe Coupee Electric	Summary of Estimated Annual Savings	KTI
Reduced System Theft		$46,041
1 We expect to reduce diversion by [1] 0.250%	$46,041	
[1] Industry estimates of diversion savings are 0.5% - 2.0% for all utilities. Average estimated diversion savings for surveyed Utilies is 0.50%		
Reduced Meter Reading Costs		$238,748
1 Contract Meter Readers	$73,697	
2 Meter Readers and Servicemen	$165,051	
Improved Cash Flow		$41,380
1 Primary meter reading finance costs	$30,529	
2 Annual reduction in delinquency write-offs	$10,851	
Member Service Savings		$3,062
1 Reduced interest expense on customer deposits	$3,062	
Operations Savings		$23,248
1 Overtime Savings	$23,248	
2 Defer replacement of current system $ 20,246	starting in year 2	
	ending in year 2	
Miscellaneous System Benefits		$26,040
1 Reductions in annual meter retirement rate	$26,040	

The expected/estimated annual savings will develop over time due to project deployment schedule and inflation. The graph to the right describes this development. In year 1, the

number of installed meters is a subset of the total, so the available savings are based on a partial implementation. Savings potential increases in years 2 and 3 to the total maximum of approximately $400K per year. After year 3, the savings increase per the annual inflation rate.



Using the savings baseline as described above and factoring in inflation and WACC (2.1%), the total NPV estimate for savings over the 12-year planning period is $4.56M.

Factoring in the costs and benefits, the net impact of AMI over the 12-year planning period is shown in the table below:

Estimated Results for 12 Years of Operation

<-- System Costs -->	AMI System Costs	[redacted]
	Implementation Costs	$710,000
	Total Capital Costs	[redacted]
	Annual Expenses	$1,030,000
	Finance Costs	$270,000
	Total Cost of Ownership	[redacted]
<-- System Benefits -->	Reduced System Theft	$540,000
	Reduced Meter Reading Costs	$2,890,000
	Improved Cash Flow	$500,000
	Member Service Savings	$40,000
	Operations Savings	$300,000
	Miscellaneous System Benefits	$290,000
	Total Benefits	$4,560,000
	Estimated 12 year Net Impact for AMI system	$1,050,000

The final estimated NPV Net Benefit for the PCE AMS project which considers the $4.56M savings and the [redacted] cost of ownership is a positive $1.05M NPV.

Q DOES THE PROPOSED AMS IMPLEMENTATION MEET EACH OF THE REQUIREMENTS CONTAINED IN THE LA PSC GENERAL ORDER?

A Yes.

Section 3.5.3.1 - PCE's AMS project is based on a pricing request which set forth functional requirements including:

- Remote residential service connect/disconnect including potential prepay metering
- 99.75% meter reading rates to ensure accurate and repeatable bills
- 99.75% access to profile data so that customers will have internet access to the details associated with their bills
- Ability to change meter functionality remotely if a customer chooses to change their rate, e.g., to a time-of-use rate that is offered in the future
- System alarms for a variety of events including theft detection, power quality deviations, improper meter installations and other meter anomalies
- Improved voltage monitoring
- Outage support including remote identification of outages as well as restoration verification

In addition, for future performance and functionality, the system is required to support customers that implement renewable energy applications such as roof-top solar. In this case, the meter can measure reverse power flow and detect back-fed voltages. Both items are considered best practice and, in the case of voltage detection, a personal safety tool.

Section 3.5.3.2 – Currently, PCE does not offer a Direct Load Control (DLC) system to its Members. DLC is one form of Demand Response and the new AMS system offer this application. Additionally, the planned AMS system can support additional DR activities such as demand-based rates, integration with advanced

thermostats and other similar activities. While PCE currently does not offer DR programs, the AMS will position PCE to do so in the future.

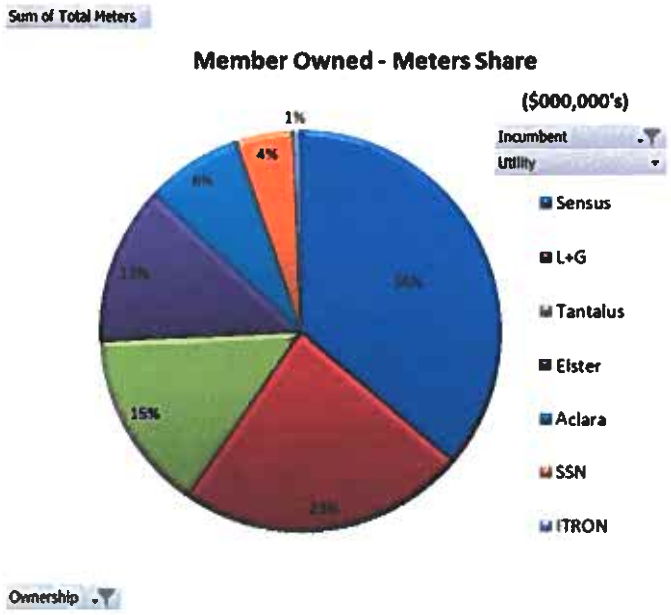
Paragraph 3.5.3.3 - The planned AMS project includes hourly data from all meters which will:

- Increase PCE's ability to perform asset loading studies for transformers
- Support the granular assessment of losses per substation, circuit or phase
- Forecast load characteristics due to changing demographics and other items such as electric vehicle or photo-voltaic saturation

Section 3.5.4 - While PCE currently does not offer DR programs, the AMS will position PCE to do so in the future.

Section 3.5.5 - Honeywell is the selected AMS vendor and offers PCE significant experience:

- They have delivered AMS solutions to 150+ utilities (including 15 electric cooperatives) throughout North America
- They have the expertise and track record to work with PCE to implement a superior AMS solution providing benefits for years to come
- They offer the ability to implement Demand Response (DR) programs, Distribution Automation (DA), prepayment, Street Lighting, and advanced analytic applications
- Strong market share among public power companies (see below) where Honeywell is shown as their previous brand name, Elster:



Source of Raw Data: EIA
(Does not include PLC)

The Honeywell communication network includes:

- A 902 – 928 MHz solution that is a self-registering, self-healing, IP-V6 compliant RF-mesh network
- A reduced height topology requiring that equipment be located at 25 feet or less ensuring simplified maintenance and trouble-shooting
- Higher data rates, e.g., 50 – 200 kilobits per second, enabling PCE to expand its future use of the system

Section 3.6.1 - The planned AMS offers full automated 2-way metering to a minimum of 99.5% of the PCE meters which includes redundant communication paths for 98% of the installed meters.

Section 3.6.2 - The planned AMS offers full two-way communications to all applicable meters including the ability to remotely reprogram the meters for added

or changed functionality. Most commonly, the system communicates with meters for:

- Billing and all low-urgency meter event data (e.g., loss of instrument transformer) shortly after midnight
- Load profile data and moderate-priority events (e.g., under/over voltages) 4 times per day
- Urgent events (e.g., outages, restorations, etc.) when they happen through a meter-initiated alarm process
- Responses to queries initiated by PCE customer service representatives from their desktop or handheld applications.
- Also planned for implementation are bellwether meters which will provide more granular data for operational awareness. As an example, bellwether meters can be used to detect voltage changes every 5 minutes or to detect short outages, e.g., 10 or 15 seconds which are indicative of the proper operation of PCE's protection equipment but do not require a truck roll for resolution. The total number of planned bellwether meters for PCE's system implementation is ~315. This number is selected so that all the PCE circuits/phases can be monitored and yet the amount of data will not overwhelm the software associated with AMS or with the other related systems such as Outage Management (OMS).

Section 3.6.3 - All the proposed AMS meters provide hourly energy and demand data and they can do so for traditional cases where power is delivered or for more modern cases where the customer has on-site generation and supplies it back to

the utility. We anticipate being able to comply with any dynamic or incentive-based rate that might be requested by the customer base or the Commission.

Section 3.6.4 - All the 200-amp residential meters purchased in this project will have a remote disconnect and reconnect switch and include the capability to locally activate the switches. PCE intends to use industry best practices for the reconnection of meters.

Section 3.6.5 - There are no specific plans in place to implement this functionality; however, the proposed AMS project when combined with the capabilities of the existing customer-facing internet portal will accommodate DR programs of this nature.

Section 3.6.6 - There are no specific plans in place to implement DR functionality; however, the proposed AMS project allows for the capture of granular load data at specific customer locations. In fact, the PCE specifications required that the residential and commercial meters be capable of providing kWh with 15-minute interval data. Using 15-minute kWh data will allow PCE to verify compliance with virtually any program that can be envisioned.

Section 3.6.7 - The AMS meter specifications require that all meters provide the following data:

- Delivered kWh with 15-minute interval data.
- Received kWh with 15-minute interval data.
- Voltage with 15-minute interval data (voltage profile).
- Minimum and maximum voltage snapshots, at least daily.
- Alarm and event data to be returned at least every 4 hours.

- Midnight reads to include daily kWh and 15-minute kW with a 5-minute subinterval (rolling average) including time of occurrence and no automatic demand reset for peak kW.

Additional requirements for Commercial meters include:

- Per-phase voltage with 15-minute interval data.
- Minimum and maximum voltage snapshots, at least daily.
- Midnight reads to include daily kWh and kVA and 15-minute kW with a 5-minute subinterval (rolling average) including coincident kVAR data and time of occurrence and an automatic midnight demand reset.

Finally, as mentioned in the response to PCE has specified that the AMS solution allow 3% of the meters (i.e., ~315 meters) to be programmed as bellwether meters which have additional data access requirements as follows:

- 5-minute voltage snapshots delivered every 5 minutes to the AMI Software.
- Alarm and event data to be returned at least every 5 minutes.

Based on the specifications and agreement by Honeywell to comply, PCE will be able to comply with this requirement.

Sections 3.6.8 and 3.6.9 - Honeywell is a leading provider of AMS and complies with all relevant standards including ANSI, IEEE, IEC and UL, specifically:

Applicable Meter Standard Conformance	
ANSI C12.1	Code for Electricity Meters
ANSI C12.7	Requirements for Watt-hour Meter Sockets
ANSI C12.10	Watt-hour Meters

Applicable Meter Standard Conformance	
ANSI C12.18	Protocol Specification for ANSI Type 2 Optical Port
ANSI C12.19	Utility Industry End Device Data Tables
ANSI C12.20	Electricity Meters – 0.2 and 0.5 Accuracy Class
ANSI MH10.8M	Specification for Bar Code
ANSI ASQZ 1.4	Sampling Procedures and Tables for Inspection by Attributes
IEEE C37.90.1	SWC Surge Testing
IEC 61000-4-2	Electrostatic Discharge Requirements
IEC 61000-4-4	Electrical Fast Transient/Burst Requirements
UL 2735	Standard for Safety Electric Utility Meters

Honeywell is also a member of the Wi-SUN Alliance whose mission is to: "Seek to advance seamless connectivity by promoting IEEE 802.15.4g standard based interoperability for global regional markets". Key aspects of its mission include:

- Provide a forum for global collaboration to achieve Smart City and Smart Utility Communications Network Interoperability
- Grow the Wi-SUN Ecosystem
- Lead industry growth based on IEEE 802.15.4g technology specifications and programs
- Support industry-agreed standards
- Deliver product connectivity through a robust testing and certification program.

Q. WILL THE AMS IMPLEMENTATION PROTECT THE PRIVACY AND SECURITY OF THE PCE CUSTOMERS?

A Yes, per the tentative contract, Honeywell provides the following security approach to protect PCE and its members:

a. Access – Users receive their access privileges based upon their functional roles. The system also supports both media access control (MAC) and Internet Protocol (IP)-address access control lists. EnergyAxis controls access to the network at the end devices, the SynergyNet Routers, and the Connexo NetSense Advanced Metering Infrastructure (AMI) head end. Connexo NetSense supports role-based users, so that only users with certain levels of authority can perform specific tasks.

b. Authentication – Authentication limits transmissions on the network to authorized devices and personnel only. EnergyAxis currently uses sophisticated authentication techniques and enhances these techniques by utilizing unique keys for each device.

c. Encryption – Encryption prevents unauthorized parties from reading data. EnergyAxis uses National Institute of Standards Technology (NIST)-approved encryption modes and algorithms including Advanced Encryption Standard (AES)-128.

d. Monitoring and Reporting – The utility receives notification in the case of a security breach. EnergyAxis provides security audit logging and reporting to allow early detection of any security issues. The Honeywell solution also enables the integration of third-party Intrusion Detection and Prevention systems.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A Yes, it does.

BEFORE THE

LOUISIANA PUBLIC SERVICE COMMISSION

DOCKET NO. U-TBD

IN RE: PCE,

Request of Advanced Metering System Certification Filing

AFFIDAVIT OF WITNESS

I, J. Gregory Johnson, being duly sworn, depose

that the Direct Testimony in the

above referenced matter on behalf of

Pointe Coupee Electric Membership Corporation

is true and correct to the best of my knowledge, information and belief.

J. Gregory Johnson

Subscribed and sworn before

me this 3 day of

Feb, 2021.

Ryan Sickle
Notary Public
Mecklenburg County, NC
Comm. Exp. Jan. 31, 2022

My Commission expires

Jan 31, 2022