



Rural Electric Cooperative Corporation

A Touchstone Energy® Cooperative 

January 6, 2015

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JAN 07 2015

PUBLIC SERVICE
COMMISSION

Mr. Jeff Derouen
Executive Director
Kentucky Public Service Commission
PO Box 615
Frankfort, KY 40602-0615

RE: Case No. 2014-00436

Dear Mr. Derouen:

Enclosed are an original and ten (10) copies of Nolin Rural Electric Cooperative Corporation's response requested in the Commission Staff's First Data Request for Information dated December 24, 2014 in the above referenced case. Also enclosed is a motion for confidential treatment of certain information contained in the response. Accordingly, 10 copies of the response with the confidential information redacted are filed herewith, and one copy in a separate envelope marked "confidential" with the confidential information highlighted in transparent yellow ink is also filed herewith.

Please contact me or Greg Harrington at Nolin if you require further information.

Sincerely,

A handwritten signature in cursive script that reads "Michael L. Miller".

Michael L. Miller
President and CEO
mmiller@nolinrecc.com
Fax - (270) 735-1061

Enclosures

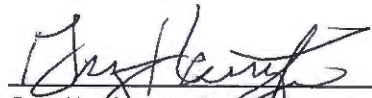
Commonwealth of Kentucky

Before the Attorney General

Case No. 2014-00436

VERIFICATION

I verify, state and affirm that the testimony filed with this response and for which I am listed as a witness is true and correct to the best of my knowledge, information and belief formed after a reasonable inquiry.

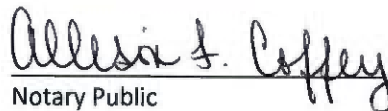

Greg Harrington, System Engineer – Nolin RECC


O.V. Sparks, Vice President Administration & Finance – Nolin RECC

State of Kentucky

County of Hardin

The foregoing was signed, acknowledged and sworn to before me, this 6th day of January, 2015.


Notary Public

My Commission Expires:

August 27, 2016

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JAN 07 2015

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF NOLIN RURAL) CASE NO. 2014-00436
ELECTRIC COOPERATIVE)
CORPORATION FOR AN ORDER)
PURSUANT TO KRS 807 KAR 5:001)
AND KRS 278.020 REQUESTING THE)
GRANTING OF A CERTIFICATE OF)
PUBLIC CONVENIENCE AND)
NECESSITY TO INSTALL AN AMI)
SYSTEM)

MOTION

Motion of Nolin Rural Electric Cooperative Corporation for Confidential Treatment of certain information attached to Nolin's Response to Commission Staff's First Request for Information dated December 24, 2014 (hereafter "Response") which is filed herewith.

Nolin Rural Electric Cooperative Corporation ("Nolin") hereby petitions the Kentucky Public Service Commission (the "Commission"), pursuant to 807 KAR 5:001, Section 13 and KRS 61.878 to grant confidential treatment to certain information that Nolin is simultaneously filing as a part of its Response. The information Nolin seeks to protect is confidential and is hereinafter referred to as the "Confidential Information".

- 1.) Pursuant to 807 KAR 5:001, Section 13, a single copy containing the Confidential Information, highlighted with yellow transparent ink, is being filed with this Response, along with ten (10) copies with the Confidential Information redacted.
- 2.) The Confidential Information, if openly disclosed, would permit an unfair commercial advantage to competitors of Nolin RECC and the Vendor, which is the General Electric Company (hereafter "GE").
- 3.) The information which has been marked for confidential treatment has to do with matters which are competitively bid and may be competitively bid again in the future and could be used by competitors to the detriment of Nolin and GE. Accordingly, GE has requested that Nolin keep the information which has been

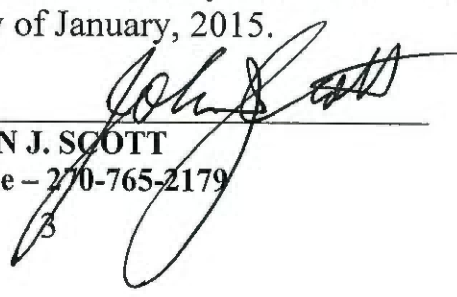
marked for confidential treatment as confidential.

- 4.) The time period for which the material should be treated as confidential would be for a period ten (10) years from the date of this Motion, which should allow sufficient time for the data to become sufficiently outdated that it could no longer be used to the detriment of Nolin and GE.

Based on the foregoing information set forth above, the Confidential Information is entitled to confidential treatment. However, if the Commission disagrees that Nolin is entitled to such confidential treatment, then we would request that the Commission hold an evidentiary hearing regarding this issue.

WHEREFORE, Nolin RECC requests that the Commission classify and protect as confidential all of the Confidential Information found in the Response filed simultaneously with this Motion.

WITNESS the signature of the Attorney for Nolin Rural Electric Cooperative Corporation this 6th day of January, 2015.



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ATTORNEY FOR NOLIN RURAL
ELECTRIC COOPERATIVE CORPORATION

CERTIFICATE

I certify that on this date, the above Motion was filed or served on the Kentucky Public Service Commission this 6th day of January, 2015.



JOHN J. SCOTT
ATTORNEY FOR NOLIN RURAL
ELECTRIC COOPERATIVE CORPORATION

Nolin Rural Electric Cooperative Corporation

Initial Request for Information – Case No. 2014-00436

Commission Staff's First Request for Information Dated December 24, 2014

Question 1:

Refer to the Application, Exhibit 1, page 2, where it states that "Nolin currently has 33,611 meters deployed and over 70% of these meters' endpoints are no longer supported by L+G." Explain, in detail, the support situation of the nearly 30 percent of meters remaining.

Answer:

Since endpoints cannot be replaced, Nolin is required to purchase new meters and endpoints for all meters no longer supported. L+G's sales representative, Steven Timm, was asked by Nolin: "how does Nolin know what endpoint product is not going to be supported in the future?" Mr. Timm forwarded Nolin's question to Laurie Dally, L+G Senior Product Manager and her response was Exhibit 6, page 3 and 4. Nolin then called and asked Ms. Dally again, "how would Nolin know what endpoint product is going to stop being supported in the future?" Ms. Dally's verbal response was referenced in Exhibit 6, page 3 and 4 and stated, "There are low volume products that will be discontinued due to: Few or no orders for certain products or component pricing pressures and obsolescence." When asked, "What exactly does that mean?" Ms. Dally's reply was, "L+G does not know very long in advance what endpoint product they will stop supporting, it is based on product volume and whether the components are available to make the product." L+G tries to notify customers via email as seen from Exhibit 6, page 1, as quickly as possible. It is Nolin's understanding that for a product to no longer be supported is somewhat variable, based on quantity available and how much and quickly that product is requested.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

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Question 2:

Refer to the Application, Exhibit 1, pages 2 and 3, where it states that "Nolin has been researching and assessing various AMI solutions for the past 17 months," and that "[v]arious AMI systems were reviewed."

a. Provide details of the various AMI systems that were reviewed.

Answer:

A list of the various AMI systems that were reviewed: Tantalus, Elster, Cooper ("Canon"), Landis & Gyr ("PLX"), Aclara ("TWACS") and General Electric ("GE IQ Grid Connect").

b. Explain why the General Electric Grid IQ Connect system was chosen and why the other systems reviewed were not chosen.

Answer:

The General Electric Grid IQ Connect system was chosen due to the cost for the complete system and it met all of Nolin's criteria we were looking for in a new AMI system. GE is interested in having a showcase AMI system that will allow other utilities to visit and see the latest and greatest technology capabilities in AMI systems.

Tantalus was eliminated due to battery requirements for all meters and multiple antenna locations needed to communicate with all meters. Elster was eliminated because of cell phone coverage to the meter locations and the distance between members in certain areas. The three vendors remaining that were eliminated are: Cannon, L+G, and TWACS, all of which utilized power-line-carrier (PLC) technology to communicate with the meters. This is the technology that Nolin currently has deployed with the L+G TS2 system. The PLC largest drawback is the latency issue with getting meter readings back to the head-end system in a timely manner.

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c. What are the alternatives to a radio frequency AMI system?

Answer:

Power-Line-Carrier (PLC) technology is the only other alternative that Nolin investigated.

d. Explain, in detail, why an alternative system of sending and receiving data would or would not satisfy requirements.

Answer:

Refer to the response from question #2c.

e. Do the meters and system selected represent the most recent technology available? If not, explain the decision in selecting this system and these meters.

Answer:

Yes, this is the most current technology available.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

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Question 3:

Refer to the Application, Exhibit 1, page 3, where it states, "Nolin decided to concentrate our efforts on vendors that utilize radio frequency (RF) technology which uses either licensed or un-licensed frequency to send and receive data."

- a. *Explain the difference between a licensed and an un-licensed frequency.*

Answer:

Wireless networks can utilize a broad range of frequencies and channels. Some of these frequencies are licensed and appropriated by the Federal Communications Commission (FCC) while others are unlicensed. The FCC is responsible for managing and licensing for commercial users and for non-commercial users including: state, county and local governments. In order to use licensed frequencies, wireless network operators must request approval from the FCC, apply for a license, and renew the license periodically. The FCC license does not guarantee a 100% clean and interference-free wireless spectrum, nor does it ensure the spectrum is secure. The un-licensed spectrum is more congested, but wireless technology companies are able to overcome this "noise" with innovative filtering techniques that ensure high levels of network resilience and stability. Un-licensed spectrum has been utilized by utilities across the world for video surveillance, SCADA, equipment monitoring, advanced metering, and more.

- b. *If an un-licensed frequency is used, explain the potential benefits and problems of using an un-licensed frequency versus a licensed frequency.*

Answer:

Some wireless RF network operators believe that in order to offer highly reliable wireless services, a licensed band must be used. The use of un-licensed spectrum implies that services will be impaired by interference or open the network up to cyber threats. It is true that a licensed band is typically less noisy than an un-licensed band. The main source of noise in an un-licensed band is RF noise generated from other RF equipment (i.e. other users) operating within the same vicinity. However, numerous operators are operating their broadband wireless networks in unlicensed bands and offering high reliability services.

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As compared to using licensed spectrum, the use of un-licensed spectrum does have some inherent challenges. Un-licensed spectrum is, by definition, available to all who wish to use it without a license. While government regulations try to ensure that un-licensed band users do not interfere with each other by placing limits on transmission power levels and the amount of time a transmitter can be on the air, interference is still a reality. However, by being aware of these challenges within un-licensed bands, i.e. by choosing an un-licensed RF technology carefully and by designing and planning a network with reliability in mind, such interference can be avoided, resulting in high reliability services similar to those offered in licensed bands.

The primary benefit of utilizing an un-licensed network technology is cost. The un-licensed technology providers are developing RF solutions in a highly-competitive market. Competition drives innovation and a price competitive environment. The bottom line is that with the right choice of technology and with careful network design and planning, high reliability services are very much achievable in the unlicensed spectrum.

- c. *Explain whether there are any security issues with an un-licensed frequency versus a licensed frequency.*

Answer:

As mentioned before, wireless security concerns apply with both licensed and un-licensed technology. Security of the network is provided by the individual devices (meters, fault indicators, etc.), the communication network devices (collectors, repeaters, extenders, etc), and the software. These security issues are in-place, and of critical importance, regardless of the RF spectrum or frequency used.

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- d. *State whether one or both types of radio frequency will be utilized and why.*

Answer:

The technology Nolin will be utilizing will leverage un-licensed wireless spectrum. The end points (meters) will communicate over a 2.4 GHz wireless network to a network collection device. This device, either a repeater or an access point, will then be backhauled over a 900 MHz un-licensed spectrum. This technology was selected due to the cost advantages of un-licensed technology, the proven capabilities of the network, and the opportunities to expand the system cost-effectively.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

Nolin Rural Electric Cooperative Corporation

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Question 4:

Refer to the Application, Exhibit 2, page 2, Figure 2, concerning meters, it states, "Last gasp meter reporting for power outage." Explain the nature of and how the meters achieve this outage reporting.

Answer:

With the proposed technology solution, Nolin will be able to receive outage notifications from the meters within minutes of an outage.

The meters will detect loss of power and automatically transmit this alarm notification over the RF network. The meters have reserve battery power to support message delivery when power is interrupted; this is commonly referred to as 'Last Gasp'. Additionally, the RF network will have battery backup available to support message delivery in the event of a massive outage. These Last Gasp messages will be received and reported on by the Advanced Metering Infrastructure (AMI) Head End System (HES) software, which has the capability to log and forward these outage notification alarms to Nolin's existing Outage Management System (OMS). The OMS is then able to process these messages and subsequently alert Nolin dispatchers of the electric network problem(s) at the meter level. The OMS can use this meter-level information to predict fault locations further 'upstream' of the meters with improved accuracy. The OMS, which has historically relied on customer calls, will now have more information and in a more timely manner, resulting in an improved response time by Nolin.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

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Question 5:

Refer to the Application, Exhibit 3, page 4, concerning Cyber Security, where it states that "GE prefers to use secure VPN tunnels, SAML..." and uses other terms with no definitions given. Provide definitions for the terms used in the Application where those definitions have not been provided elsewhere in the Application.

Answer:

VPN Tunnel - A virtual private network (VPN) extends a private network across a public network, such as the Internet. It enables a computer to send and receive data across shared or public networks as if it were directly connected to the private network, while benefiting from the functionality, security and management policies of the private network. A VPN is created by establishing a virtual point-to-point connection through the use of dedicated connections, virtual tunneling protocols, or traffic encryptions. VPNs provide security by the use of tunneling protocols and through security procedures such as encryption. Tunnel endpoints must be authenticated before secure VPN tunnels can be established. User-created remote-access VPNs may use passwords, two-factor authentication or other cryptographic methods. Network-to-network tunnels use passwords and digital certificates. They permanently store the security key to allow the tunnel to establish automatically, without intervention from the user.

SAML - Security Assertion Markup Language (SAML) is an XML-based, open-standard data format for exchanging authentication and authorization data between parties, in particular, between an identity provider and a service provider. SAML is a product of the OASIS Security Services Technical Committee. The single most important requirement that SAML addresses is web browser single sign-on (SSO).

XML – Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format which is both human-readable and machine-readable. The design goals of XML emphasize simplicity, generality and usability across the Internet. It is a textual data format with strong support via Unicode for different human languages. Although the design of XML focuses on documents, it is widely used for the representation of arbitrary data structures such as those used in web services.

SSO – Single sign-on (SSO) is a property of access control of multiple related, but independent software systems. With this property a user logs in once and gains

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access to all systems without being prompted to log in again at each of them. This is typically accomplished using the Lightweight Directory Access Protocol (LDAP) and stored LDAP databases on servers.

LDAP – The Lightweight Directory Access Protocol (LDAP) is an open, vendor-neutral, industry standard application protocol for accessing and maintaining distributed directory information services over an Internet Protocol (IP) network. Directory services play an important role in developing Intranet and Internet applications by allowing the sharing of information about users, systems, networks, services, and applications throughout the network

WS-Security – Web Services Security (WS-Security, WSS) is an extension to SOAP (Simple Object Access Protocol) to apply security to Web services. It is a member of the Web service specifications and was published by OASIS. The protocol specifies how integrity and confidentiality can be enforced on messages and allows the communication of various security token formats, such as Security Assertion Markup Language (SAML). Its main focus is the use of XML to provide end-to-end security.

HTTPS – Hypertext Transfer Protocol Secure (HTTPS) is a communications protocol for secure communication over a computer network, with especially wide deployment on the Internet.

Policy Enforcement Points – Policy Enforcement Point (PEP) is the point which intercepts user's access request to a resource, makes a decision request to obtain the access decision (i.e. access to the resource is approved or rejected), and acts on the received decision.

WS-Trust - WS-Trust is a WS-* specification and OASIS standard that provides extensions to WS-Security, specifically dealing with the issuing, renewing, and validating of security tokens, as well as with ways to establish, assess the presence of, and broker trust relationships between participants in a secure message exchange.

OASIS - The Organization for the Advancement of Structured Information Standards (OASIS) is a global consortium that works on the development, convergence, and adoption of e-business and web service standards.

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WS-* - "WS-" is a prefix used to indicate specifications associated with Web Services. Web service specifications are occasionally referred to collectively as "WS-*", though there is not a single managed set of specifications that this consistently refers to, nor a recognized owning body across them all.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

Nolin Rural Electric Cooperative Corporation

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Question 6:

Refer to the Application, Exhibit 4, page 1. It states, "Studies have shown that members electing to move to pre-pay metering consume anywhere from 7% to 12% less electricity. Nolin will continue to offer pre-pay as an option for our members with this deployment."

- a. Identify the studies that determined the members electing to move to pre-pay metering consume from 7 to 12 percent less electricity.*

Answer:

The Energy Savings and Advanced Metering Meta-Analysis Study sponsored by American Council for an Energy-Efficient Economy (ACEEE), with support from The Overbrook Foundation, Kresge Foundation and Sea Change Foundation is the study mentioned in Nolin's application. The range of savings reflects the average savings, by program type, for programs implemented between 1995 and 2010. A total of 36 different programs were included. When the scope is limited to studies only in the United States, savings range from 2 to 11%. These U.S. studies took place between 1974 and 2010.

The following link will allow you to read the complete study in its entirety:

<http://www.energycollection.us/Energy-Metering/Advanced-Metering-Initiatives.pdf>

- b. What has been the interest in the pre-pay metering option and how many members have utilized the pre-pay metering?*

Answer:

Many members select prepay to avoid a deposit. It allows the member the ability to receive electricity despite their credit standing. Some members stay on prepay only long enough to save for a deposit and then they switch to a post pay account. Some members leave our service only to return at a later date and ask for prepay because they had it previously and liked it. Nolin has approximately 900 members utilizing pre-pay metering.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

Nolin Rural Electric Cooperative Corporation

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Question 7:

Refer to the Application, Exhibit 5, pages 1-4, Assumptions.

- a. *Explain how the present worth and evaluation period of 10 years for the AMI and AMR Systems were determined.*

Answer:

Industry research indicates the use of between 10 – 20 years is a reasonable range to use as an evaluation period when conducting AMI studies. Nolin is confident that our selection of GE's Grid IQ Connect system provides an AMI platform that meets the technology needs required of the system well into the future. The period of 10 years is used because that is the length of time that GE will host the AMI system. After 10 years, GE and Nolin will evaluate the AMI system, if other technologies need to be evaluated then the evaluation must stand on its own as a cost effective replacement for GE Grid IQ Connect AMI system.

With Nolin's current L+G TS2 AMR system between years 10 – 12 was marked with significant deterioration of meters, meter endpoints, and substation equipment. Because of this deterioration there is a significant maintenance and capital cost associated with replacing these items. It is hard to justify a computer lasting 10 – 20 years indoors under a desk, imagine a computer lasting 10 – 20 years in a harsh environment such as outdoors. These AMI systems are computers installed outdoors in the harsh environment which is why Nolin decided to use 10 years as the evaluation period.

- b. *Explain how the present worth rate of 4.00% was determined.*

Answer:

For typical investments, with costs concentrated in early periods and benefits following in later periods, raising the discount rate tends to reduce the net present value. The annualized US inflation rate for the most recent 10 year period is 2.51%. Present Worth ("PW") rates of 4%, 6% and 8% were used in the sensitivity analysis. The 4.00% PW rate was thus selected based on Nolin's conservative criteria.

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- c. Explain how costs will be reduced by eliminating PSC Voltage Recorders and how a savings of \$3,000 was determined.*

Answer:

Costs will be reduced because the two recorders that are currently used to capture 30 days' worth of voltage readings at the end of the line would no longer be required. These voltage recorders experience a great deal of wear and tear and weathering due to the length of time and constant daily use. The \$3,000 savings was an assumption based upon voltage recorder replacement every five years, labor cost to re-locate the two voltage recorders 24 times during the year and labor cost to download and track voltage recorder results for the PSC.

**Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation**

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Question 8:

Provide a detailed assessment of how voltage monitoring requirements, including compliance with 807 KAR 5:041, Section 7, will be met by the new system after eliminating PSC Voltage Recorders.

Answer:

Nolin will receive daily voltage readings from each GE Grid IQ meters and this information will be imported into engineering analysis software to monitor the voltage throughout our system. Nolin will no longer manually relocate the voltage monitors every 30 days that are deployed throughout our system. In order to meet the minimum requirement as outlined in 807 KAR 5:041, Section 7, the voltage recorder must be set at the end of the line on each substation for 30 days. With only two voltage recorders, Nolin is able to meet the minimum requirement of setting a voltage recorder at the end of one of 85 distribution feeders served by 22 substations and monitoring the voltage for 30 days. Instead of just meeting the minimum requirement of monitoring 24 distribution feeders for 30 days during one year, Nolin will have the capability to utilize this new AMI system to receive a more detailed snapshot of voltage at all metering points throughout the system.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

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Question 9:

Refer to the Application, below numbered paragraph 7, where Nolin states that it is "requesting relief from the periodic testing of single phase meters {807 KAR 5:041, Section 16} for the duration of this project..." Is Nolin current on its periodic meter testing program schedule?

Answer:

Yes, Nolin is current on its periodic meter testing program schedule.

- a. *Provide information on policies and procedures for meters removed from service and tested that are found to be outside the manufacturer's accuracy specifications or experiencing other operational issues.*

Answer:

Meters found to be outside the manufacturer's specified accuracy, or experiencing any issues that may affect the accuracy of the meter, are repaired if possible, and adjusted to as close as possible to 100%. If repairs cannot be made or meters cannot be adjusted to within manufacturer's specified accuracy, they are retired from service and discarded.

- b. *Provide information on policy and procedures for meters removed from service and tested that are found to be in error or +/- 1.0 to +/- 1.9 percent.*

Answer:

Meters found to be in error between +/-1.0 to +/-1.9% are inspected to determine the cause of the error, if any. Repairs are made, if possible, and the meter is adjusted to as close as possible to 100%. If the meters cannot be adjusted to within manufacturer's specified accuracy, they are retired from service and discarded.

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- c. Provide information on policy and procedures for meters removed from service and tested that are found to be in error greater than +/- 2.0 percent.*

Answer:

Meters found to be in error greater than +/- 2.0% are tested at least 2 times on two different test boards to ensure the error is in the meter and that it is consistent. If the meter tests more than 2% out of tolerance the members' bill will be adjusted accordingly. The meter is then segregated and held for a period, not less than 12 months, and then discarded.

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

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Question 10:

Provide detailed operational specifications and warranty information on the individual metering devices to be deployed as part of this project. Include the following information for each Model/Class/Form/Voltage device:

- a. *Accuracy specifications for the device under environmental and load conditions.*

Answer:

GE kV2c Poly Phase Meters –

- $\pm 0.2\%$ at standard test points for energy and demand (typical)
- Meets ANSI® C12.20 Class 0.2

GE i210+ Single Phase Meters –

- Typical Accuracy: Within $\pm 0.2\%$
- Typical Starting Watts < 5.0 Watts (Form 2S 240V CL200)
- Typical Watt Loss: 0.7 Watts

- b. *Warranty period and specific defect conditions that would result in repair/replacement of device.*

Answer:

The GE single phase and poly phase meters (i210+ and kV2c) included in this project are provided with a [REDACTED] manufacturer's warranty. This comprehensive warranty applies to any defect in the meter or the integrated network interface communications card. In the event that a meter is found to be defective, GE will replace the device.

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- c. Manufacturer's documentation of testing and quality assurance procedures utilized to ensure devices are, and remain, in compliance with operational specifications throughout the warranty period.*

Answer:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Responding Witness: Greg Harrington, System Engineer
Nolin Rural Electric Cooperative Corporation

Nolin Rural Electric Cooperative Corporation

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Question 11:

a. Provide the estimated undepreciated balance of the metering equipment to be retired.

Answer:

Nolin does not separate the accumulated depreciation into functional plant accounts. The Uniform System of Accounts ("USoA") does not require the separation of accumulated depreciation into functional plant accounts. Below is the original cost for total plant and meters, and accumulated depreciation in total and calculated for meters.

Total distribution plant	90,363,684
Accumulated depreciation	34,434,222
Net plant	55,929,462
Reserve ratio	38.1%
Meters	5,776,479
Accumulated depreciation @ 38.1%	2,201,200
Net book value	3,575,279

The last depreciation study calculated a rate of 3.144% for meters. The current AMI meters were installed starting in 2002 through 2003. Had the depreciation rate been 6.67% for AMI meters, the Net book value would have been as follows:

Meters	5,776,479
Accumulated depreciation @ 73.4%	4,238,203
Net book value	1,538,276
Current year	2014
Year installed	2003
Number of years in service	11
Total accrual at 6.67%	73.4%

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b. Explain how those remaining balances are to be handled.

Answer:

Nolin will propose to amortize the net book value over a 5 year period.

	Debit	Credit
108.6, Accumulated depreciation	2,201,200	
186.1, Deferred debit, plant retirement	3,575,279	
370, Meters		5,776,479
Record retirement of existing AMI meters.		
407, Amortization	715,056	
186.1, Deferred debit, Plant retirement		715,056
Record annual amortization over 5 year period.		

Nolin will request approval from The Commission to allow for the deferred debit and 5 (five) year amortization period. Approval from CFC is not required.

**Responding Witness: O.V. Sparks, Vice President Administration & Finance
Nolin Rural Electric Cooperative Corporation**

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Commission Staff's First Request for Information Dated December 24, 2014

Question 12:

Provide the number of years that the proposed AMI system will be depreciated.

Answer:

Nolin is using 10 years as the number of years that the system will be depreciated. It is Nolin's experience that new solid-state electric meters only have a life of 10-12 years and are more disposable than the electro-mechanical meters of years ago. Nolin's concerns about the life cycle of the AMI system are addressed in response 7a of this application.

Responding Witness: O.V. Sparks, Vice President Administration & Finance
Nolin Rural Electric Cooperative Corporation