NOLIN

Rural Electric Cooperative Corporation

A Touchstone Energy® Cooperative

December 11, 2014

RECEIVED

DEC 15 2014

PUBLIC SERVICE COMMISSION

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

Dear Mr. Derouen:

2014-436

Enclosed are an original and ten (10) copies of Nolin Rural Electric Cooperative Corporation's Application for a Certificate of Public Convenience and Necessity to install an Advance Metering Infrastructure System (AMI). Also enclosed is a motion for confidential treatment of certain information contained in the application. Accordingly, 10 copies of the application 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.

Nolin is requesting this application be expedited so that we can sign a contract on or before January 4, 2015 to lock in pricing.

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

Sincerely,

Michael L. Miller

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

Enclosures

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

APPLICATION OF NOLIN RURAL 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	)	**CASE NO.** 2014-436

MOTION

Motion of Nolin Rural Electric Cooperative Corporation for Confidential Treatment of certain information attached to Application filed herewith.

Nolin Rural Electric Cooperative Corporation ("Nolin") hereby petitions the Kentucky Public Service Commission (the "Commission"), pursuant to 807

JOHN J. SCOTT
ATTORNEY AT LAW
108 EAST POPLAR STREET
P.O. BOX 389
ELIZABETHTOWN, KY
42702-0389
270-765-2179
FAX 270-765-2180

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 Application requesting the granting of a Certificate of Public Convenience and Necessity to install an AMI system. 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 Petition, 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.

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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 Application filed simultaneously with this Motion.

WITNESS the signature of the Attorney for Nolin Rural Electric Cooperative Corporation this 12th day of December, 2014.

JOHN J. SCOTT
Phone – 270-765-2179
Fax – 270-765-2180
Email – jscott@johnscottlaw.org

JOHN J. SCOTT
ATTORNEY AT LAW
108 EAST POPLAR STREET
P.O. BOX 389
ELIZABETHTOWN, KY
42702-0389
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FAX 270-765-2180

JOHN J. SCOTT, P.S.C.
108 E. POPLAR STR., P.O. BOX 389
ELIZABETHTOWN, KY 42702-0389
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 12th day of December, 2014.

JOHN J. SCOTT
ATTORNEY FOR NOLIN RURAL
ELECTRIC COOPERATIVE CORPORATION

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December 11, 2014

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APPLICATION

The petition of Nolin Rural Electric Cooperative Corporation, respectfully shows:

1. The Applicant is a nonprofit member cooperative corporation without capital stock, duly organized and existing under K.R.S. Chapter 279, engaged in the sale of electric energy at retail rates to approximately 33,611 member-consumers in the Kentucky counties of Breckinridge, Bullitt, Grayson, Green, Hardin, Hart, LaRue, Meade, and Taylor.
2. The business address of the Applicant is 411 Ring Road, Elizabethtown, KY., 42701. {807 KAR 5:002, Section 8(1)}
3. The Articles of Incorporation and all amendments thereto for the Applicant were filed with the Commission in PSC Case No. 93-324, Adjustment of Rates of Nolin Rural Electric Cooperative Corporation. {807 KAR 5:001, Section 8(3)}
4. This application is for a Certificate of Public Convenience and Necessity ("CPCN") to install an Advanced Metering Infrastructure (AMI) system over a 24 month period.
5. The Applicant will construct the proposed AMI project from general funds until such time as new loan funds are needed. At that time a loan application will be filed with National Rural Utilities Cooperative Finance Corporation (CFC) to reimburse general funds as expended and to provide money to complete the proposed AMI project.
6. The estimated cost of the project:

Meters:	$[redacted]
Operating System, Software, Communication Equipment & Training:	$[redacted]
Total Estimate:	$[redacted]
Annual Maintenance for Software:	$[redacted]

7. Attached hereto and made a part of this Application are the following:

EXHIBIT 1	Applicant Research, Vendor Assessment and Vendor Choice Process
EXHIBIT 2	Description of the AMI technology
EXHIBIT 3	Proposed Statement of Work
EXHIBIT 4	Projected Benefits for Applicant and its Members
EXHIBIT 5	Economic Analysis
EXHIBIT 6	Discontinuance of Landis & Gyr Products

Applicant is requesting relief from periodic testing of single phase meters {807 KAR 5:041 Section 16} for the duration of this project as all meters in the Applicant's service territory will be changed and tested.

WHEREFORE, the Applicant now respectfully requests the Public Service Commission of the Commonwealth of Kentucky to grant a Certificate of Public Convenience and Necessity to install an AMI system.

WITNESS the hand of the Applicant on this 11th day of December, 2014; by its authorized representative.

NOLIN RURAL ELECTRIC COOPERATIVE CORPORATION

BY: Michael L. Miller
Michael L. Miller
President & CEO

State of Kentucky

County of Hardin

The foregoing was signed, acknowledged and sworn to before me by Michael L. Miller, this 11th day of December, 2014.

Allison L. Coffey
Notary Public

My Commission Expires: August 27, 2016

Applicant Research, Vendor Assessment and Vendor Choice Selection

Executive Summary

With a vision of enhancing business practices, customer service, and overall customer satisfaction, Nolin Rural Electric Cooperative Corporation (Nolin) has defined plans to implement an Advanced Metering Infrastructure (AMI) solution for electric services. The goals of this AMI solution are to provide customers the benefits of a more efficient, effective, service-oriented business through safe and reliable electric services to customers. This project, when completed will provide Nolin with the extended capabilities to provide accurate on-request reads, power reliability and outage assessment, analysis of consumer usage information, remote connect/disconnect, evaluation of the functionality of the system and accurate monthly billing.

Applicant Research

For more than a decade, Nolin has been reading electric meters utilizing low-energy power line carrier communication equipment. While Automated Meter Reading (AMR) systems were advanced in their day, they do not have the capability to deliver most of the AMI goals to electric utilities. This is not to slight AMR, those systems were designed in a different time for a different purpose. Nolin's electric meters and AMR substation equipment have reached their useful life, have components that are no longer supported by Landis & Gyr and need to be replaced. Nolin's experience shows as meters and substation equipment age they become less accurate, begin to experience unpredictable "flaky" issues and are not as reliable as the system was when installed.

Every Landis & Gyr (L+G) TS2 AMR system component has a lifecycle. The lifecycle begins when a product is released and ends when it is no longer supported. Knowing key dates in this lifecycle helps us make informed decisions about when to upgrade or make total changes to Nolin's current AMR system. Nolin first deployed AMR meters in January 2002 and was fully deployed by the end of 2003. Nolin has determined that it would be more cost effective to install a new AMI system instead of replacing existing meters and substation equipment, refer to Exhibit 5. Substation equipment and meters have suffered physical deterioration due to their age, unusual costs for repairs due to older technology, and difficulty in getting support for outdated technology.

Landis & Gyr is almost forcing their AMR customers to upgrade from their current TS1 and TS2 AMR systems. If Nolin elected to install a new L+G solution, either the Gridstream PLX or RF solution, all meters, endpoints and communication equipment would have to be purchased new. The current L+G TS2 AMR meters, endpoints and communication equipment would not work with the new L+G Gridstream PLX or RF systems. By eliminating product and support of certain components L+G is squeezing the available option offerings and driving customers to their Gridstream PLX or RF AMI system solutions or to a different vendor. L+G has released information, contained in EXHIBIT 6, on their intentions when they will end support for components used in the L+G TS2 AMR system. EXHIBIT 6 provides dates that L+G will no longer offer system components, fixes, updates, or technical assistance. When L+G decides to no longer support a

component they will also send out an e-mail such as the one shown in EXHIBIT 6.

Two major components no longer supported and used by Nolin in the L+G TS2 AMR system are:

- Substation Processing Unit (SPU) 2000
- Certain TS2 meter endpoints

The SPU 2000 is an integral part of L+G's Gridstream Power Line Carrier (PLC) advanced solution. The SPU 2000 is the brain behind the system. The SPU 2000 collects all interval data from the meters and sends it back to the system server. What alternative does Nolin have with regard to the SPU 2000? Nolin must purchase a Collector 3000, with a TS2 blade assigned to each feeder. What is the difference between a SPU 2000 and a Collector 3000 and is there a cost difference? The SPU 2000 is a simple computer, one box that would handle up to six different feeders verses Collector 3000 with each feeder having its own computer or blade assigned. Cost for a Collector 3000 is three times that of the SPU 2000. Only two of Nolin's twenty-two (22) substations have been upgraded with the new Collector 3000. Nolin is currently experiencing technical issues at two substations that will require an investment of over $30,000 to correct, unless a new AMI system is deployed. Cost to upgrade all Nolin substations with L+G TS2 AMR equipment can be found in EXHIBIT 5.

The TS2 meter endpoints, installed under the meter glass, provide the communication link between the meter and the utility using existing power line infrastructure. What alternative does Nolin have with regard to endpoint replacement? Nolin currently has 33,611 meters deployed and over 70% of these meters' endpoints are no longer supported by L+G. Since endpoints cannot be replaced, Nolin would be required to purchase new meters and endpoints for all meters no longer supported. Nolin in the past year has "junked" over 1,000 good meters not because the meter is bad, but because the endpoint, under the glass, is bad and there are no replacement endpoints. There is a significant maintenance and capital cost associated with replacing these no longer supported meters and that cost can be found in EXHIBIT 5. The new AMI system will enhance Nolin's ability to run our electric utility more efficiently and at the lowest possible cost.

Vendor Assessment

Because of concerns outlined above, Nolin has been researching and assessing various AMI solutions for the past 17 months. This includes talking with vendors, researching AMI capabilities and deficiencies through trade publications, and visiting with other utilities that have deployed various AMI solutions both in Kentucky and out of state.

A group of Nolin employees undertook the task of assessing and investigating AMI options. Various AMI systems were reviewed. A list of critical criteria was established in assessing the systems:

- Interval Data – 15, 30 and 60 Minutes Interval Data (frequency depends on the module)
- Reliable and Fast Two-Way Communication
- Cyber-Security
- Future Expandability – Robust System that can Expand for Future Needs

- Multi-Speak Compliant Software
- NISC Software Compatible
- Pre-Pay Metering Capabilities
- Electricity Theft Detection
- Remote Connect and Disconnect (under the glass solution)
- Outage Management and Restoration
- Automated Meter Reading (AMR) versus Advanced Metering Infrastructure (AMI)
- Energy Management and Demand Response Programs
- Transformer Loading Assessment
- Voltage Monitoring
- "Blink" Monitoring
- Load Profiling Information
- Distributed Generation and Net Metering
- Power Quality Investigation

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. Based on the research, RF technology was the technology that offers the optimum robust system that will allow growth and expandability as new programs and applications become available without investing in additional costly infrastructure.

Vendor Choice Selection

General Electric (GE) will provide two-way, real-time data communications network to monitor and control Nolin's electric meters using Grid IQ Connect system. This system is an end-to-end WAN/LAN communications system that operates with 2.4 GHz RF and IP-based networks including Fiber, MDS Orbit MCR 900 MHz Links and GPRS/Cellular, either individually or in combination. The GE network will unite Nolin's applications, making advanced metering, outage management, power quality monitoring, load control and distribution automation cost-effective and practical throughout Nolin's service territory as well as allow for future expansion and applications.

Description of the AMI Technology

A high level overview of AMI Solution in the context of Nolin RECC's back office applications is provided below. This overview reflects a full complement of applications and functionality supported with this AMI Solution.

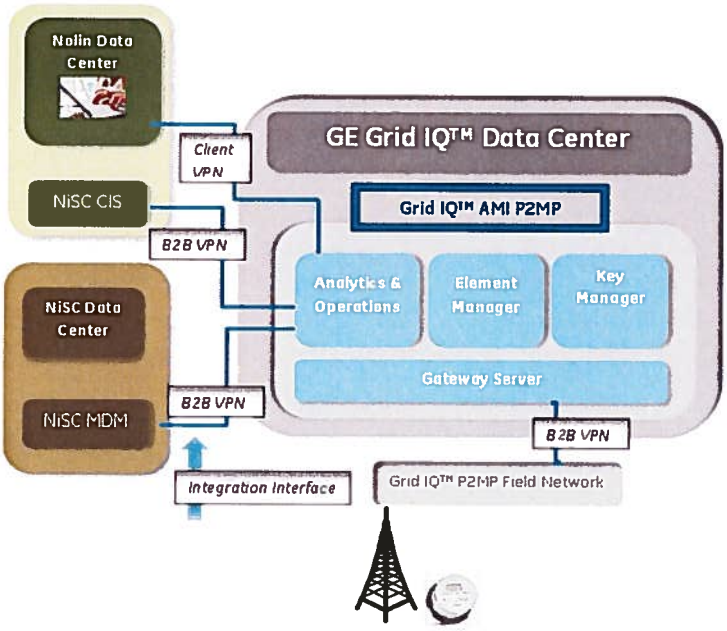

Figure 1: Grid IQ™ Connect Solution at Nolin RECC

The Grid IQ™ Connect scope includes the following services:

Point-to-Multipoint RF Communications

GE will design, source, commission and test the AMI RF network to support wireless communications to Nolin meters.

AMI Meter Services

The metering hardware offered includes the GE I210+ single phase and kV2c poly-phase meter. Residential Endpoints include meters and AMI communications to support basic function as electronic single phase revenue meter and tamper detect capability. Additional features include factory integrated 200A service switch, soft switch functions, and simple voltage event monitoring in addition to RMS momentary voltage display. C&I Endpoints include meters and AMI communications to support real time reading of consumption, TOU and interval data from the meter. Additional features include tamper detection, outage/restoration detection, remote meter configuration, demand resets, and more. Grid IQ™ Connect allows all of these features to be remotely monitored and controlled from Nolin's central office. The export of metering data for billing is integrated to Nolin's existing NISC MDMS and CIS billing system. To guaranty performance

of the system, GE commits to Service Level Agreements for delivery of data and system availability period as mutually defined.

Asset Monitoring

Connect provides Nolin the ability to GPS register and monitor all meters connected to the distribution system. Meter read problems are logged and classified. This function facilitates detailed meter inquiry. Reports can be easily generated and analyzed for a complete view of the operational state of system assets.

RF Communications Network

GE Grid IQ™ P2MP Components

Grid IQ™ P2MP is purpose-built for Grid Modernization. It is designed with a focus on connecting data from a large number of devices to a network infrastructure that collects data for processing in various back-end applications. While the system favors uplink transmissions (device to network), it also features advanced downlink (network to device) unicast, multicast, and broadcast features, simultaneously communicating to all or a group of devices. For example, the GE Grid IQ™ P2MP allows for the broadcast of large firmware upgrades, either for the device or the wireless module.

GE's GE Grid IQ™ P2MP solution is more than the wireless communication link. GE has built a metro scale, end-to-end wireless solution, with the following core components:

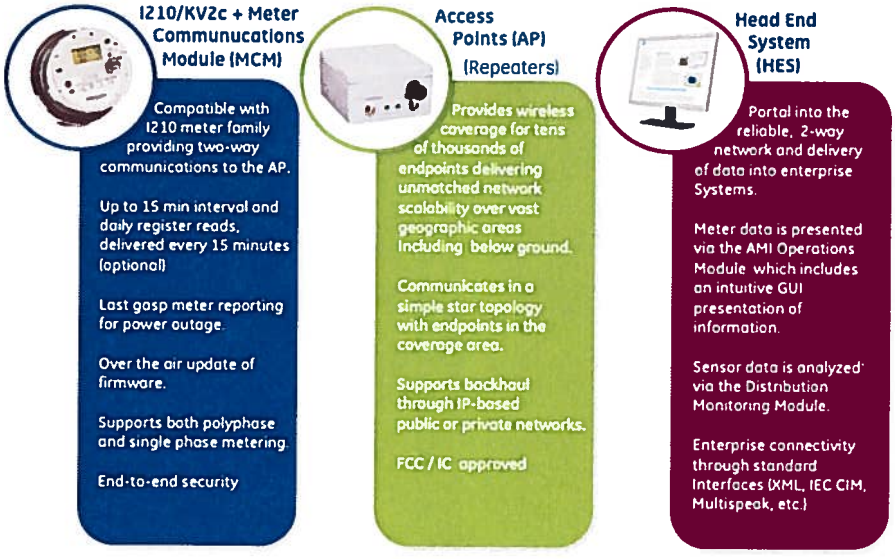

Figure 2: GE Grid IQ™ AMI P2MP Core Components

Residential consumer Electric Meter Connect/Disconnect Operation

Under glass remote disconnect capability can be provided for Form 2S 240V CL200 residential AMI electric meters as well as certain other residential meter forms activated under Grid IQ™ Connect. I-210+ 2S 240V CL320 AMI electric meter does not have under glass remote disconnect capability. Nolin personnel will control the operation of the Remote Disconnect functions by logging into Grid IQ™ Connect system or NISC's MDMS. All remote disconnect operation will be logged by the system and the Nolin operator must have the correct security/authorization to activate the function. It is recommended that all residential meters be equipped with remote disconnect capability to maximize operational efficiencies, utilize pre-pay disconnect services, and minimize truck roll expenses.

Integration Services

GE will enable export of metering data from the AMI system to the NISC MDMS to enable Nolin's existing billing system. Nolin will be using the NISC iVue platform for billing. Remote Connect and Disconnect of the electric meters will be performed from Nolin's existing NISC CIS, with the meter operations command integrated to the GE AMI system. GE will perform validation of data and functionality within the AMI System.

NISC will be performing the validation with the NISC MDM for the expected data required, and any AMI operation success.

Grid IQ™ Connect will integrate to the NISC iVue CIS supporting the following functionality:

- Import of the account data from the CIS to Grid IQ™ Connect
- Meter commands including remote connect/disconnect
- Service Oriented Architecture (SOA) integration adhering to NERC/CIP security compliance.

Proposed Statement of Work

Nolin is responsible for providing and maintaining the IT networking equipment at the Nolin site and connectivity (internet access) which enables GE to establish the required secure connections between Grid IQ™ Connect data center and Nolin Office and utility legacy CIS. Specifically Nolin will provide the following support to the project:

- Nolin will own and operate all IT Network Equipment at the utility site needed to support the data connection between the Utility's CIS and the GE Data Center.
- Nolin will own and manage the internet connection between the CIS and the GE Data Center. All third party leasing agreements will be the responsibility of Nolin

GE is responsible for providing project management, metering, network communications and the head end solution hosted by GE. The production and a disaster recovery solution will maximize the security of Nolin data. GE is prime vendor for all meters, network interface cards (NIC), and network equipment. The GE Services team will perform the following functions:

- Project Management
- RF Network Design
- Grid IQ™ Connect Training Services
- Testing
- Security
- Customer Support

GE Grid IQ™ Project Management

The GE Digital Energy business will assign a Project Manager to be responsible for Nolin Grid IQ™ Connect system. The GE Project Manager will be responsible for implementing the project and leading the GE Grid IQ Project team. This process includes:

RF Network Design

The preliminary Network Designs were developed using customer provided meter data with a mix of ideal infrastructure location placement and customer-provided locations leveraged for infrastructure siting.

The GE Grid IQ™ design team will complete the following steps to finalize the RF network design:

- Coordinate with the Nolin to confirm the location of all electric meters.
- Work with the Nolin engineers to locate suitable towers and locations for the AMI RF network infrastructure
- Coordinate with Nolin to review the recommended locations for the RF infrastructure devices for suitability based on availability of power and back haul communications and other factors.

- Finalize the RF Network Design
- Remote support of the installation of the RF infrastructure by the utility personnel.

Grid IQ™ Connect Training Services

The GE Grid IQ™ Connect team will train specific Nolin personnel on the system hardware, field tools, and software. Training is delivered in hands-on format at computer workstations whenever possible. Training materials are provided in soft-copy in the Utility's Support Central library and in hard copy when requested.

GE's Business Process and Operational Change leader will work with Nolin to identify personnel required to be trained and the final training schedule for the implementation of the Grid IQ™ Connect. Training is included in this contract.

Testing

End-to-End Validation of the core system is an important step to verify the operation of the Grid IQ™ infrastructure. GE has included the following tests, system monitoring tools, and activities in our contract with the Nolin.

Site Acceptance Test Plan

During the system specification phase, GE team will work with Nolin to reach a mutually agreeable SAT Plan for approval by Nolin. This test plan will test the end to end integration of the AMI system with the Nolin back office system. The test plan will consider the user cases created during the system design. Duration for SAT is normally two to three weeks in the meter deployment phase of the project after all network equipment is installed.

Security

The Grid IQ™ Connect core and advance applications are installed and maintained in GE Data Center. The security of the systems are built in at all stages of the projects; development, implementation, and long term support and Maintenance.

The GE Grid IQ™ data center has been built with the same rigor that is a trademark of GE products and services globally. The GE Grid IQ™ Connect team has extensive experience with hosting managed services and has built a solution that is secure, reliable and compliant with applicable law. GE's experienced team removes the complexity that used to be required to benefit from advanced GE technologies. GE has established ISO27001 accredited datacenters that are regionally located. These datacenters serve to meet the high expectations of Nolin and our customers.

Physical Controls

GE makes its applications and services securely available to its customers and access to the hosted environment is very tightly controlled. The Grid IQ™ Connect hosted facility has 24 X 7 security professionals that monitor all access to the location. The 24 X 7 security teams leverage closed circuit cameras to monitor local personnel access. Additional controls in place for sensitive areas include badge readers and biometric controls. GE has installed these physical controls to guarantee that systems and data located within them are protected from unauthorized access.

Datacenter Environmental

The GE Grid IQ™ Connect datacenter is supplied AC power by redundant uninterruptible power supplies (UPS). The UPS's are supported by independent external power generators at the GE facility. GE hosted services are installed on systems that are supplied power by redundant power feeds. This redundancy eliminates the risk of failure of any one power distribution unit.

The GE datacenters are supported by N+1 redundant environment control systems to ensure environmentally stable ambient air quality. The GE managed service platform is completely hosted in air controlled environments that maintain air quality to minimum standards.

- Temperature range of 16–24 °C (61–75 °F)
- Humidity range of 40–55%
- Maximum dew point of 15°C

Cyber Security

GE operates a well-established and company-wide information security program that communicates the information security policy, awareness and acceptable use policy, to all employees on regular basis.

Cyber Security Practices

The data center hosting the services is operated under an Information Security Management System (ISMS) that includes policies, procedures and work instructions that are in place as part of an ISO27001:2005 certified IT security controls framework. The ISO27001 risk assessment approach is used to select and ensure the necessary ISO27001 standard security controls are in place and effective. The controls cover the following domains: security policy, organization of information security, asset management, human resources, physical and environmental, communications & operations management, access control, information security incident management, business continuity management, compliance. The GE ISO27001 ISMS is independently audited every 6 months by a certifying body, LRQA (www.lrqa.com).

The application utilizes secure protocols for integration, multi-factor authentication, and role-based security for access. Software security vulnerability is performed against the system to proactively identify potential application vulnerabilities and compliance with internal code security requirements.

Software Applications Address Cyber Security through various methods:

- Secure Development Life Cycle - GE has a published SDLC and security is injected into the development process, starting with threat modeling.
- Continuous Integration – Code Scan is integrated with the daily build process.
- Security Testing - Each application will go through Security Testing (Penetration Testing, Code Scan, Network scan, etc.) performed by GE Corporate Security Center of Excellence.
- Security is built within applications.

Cyber Security Standards

GE Systems security requirements are derived from NIST IR 7628, DHS Procurement Controls, as well as other security standards.

The hosted system platforms are managed according to the ISO27001:2005 ISMS policy and procedures and controls. This is part of the ISO/IEC 27000 standards series developed internationally and adopted by many commercial organizations. Both NIST and ISO standards provide a general framework for managing IT security. NIST framework has a technical focus on IT systems and their certification and accreditation. The ISO27001 standard is aligned to the ISO 9001 Quality Management System standard that ensures the management systems are scalable and flexible to meet current and emerging best security practices. The NIST SP 800-53 provides a mapping to the ISO/IEC 27001 control set.

The GE integration architecture has the ability to support all security controls; however, GE prefers to use secure VPN tunnels, SAML, and Single Sign-On (SSO) authentication. Additional security can be provided as required by the Utility or Standards Body security requirements.

All web services are exposed through GE Integration Platform. The GE Integration Platform Security is configurable and can provide WS-Security authentication, HTTPS, SAML 1.1/SAML 2.0 Message-level signature and encryption.

Cyber Security Architecture

The GE hosted services are delivered from a secure architecture based on networks segmented into security zones. Security zones are divided into levels and color-coded. Each level reflects common or shared security attributes. Multiple security domains can reside in the same level. Levels generally reflect varying levels of risk.

The hosted systems reside in communication networks with perimeters clearly defined by security zones. Security zones are usually implemented as security domains. A Security Domain is a logical group of functionally related IT resources, including computers, users, network infrastructure etc., which requires a similar level of strength and assurance of IT security. Attributes of security domains include:

- A boundary that defines which systems are "inside" the domain and which systems are "outside" the domain;
- A uniform security policy and under a single administrative control;
- All inter-domain traffic is mediated by Policy Enforcement Points (PEP);
- A single security domain does not normally exist in multiple geographic locations;
- Domains do not overlap.

Systems are grouped into numbered security levels and color-coded according to the level of security in the security architecture. Each system resides within a prescribed security zone at a specific level. Reasons for segmentation include reliability and segregation of differing external traffic types such as User Interface, Historian, Inter-site communications, and external device communications.

Security is part of GE Integration Platform. Security is designed with following in mind:

- Interoperable Services (WS-Trust compliant)
- Authentication and Authorization externalized and can be invoked as Service from any Application (within and outside of GE Integration Platform like OMS-DMS, DRMS, etc.)
- Authentication and Authorization can be done against GE Integration Platform – LDAP or customer's LDAP
- Security is policy driven. Client's Access to Service is governed by set of Security policies.
- System Accounts – credentials to access external resource (i.e. Database or 3rd party web service like AMI Services) are stored encrypted in LDAP and is only available for authorized users and applications.
- Tools – To manage Security Policies, Users, Roles, etc.

Projected Benefits for Applicant and Its Members

Data collected from an AMI system can be utilized for many cost savings purposes as well as enhancing information that can be used by members to better manage and control their electric usage and associated costs. In addition, Nolin expects other benefits will emerge as new technology becomes available to integrate in with this AMI system. Below are current benefits that will be utilized immediately:

Pre-Pay Metering

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.

Member Access

Nolin members will be able to log-in to NISC's Smart Hub to access their consumption data in real-time via a web portal.

Member Billing and Usage Questions

Real-time data will provide Nolin's Customer Service Representatives with effective and accurate tools to answer member questions about electric usage and fluctuations in the billing.

Outage Reporting

AMI will improve outage response time by locating the cause of an outage. It will also verify whether all members on a line have been restored when a repair is completed.

Cost-Savings Benefit

AMI system will eliminate the need for manual meter reads for service connections and disconnections. It will eliminate energy theft through the use of tamper detection. It will reduce line losses through better collection and utilization of load data.

Load Control

Nolin in conjunction with East Kentucky Power (EKP) has installed over 2,000 load control devices that control water heaters and air conditioners. This AMI system has load control capabilities and both Nolin and EKP are looking forward to launching a campaign to market more load control devices in our system.

Rate Structure

Every meter will be capable of supporting Time-of-Use rates; Critical Peak Pricing, and Real-Time Pricing.

Voltage Conservation

Voltage conservation (VC), also known as conservation voltage reduction, decreases the amount of electricity needed to serve a given area without causing detrimental changes in power quality or reduced supply to customers. The goal is to cut energy losses and consumption by operating at the lower end of approved voltage ranges. Voltage conservation is a beneficial way to access energy and revenue savings while increasing customer satisfaction with no effort on the customer's part.

Currently, the missing link to overall implementation of voltage conservation is an effective communication system. Because of this, Nolin has little or no visibility outside of the distribution substation and down to the customer. AMI systems, such as GE's trademarked Grid IQ Connect System, provide the necessary technology communications infrastructure to fully implement a VC program.

Nolin has historically relied on voltage measurements at distribution substations, middle and/or end of line voltage recorders and MilSoft (engineering analysis software) models to predict voltage at the service point, resulting in a very conservative approach. The GE AMI system enables a more aggressive approach by making voltage information available from meters along the distribution feeder.

Smart meters can monitor the service voltage on a continuous basis, thereby ensuring adequate visibility at various locations on feeders. The GE AMI system allow Nolin to monitor key points frequently and harvest data in near real-time for detection of changes in voltage levels and assure that any voltage adjustments result in the desired effect. The GE AMI systems also function as the "eyes" throughout the distribution infrastructure by providing information for NISC's Meter Data Management System (MDMS) and ACS's Supervisory Control and Data Acquisition (SCADA) system.

Economic Analysis

Nolin has performed analysis on the costs and savings associated with implementing a full AMI system. Page 2-4 of this Exhibit outlines the basic assumptions used in this calculation.

Assuming a 10 year life of the AMI System:

Accumulated Total Annual Costs Associated with AMI System:	$7,906,126
Accumulated Total Annual Savings Associated with AMI System:	$ 4,877,530
Total Annual Cost of AMI System Less Savings:	$ 3,028,597

Current AMI Meter Reading Analysis for 10 years:

Accumulated Total Cost Associated with AMR System:	$8,790,680
Present Worth of Total Annual Costs:	$5,939,649

The above costs results in a 10 year Present Worth savings of $2,851,031 when comparing AMI net costs to AMR net meter reading cost.

CALCULATE FIXED CHARGE RATE FACTORS

NOTES: If FCR factors are known, then go directly to Worksheet "INPUT"
Enter data in the shaded (yellow) cells only.
Amounts entered from December 2013 RUS Form 7.

$64,626,424	NET UTILITY PLANT	Part C, Line 5
$65,488,202	TOTAL MARGINS & EQUITIES	Part C, Line 35
$101,248,169	TOTAL LONG-TERM DEBT	Part C, Line 38
$3,610,861	DISTRIBUTION EXPENSE - OPERATION	Part A, Line 5 (b)
$3,392,225	DISTRIBUTION EXPENSE - MAINTENANCE	Part A, Line 6 (b)
$3,890,057	DEPRECIATION & AMORTIZATION EXPENSE	Part A, Line 12 (b)
$0	TAX EXPENSE - PROPERTY	Part A, Line 13 (b)
$0	TAX EXPENSE - OTHER	Part A, Line 14 (b)

Loan Source	Interest Rate	% of Total
RUS		
CFC	3.00%	100.00%
Other		

3.00%	Blended Interest Rate (%)

COST OF EQUITY FACTOR

35	ENTER the Capital Retirement Cycle. Number of Years.
3.25%	ENTER Utility Plant Growth Rate. Five year Average.
4.83%	Calculated Cost of Equity Factor (%)

FIXED CHARGE RATE FACTORS

1.82%	Cost of Debt (%)
1.90%	Cost of Equity (%)

3.72%	**TOTAL COST OF CAPITAL (%)**
0.00%	**TAX RATE (%)**
6.02%	**DEPRECIATION RATE (%)**
10.84%	**OPERATIONS AND MAINTENANCE RATE (%)**

20.57%	**FIXED CHARGE RATE (%)**

ASSUMPTIONS

Present Worth Rate (%)	4.00%	year
Annual Fixed Charge (%)	20.57%	year
O & M Cost - AMR Solid State Meters (%)	2.00%	year
O & M Cost - AMR Mechanical Meter (%)	2.00%	year
Inflation Rate - AMR Solid State Meters (%)	3.00%	year
Inflation Rate - AMR Mechanical Meters (%)	3.00%	year
Meters - Residential	32,817	2014
Meters - Commercial & Industrial	794	2014
AMR Meter Reading Cost per Month per Meter	$[redacted]	each
Inflation Rate - Nolin Labor	4.00%	year
Growth in Meters	500	year
AMI Meter Cost - Residential (Avg)	$[redacted]	each
AMI Meter Cost - Commercial & Industrial (Avg)	$[redacted]	each
AMR Meter Cost - Residential (Avg)	$[redacted]	each
AMR Meter Cost - Commercial & Industrial (Avg)	$[redacted]	each
Energy Cost ($/kWh)	$0.10	each
Cost Reduction from Improved Outage Mgmt.	$30,000	year
Annual Power Cost (energy only) (December 2013)	$56,000,000	year
Cost to Oversee Meter Reading	$10,000	year
Energy Rate Increase (%)	3.00%	year
Meter Re-Reads (%)	1.70%	year
Cost per Re-Read	$[redacted]	each
Connects / Disconnects (% of Meters)	15.00%	year
Cost per Connect / Disconnect	$[redacted]	each
Transformers with Avoided OL Damage	30	year
Cost of Replacing Failed Transformer	$2,000	each
Line Loss due to Theft Deterrent (%)	0.20%	year
"Not Reporting" Meters (%)	0.75%	year
Cost to Replace & Bill for "Not Reporting" Meter	$85	each
Inflation Rate - Contract Labor	2.40%	year
High Bill Complaints (%)	1.00%	year
Cost of High Bill Complaint Investigation (Avg)	$250	each
Reduction in High Bill Complaints (%)	50%	year
Voltage Check Service Orders	80	year
Cost of Voltage Check Service Order	$250	each
Net Meter Plant (October 2014)	$6,127,486	net
Cost Reduction of Eliminating PSC Voltage Recorders	$3,000	year
No Voltage Service Calls (No Problem Found)	250	year
Cost of No Voltage Service Call	$250	each
Reduction in No Voltage Service Calls	60%	year
Cost to Read 5 Large Power Meters	$1,000	year
AMI License Fee (Avg)	$[redacted]	year
AMR License Fee (Avg)	$[redacted]	year
Cost to Replace Existing AMR Meter with AMI Meter	$[redacted]	each
Cost Associated with Meter Replacement	$[redacted]	each
Cost for Communication (78 Towers)	$11,000	each
Cost for Make Ready (Labor & Material @ 78 Towers)	$6,500	each
Reduction of Line Losses for Phase Balancing, etc.	0.25%	year
Evaluation Period	10	years
Beginning Year	2015	

SUM OF COSTS & SAVINGS ASSOCIATED WITH CONVERSION FROM AMR TO AMI METER READING

Cost to Replace AMR Meters w/ AMI Meters	Cost of AMI (Make Ready)	Cost to Install AMI Meters for New Members	Cost of O&M Expenses	Cost of Annual Fixed Charges of AMI Equipment	Cost of Annual License & Maintenance Fees	Cost to Read AMR Meters until AMI is Operational	Savings from Reduction of High Bill Complaints	Savings from Reduction of Not Reporting Meters	Savings from Avoidable kWh Energy Theft	Savings from Reduction in "No Voltage" Calls
$[redacted]	$1,365,000	$[redacted]	$966,732	$[redacted]	$[redacted]	$[redacted]	($332,719)	($169,687)	($908,420)	($162,218)

SUM OF COSTS & SAVINGS ASSOCIATED WITH CONVERSION FROM AMR TO AMI METER READING (continued)

Savings from Avoidable Damage to Transformers	Savings from Connects & Disconnects	Savings from Avoidable Meter Re-Reads	Savings from Reduction of Line Loss (Phase Balancing)	Savings from End of Line PSC Voltage Recordings	Savings from Improved Outage Management	Saving from not Admin. Contract Meter Reading	Accumulated Total Annual Costs Associated with AMI System	Accumulated Total Annual Savings Associated with AMI System		Present Worth of Annual Cost Less Annual Savings
($486,654)	($[redacted])	($[redacted])	($1,135,525)	($24,333)	($243,327)	($[redacted])	$[redacted]	($4,877,530)		$[redacted]

SUM OF COSTS ASSOCIATED WITH OPERATING EXISTING AMR SYSTEM (10 years)

AMR Mechanical Meter Replacement (10% Year)	AMR Solid State Meter Replacement (10% Year)	Cost of AMR Meters for New Meter Installations	Cost of O&M Expenses FOR Existing AMR System	Cost of Fixed Charges of AMR Metering Equipment	Cost to Read Large Commercial Meters	Cost to Read Residential & Commercial AMR Meters		Present Worth of Total Annual Cost of Existing AMR System		Accumulated Total Cost Associated with AMR
$[redacted]	$[redacted]	$458,266	$1,556,243	$712,966	$8,111	$[redacted]		$[redacted]		$[redacted]

Discontinuance of Landis & Gyr Products

From: Dally, Laurie [mailto:Laurie.Dally@landisgyr.com]
Sent: Friday, December 05, 2014 9:34 AM
To: Dally, Laurie
Cc: US Netops Service Desk PQL; Rono, Kathy Jo; Brockhoff, Naomi
Subject: PRODUCT ANNOUNCEMENT – Collector Training for TS2 Customers

Dear TS2 Customer, we sent this message yesterday and I am resending as some did not receive this.

Please be aware that Landis+Gyr can no longer provide a new SPU 2000 on an RMA nor are we able to repair a SPU 2000 should one be returned to our facility. We encourage our customers to move to the Collector 3000, with a TS2 blade assigned to each feeder, for improved logging performance and outage detection. The Collector 3000 is compatible with TS1, TS2 and PLX systems.

To replace a failed SPU 2000, customers with service agreements in place may purchase an RMA replacement Collector 3000 at a discounted rate. For pricing and details on this upgrade, contact your area sales manager or customer account representative at 800-926-6254.

It is highly recommended that you participate in our on-line training, https://attendee.gototraining.com/371vl/catalog/1841102894663283456?tz=America/Chicago, to become acquainted with the initial set-up of new Collector 3000s shipping today.

To obtain user documentation or new firmware for your existing Collector 3000, log into http://www.cellnethunt.com/login.aspx?ReturnUrl=/customerCenter.aspx.

Laurie Dally, PMP

Senior Product Manager

PLC Hardware

Landis+Gyr

Phone: 612-747-5743

Email: laurie.dally@landisgyr.com

TS2 – Reduction of Available Inventory

Landis+Gyr

Current Situation:

- Declining Sales On A Small Number of Endpoints (Mechanical & Itron)
- Components - Many Substitutes, Soaring Prices

Go Forward Plan:

- Continued Product Support
- Technical & Engineering Assistance – For Future Migration Strategies
- Last Time Inventory Order – By 3/31/2014
- Financial Assistance – Tailored Toward New Technology (PLX, RF)

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TS2 or Blended TS1/TS2 Inventory Reduction, FAQ's	
Q:	**I heard that the TS2 system is going away.**
A:	Incorrect. That said, there are a few low volume products that will be discontinued due to: ▪ Few or no orders for certain products, e.g., the electromechanical module, the remote service switch (collar), the TS2 SENTINEL module. ▪ Component pricing pressures and obsolescence, e.g., the display for the TS2 CENTRON module.
Q:	**How long do I have to purchase replacement TS2 products?**
A:	The last-time buy will close on March 31, 2014 for the following: ▪ TS2 Electromechanical (Part number 0580-AAD) ▪ TS2 Electromechanical Multi-Utility (Part number FASY-0534-0001) ▪ Remote Service Switch (Part number FASY-0528-0001) You must take delivery of these modules by June 30, 2014.
Q:	**I have CENTRON meters and I heard that TS2 modules will no longer be available, is this true?**
A:	Correct. We are unable to purchase additional CENTRON displays - therefore, modules are not available
Q:	**I have old TS2 collectors, the SPU. Can I get a replacement?**
A:	The TS2 SPU is no longer available as a replacement. The 3000 Collector with TS2 blades will do a great job and it's the same Collector hardware that's used on PLX.
Q:	**I have load control with TS2, and I heard there is no option with PLX?**
A:	There will be an option...soon. We are actively working to integrate the Consert LC solution into our Gridstream technology. Development for PLX is underway. Our estimated rollout will be in 2015.
Q:	**I've got 50% of my substations upgraded to TS2. Do I keep going with TS2? What are my options?**
A:	You may want to consider PLX or RF going forward. The added features and benefits are significant and the pricing and installation is about the same as TS2. Our technical team would be happy to sit down and review options.
Q:	**I have all my substations upgraded to TS2. Do I keep going with TS2 meters? What are my options?**
A:	Option 1. Stay with TS2, but understand that its capabilities are limited and there are some slow moving products that will be discontinued due to components obsolescence. Today you can purchase the following products for TS2: ▪ TS2 FOCUS AL Modular (Part number FASY-0624-0001 or -0002) ○ Also available is the FOCUS AL Integrated (part number FASY-0694-0001 or -0002) however, it is recommended that you move to the modular as volume has decreased on this product also) ▪ TS2 FOCUS AL Multi-Utility (Part number FASY-0749-0001 or -0002) ▪ TS2 FOCUS AX/AX-SD (Part number 26-1238 or -1240; or, with ZigBee, 26-1239, or -1241) ▪ TS2 kV2c (Part number FASY-0538-0002) ▪ TS2 kV2c Multi-Utility (Part number FASY-0650-0002) ▪ TS2 S4e (Part number FASY-0636-0002) ▪ Load control switch (Part number FASY-0530-0007 or -0008) ▪ TS2 Collector 3000 series (Part numbers FASY-0632-00016, 0002, 0003) Option 2. Landis+Gyr is working on a plan which will allow an easy migration of substation equipment to Gridstream PLX. The TS1 and TS2 blades are physically capable of residing in the same collector as a PLX blade. Our plans call for a firmware upgrade which will allow newer Collector 3000s (with the Advantech single board computer, Part Number FASY-0632-0016) to be

	upgraded remotely once the new firmware has been tested. We anticipate a release of this new firmware by Q4, 2013. We are also investigating the feasibility of a new TCU which will accommodate both TS2 and PLX downstream.
Q:	What version of Command Center supports all of the PLC and RF offerings.
A:	Command Center 6.0 which is available now.