

RECEIVED

OCT 24 2017

PUBLIC SERVICE
COMMISSION

October 19, 2017

Gwen R. Pinson
Kentucky Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602-0615

Dear Ms. Pinson:

Grayson Rural Electric Cooperative Corporation would like to make application for a Certificate of Public Convenience and Necessity to install an Advanced Metering Infrastructure (AMI) system. We have enclosed one original and ten (10) copies for the Commission's review. Also enclosed is a motion, as well as ten (10) copies, for confidential treatment of certain information contained in the application.

Please contact Bradley Cherry, Bradley.Cherry@graysonrecc.com 606-475-2199, Manager of Finance and Accounting, or W. Jeffrey Scott, our attorney, at wjscott@windstream.net should you have any questions or need additional information.

Respectfully,


Carol Hall Fraley
President & CEO

Attachments

COMMONWEALTH OF KENTUCKY
BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF GRAYSON RURAL ELECTRIC)
COOPERATIVE CORPORATION OF GRAYSON, KENTUCKY,)
FOR COMMISSION APPROVAL PURSUANT TO KRS 807,) CASE NO.
KRS 5:0001, AND KRS 278.020 FOR A CERTIFICATE OF) 2017- 00419
PUBLIC CONVENIENCE AND NECESSITY TO INSTALL AN)
ADVANCED METERING INFRASTRUCTURE (AMI) SYSTEM)

APPLICATION

Grayson Rural Electric Cooperative Corporation of Grayson, Kentucky, hereinafter referred to as "Grayson", respectfully states:

1. The full name and address of Applicant is:

Grayson Rural Electric Cooperative Corporation
109 Bagby Park Street
Grayson, KY 41143
Email contact for this application: Bradley.Cherry@graysonrecc.com;
wjscott@windstream.net

2. Grayson is a corporation, duly organized, created and existing by and under the laws of the State of Kentucky, and is engaged in the business of supplying retail electric service in Carter, Elliott, Greenup, Lawrence, Lewis and Rowan Counties in Kentucky.
3. Grayson is applying for the issuance of a Certificate of Public Convenience and Necessity (CPCN) to install an Advanced Metering Infrastructure (AMI) system over a 12-month period.
4. Estimated costs of the project are shown below.

a. Meters with a Remote Service Switch	[REDACTED]
b. Commercial and Industrial meters	[REDACTED]
c. Network Equipment (RF Routers & Collectors)	[REDACTED]
d. RF Engineering\Test Equipment	[REDACTED]
e. Estimated Network Installation Labor	[REDACTED]
f. Estimated Meter Change Labor	[REDACTED]
g. Meter Testing\Disposal	[REDACTED]
h. Shipping\Handling\Tax	[REDACTED]
i. Additional Equipment (Poles\Grounds\etc.)	[REDACTED]

- j. Project Delivery Services
- k. Employee Training

Total

5. The anticipated annual cost of operation, excluding the cost of power, for the AMI system will be approximately [REDACTED] based on our current annual per meter hosting fee.
6. Grayson is a non-profit cooperative corporation, and no kind of stock is desired or would be issued. Grayson has spoken with Rural Utility Services (RUS) concerning the financing of the AMI Implementation and received verbal approval. The actual application for financing will be submitted in conjunction with the next Construction Work Plan (CWP), which will be filed in the last quarter of 2018.
7. Attached as part of this application are the following:
 - Exhibit 1 - Certificate of Existence
 - Exhibit 2 - Assessment, Research and Vendor Selection
 - Exhibit 3 - AMI Technologies and Infrastructure
 - Exhibit 4 - Summary of benefits to Grayson and Consumers
8. WHEREFORE, applicant Grayson Rural Electric Cooperative Corporation, respectfully requests that the Public Service Commission grant a certificate of public convenience and necessity authorizing Grayson Rural Electric Cooperative Corporation to install an advanced metering infrastructure (AMI) system.

DATED: This 19 day of October, 2017.

COMMONWEALTH OF KENTUCKY

COUNTY OF CARTER,

Carol Hall Fraley, after first being duly sworn, deposes and says: That she is the President and Chief Executive Officer of Grayson Rural Electric Cooperative Corporation, duly organized and doing business under the Rural Electric Cooperative Corporation Act of the Commonwealth of Kentucky: That she has read the foregoing Application and knows the contents thereof: information or belief, and as to those matters she believes it to be true.

This 19 day of October, 2017

Grayson Rural Electric Cooperative Corporation

Carol Hall Fraley, President and C.E.O.

Subscribed and sworn to before me by Carol Fraley, this 19 of October, 2017

Anita Bellew

Notary Public, Kentucky State-at-Large

My Commission Expires: _____



W. Jeffrey Scott, PSC
311 West Main Street
P.O. Box 608
Grayson, KY 41143
Phone: 606-474-5194
Fax: 606-474-5196

W. Jeffrey Scott email: wjscott@windstream.net
Attorney for Grayson Rural Electric Cooperative Corporation

By: _____

W. Jeffrey Scott
W. Jeffrey Scott

COMMONWEALTH OF KENTUCKY
BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF GRAYSON RURAL ELECTRIC)
COOPERATIVE CORPORTION OF GRAYSON, KENTUCKY,)
FOR COMMISSION APPROVAL PURSUANT TO KRS 807,) CASE NO.
KRS 5:0001, AND KRS 278.020 FOR A CERTIFICATE OF) 2017- 00419
PUBLIC CONVENIENCE AND NECESSITY TO INSTALL AN)
ADVANCED METERING INFRASTRUCTURE (AMI) SYSTEM)

**GRAYSON RURAL ELECTRIC COOPERATIVE CORPORATION'S
MOTION FOR CONFIDENTIAL TREATMENT OF CERTAIN
INFORMATION CONTAINED IN THE INCLUDED APPLICATION
FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY**

Comes now Grayson Rural Electric Cooperative Corporation of Grayson, Kentucky, hereinafter referred to as Grayson, and respectfully requests, pursuant to 807 KAR 5:001, Section 13 and KRS 61.878, that the Public Service Commission of Kentucky grant confidential treatment to certain information that Grayson is simultaneously filing as part of its application for a Certificate of Public Convenience and Necessity. The information Grayson seeks to protect is confidential and hereinafter referred to as the "Confidential Information".

1. Pursuant to 807 KAR 5:001, Section 13, a single copy in a separate envelope with the Confidential Information highlighted in yellow, is being filed with this motion along with ten (10) copies with the Confidential Information redacted.
2. The Confidential Information, if openly disclosed, could permit an unfair advantage to competitors of Grayson and/or the Vendor, which in this case is Landis+Gyr.
3. The information which has been marked for confidential treatment involves competitively bid products and services which could be bid again in the future, and therefore Confidential Information could be used by competitors to the detriment of Grayson and Landis+Gyr. Grayson and Landis+Gyr have agreed to keep pricing for products and services confidential.
4. The time period for which the material should be considered confidential is ten (10) years from the date of this motion. This should allow sufficient time for the prices to become outdated and no longer a detriment to Grayson or Landis+Gyr.

For the aforementioned reasons, Grayson believes the Confidential Information is entitled to confidential treatment. However, if the Commission disagrees with Grayson that this information should be treated as confidential, then Grayson requests the Commission to hold an informal conference regarding this issue.

Grayson Rural Electric
Cooperative Corporation

Carol Hall Fraley

Carol Hall Fraley, President and C.E.O.

Subscribed and sworn to before me by Carol Fraley, this 19 day of October, 2017.

Anita Bellew

Notary Public, Kentucky State-at-Large

My Commission Expires:



W. Jeffrey Scott, PSC
311 West Main Street
P.O. Box 608
Grayson, KY 41143
Phone: 606-474-5194
Fax: 606-474-5196

W. Jeffrey Scott email: wjscott@windstream.net
Attorney for Grayson Rural Electric Cooperative Corporation

By: _____

W. Jeffrey Scott

W. Jeffrey Scott

August 4, 2017

Andrea McCleese
Technical Services Supervisor
Grayson RECC
109 Bagby Park
Grayson, KY 41443

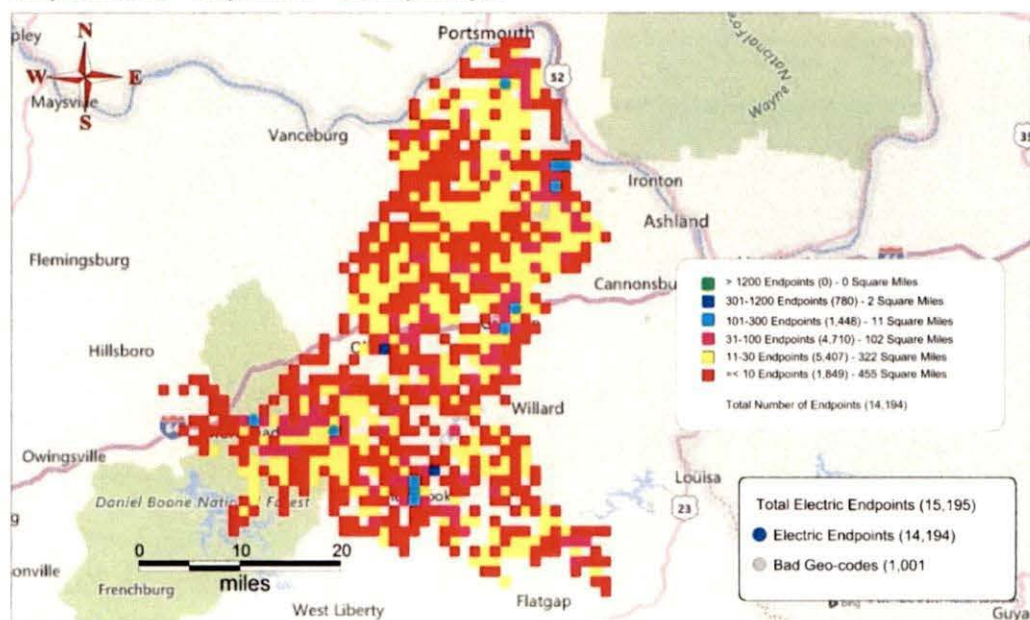
Dear Ms. McCleese:

Landis+Gyr Technology, Inc. sincerely appreciates the opportunity to provide a budgetary quote to Grayson RECC (Grayson) for the provision of a Gridstream® RF Mesh Network solution for its electric infrastructure. Landis+Gyr has proven experience in providing advanced metering systems for electric, gas and water meters. With over 20 years of experience in deploying Advanced Metering Infrastructure (AMI) systems, Landis+Gyr is the largest supplier of AMI technology with 60 million endpoints deployed or under contract globally.

Network Design

To ensure that your territory can be served by Landis+Gyr's Gridstream solution, a density analysis has been completed based on the data set provided by Grayson. This analysis was performed using the 15,195 electric meter locations provided in the data set. From the data set comprised of 15,195 endpoints, 14,194 locations were used in this analysis as it was determined that 1,001 locations were missing information. Additional infrastructure may be required due to invalid geo-coded locations. The results of our analysis validated that your territory can be served by Landis+Gyr's Gridstream RF solution.

Grayson RECC - Grayson, KY - Density Analysis



Landis+Gyr
Proprietary & Confidential

June 28, 2017

Services Overview

In addition to providing pricing on the hardware and software required for your system, Landis+Gyr also provides implementation services. Those services have been priced based on the following assumptions:

Services	Landis+Gyr	Grayson RECC
Project Management Support	√	
System Design	√	
Training	√	
Installation (network)		√
Installation (endpoint)		√
Integration Services		To be determined if required See Clarifications Below
System Administration		√
WAN Backhaul Communication Support		√

For the purposes of providing a budgetary quote, at a minimum Landis+Gyr will provide:

- Project Management
- System Design
- Training on the operation of the Landis+Gyr system

The other services represented in the previous table are assumed to be performed by Grayson, as noted; however, these services can be provided by Landis+Gyr on a time-and-materials basis.

Gridstream RF Solution Pricing

The following table represents quantities and pricing for the proposed AMI solution.

Description	Quantity	Unit Price	Extended Price
Electric Meters with Communication Modules			
RF FOCUS AX-SD (Form 2S)	15,000	██████	██████████
RF RXRS4x (Forms 5S, 6S, 8/9S, 12S, 16S)	161	██████	██████████
		Discount	██████████
<i>Electric Meters with Communication Modules Total:</i>			██████████
Network Equipment			
C6000 Series Collector	14	██████	██████████
C6000 Series Collector Mounting Kit (for Mounting on Street Light Arm) with 18ft. Cable	14	██████	██████████
RF Router and Kit with 20Ft. Cable	405	██████	██████████
RF Tools			
Tech Studio Software License (per user)	1	██████	██████████
Tech Studio Communications Adapter (per user)	1	██████	██████████
Tech Studio Annual Maintenance (per license)	1	██████	██████████

Continued on next page

Software and Support			
RF Command Center Software License	1		
Software Support and Maintenance Agreement		See clarification #17 below.	
Services and Training			
Project Delivery Services	1		
Training			
Total:			

Clarifications

Electric Meters with Communication Modules

1. Electric meter pricing is based on providing Landis+Gyr FOCUS® AX meters and S4x Polyphase meters with Gridstream communication modules and ZigBee capability.
2. Additional pricing options for electric meters are as follows:

FOCUS AX Residential Meter Options	Adder
Service Disconnect (Forms 1S & 2S Only)	
Service Disconnect (Forms 1S & 2S Only) 100% Deployment	
Battery	
Reactive Upgrade (KVA or KVAR)	
Reactive Upgrade (KVA or KVAR) 100% Deployment	
Configuration Port Short Cover	
ANSI C12.18 Opti-Com Magnetic Port Short Cover	
ANSI C12.18 Opti-Com Magnetic Port + Reconnect Arming Button Short Cover (FOCUS AX-SD Only)	
ANSI C12.18 Opti-Com Magnetic Port + Demand Reset Tall Cover	
S4x Polyphase Meter Options	Adder
Battery	
Class 320	
1 MB Load Profile	
3 Phase Power Supply	
2-Output, 1-Input KYZ W/Cables	
4-Output, 2-Input KYZ W/Cables	
ANSI C12.18 Opti-Com Magnetic Port + Demand Reset Tall Cover	

3. Electric meter and electric meter AMI module installation pricing are not within the scope of Landis+Gyr's proposal.

Network Equipment

4. Network Equipment quantities are approximations of required quantities and have been developed from 14,194 electric meter locations provided by Grayson. 15,195 electric meter locations were provided, however, 1,001 meter addresses had insufficient data for geocoding. Network Device quantities assume a Router mounting height of 20 feet above ground level (AGL). Actual Network Equipment quantities necessary for the AMI System to function properly may vary based on

verification of final meter quantities, system analysis and requirements, locations, deployment approach, and system optimization needs.

5. It is assumed that the electric endpoint deployment will be deployed in a manner in which the electric endpoints are contiguous to enable adequate meshing.
6. Should remote antenna kits be required, the per unit price is [REDACTED] each.
7. It is assumed that Grayson will provide WAN backhaul access to each Collector.
8. It is assumed that Grayson will provide new or existing poles, of an appropriate height, with 120/240V power source for installation of network equipment.

RF Tools

9. Tech Studio is a required field tool for the Gridstream RF Mesh solution. Pricing includes one (1) license for each user instance of Tech Studio and a required Communications Adapter for each user.
10. Tech Studio Annual Maintenance includes:
 - Upgrades to Tech Studio throughout the year
 - Maintenance upgrades to licensed Tech Studio software
 - New features as they become available
 - Support for critical bug fixes
11. The Tech Studio Software License fee is a per-user license fee for the Tech Studio Software and does not include the cost of a computer or tablet on which the Software is installed.
12. A Tech Studio Communications Adapter is also required per user to enable Tech Studio communications to the endpoint device. The Communications Adapter pricing includes a radio device with Gridstream RF for communication to the end device, and Bluetooth communications to the laptop or handheld used by the utility personnel. The price includes a battery charger.
13. The Tech Studio Communications Adapter includes a 6-month product warranty. Units returned under warranty via a Return Materials Authorization (RMA) to the designated Landis+Gyr facility will be repaired or replaced by Landis+Gyr.
14. Each user of Tech Studio must have a unique Username and Password of authentication with Command Center to use the tool. Maintenance charges will be based on the total number of users set up for authentication.
15. Alternatively, an enterprise license of Tech Studio software may be purchased for an unlimited number of users for a one-time fee of [REDACTED]. This option requires an annual maintenance fee of [REDACTED] for the license. Each user must still purchase a Communications Adapter for communications use.
16. Landis+Gyr cannot accept orders for Tech Studio software and Communications Adapters without a mutually executed Software License Agreement and Annual Software Support and Maintenance Agreement.

17. RadioShop Software is available when requested under license at no additional charge. Communication between the utility PC using the RadioShop Software will require an IWR, Power Cube, and antenna. Price is [REDACTED].

Software and Support

18. With Grayson transitioning from TS1/TS2 to RF, there would be a one-time RF Command Center software license fee of [REDACTED] which includes the base license, endpoint licensing for 15,344 endpoints, and HAN and Service Disconnect (SD) functionality. Any incremental endpoints are [REDACTED] each. Server hardware and software are not within the scope of Landis+Gyr's offering.
19. With the purchase of a RF Command Center Software License, an annual Software Support and Maintenance Agreement is required. This fee is based on your total number of endpoints; any incremental endpoints require additional fees. These annual agreements are subject to any increase in Consumer Price Index (CPI). Note that Grayson's current Software Support and Maintenance Agreement with Landis+Gyr will expire on January 1, 2017.

Services and Training

20. Network equipment (Collector and Router) installation; electric meter installation; are not within the scope of Landis+Gyr's offering. It is assumed this installation is the responsibility of Grayson or a third party contracted by the utility.
21. Project Delivery Services pricing is based on services being provided by Landis+Gyr for a period of six (6) months, beginning at project kickoff. At a high level, these services include:

<p>Project Management</p> <p><i>Highly credentialed and driven by industry standards and Landis+Gyr's robust 5-step process</i></p>	<p>Project management services, including on-site project kickoff session, schedule management, logistics support, risk/issue management, scope management, contract management, resource coordination, and weekly or bi-weekly status meetings.</p>
<p>Meter Configuration Support</p> <p><i>In-depth support for this key activity</i></p>	<p>Assist and coordinate with understanding the chosen meter configuration to ensure data is flowing per utility business case.</p>
<p>Network Design and Site Surveys</p> <p><i>Using repeatable ISO-certified processes</i></p>	<p>Initial and final network design, on-site training for completion of site surveys and validation of connectivity.</p>
<p>Network Equipment Commissioning</p> <p><i>In-depth support for this key activity by highly skilled, certified field technical personnel</i></p>	<p>On-site commissioning of initial Network Equipment, including inspection of installation, commissioning of equipment and assurance of network preparation for endpoint deployment. Also includes system orientation for completion of future Collector commissioning by the utility or its selected installation subcontractor.</p>

<p>Technical Implementation Support <i>Executing system success with dedicated engineers</i></p>	<p>Remote technical support from a dedicated Landis+Gyr project technical expert to guide the customer on the technical aspects of Gridstream RF system operation and resolve issues quickly and efficiently through the planning and launch phases of the project. Also plans and develops system test planning in conjunction with the customer and assists with network performance validation.</p>
<p>Integration Support <i>Expert whole-solution guidance and support</i></p>	<p>Remote integration support to facilitate customer's integration with a MultiSpeak/CIM-compliant billing system (Landis+Gyr will lead detailed requirements and design workshops, provide standard APIs and API specifications, provide best practices, and support customer integration activities).</p>

22. Project Delivery Services are invoiced upon performance of the Services.
23. Gridstream RF Training is required prior to deployment. Pricing includes:
 - Two (2) on-line training sessions for Security
 - One (1) online training session for Tech Studio
 - One (1) classroom training course for RF Network Deployment
 - One (1) classroom training course for Command Center Application
24. Pricing for online training sessions is per log-in/registration.
25. Gridstream RF Training pricing assumes that two (2) employees from Grayson will attend classroom training at Landis+Gyr's Pequot Lakes, MN, or Lafayette, IN, locations only. Additional seats are [REDACTED] per seat. Forty (40) online training credits have also been included for use with continuing education.
26. Grayson is responsible for its own travel and expenses related to training. Delivery of product and system education is offered via several training venues, and selection of the appropriate type of training is negotiable.

General Clarifications

27. Collectors and Routers are currently available with an initial 20-week manufacturing lead time after receipt of order.
28. Landis+Gyr's standard equipment warranty for defects in material or workmanship is 18 months from the date of shipment. Landis+Gyr warrants its software for a period of thirty (30) days from the date of delivery. An annual Software Support and Maintenance Agreement is assumed to be in place thereafter to provide maintenance and support coverage. Landis+Gyr warrants that Services will be provided in a professional workmanlike manner and the services warranty period is ninety (90) days after performing a service.
29. All pricing is in U.S. Dollars. This quote is valid for 60 days.
30. Landis+Gyr's pricing is subject to change due to any annual increase in CPI.

31. **Landis+Gyr's pricing includes shipping charges;** shipping terms are DAP destination in accordance with INCOTERMS 2010 and assume full truckload shipments; additional charges may apply if actual shipment is less than a truckload.
32. **Landis+Gyr's pricing does not include any applicable sales tax; these fees will be added to the invoices as applicable.**
33. **Landis+Gyr's payment terms are Net 30 Days from date of invoice.**
34. Pricing assumes Grayson and Landis+Gyr will enter into an agreement for this project.
35. This proposal contains confidential and trade secret information of Landis+Gyr. Except as otherwise specified in a non-disclosure agreement regarding Landis+Gyr's confidential information, Landis+Gyr authorizes use and disclosure of the content of this proposal only as necessary for evaluation of Landis+Gyr's proposal or as required by law. No other license rights are intended or implied.

We look forward to taking this next step with you and welcome the opportunity to further define a Gridstream solution to address your needs. If you have any questions, please contact Stevven Timm at (727) 808- 6610 or stevven.timm@landisgyr.com.

Sincerely,



Jay D. Evensen
Vice President, Commercial Operations

Commonwealth of Kentucky
Alison Lundergan Grimes, Secretary of State

Alison Lundergan Grimes
Secretary of State
P. O. Box 718
Frankfort, KY 40602-0718
(502) 564-3490
<http://www.sos.ky.gov>

Certificate of Existence

Authentication number: 194831
Visit <https://app.sos.ky.gov/ftshow/certvalidate.aspx> to authenticate this certificate.

I, Alison Lundergan Grimes, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

GRAYSON RURAL ELECTRIC COOPERATIVE CORPORATION

is a corporation duly incorporated and existing under KRS Chapter 14A and KRS Chapter 279, whose date of incorporation is October 13, 1950 and whose period of duration is perpetual.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that Articles of Dissolution have not been filed; and that the most recent annual report required by KRS 14A.6-010 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 19th day of October, 2017, in the 226th year of the Commonwealth.



Alison Lundergan Grimes

Alison Lundergan Grimes
Secretary of State
Commonwealth of Kentucky
194831/0020454

Exhibit 2

Assessment, Research and Vendor Selection

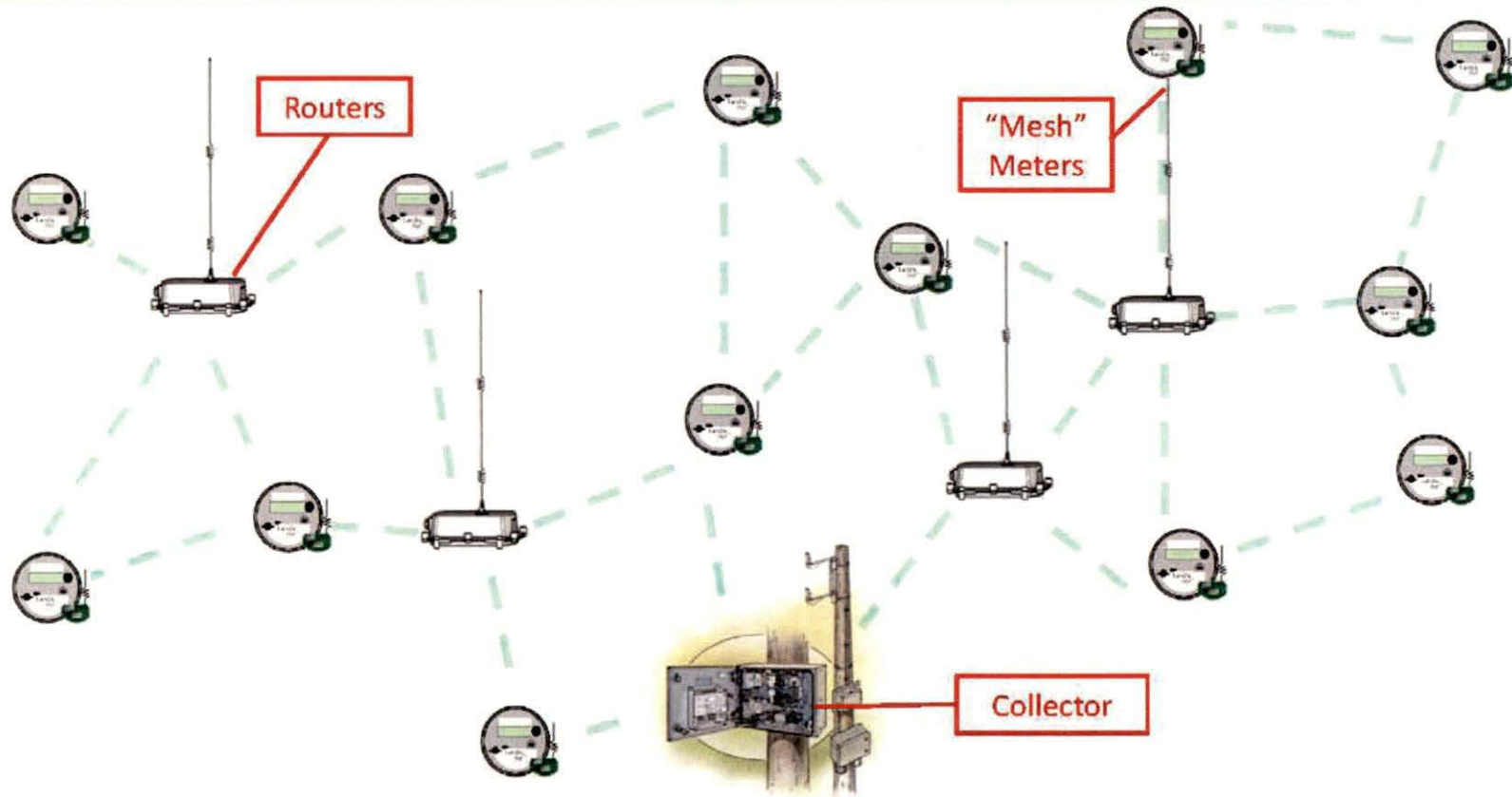
Grayson Rural Electric Cooperative Corporation (Grayson) currently has in place 7,650 meters utilizing Landis+Gyr's TS1 (one-way communication) and 7,056 meters utilizing their TS2 (two-way communication) Power Line Carrier (PLC) system. The Landis+Gyr TS1 system was originally installed beginning in 2000 and we started upgrading to the TS2 system in 2010. In our 2015-2018 Construction Work Plan (CWP), Grayson budgeted to replace the remaining TS1 meters with TS2 meters. Grayson then determined that a different deployment strategy for upgrading our AMI was appropriate based upon information acquired verbally from Landis+Gyr staff, as noted in PSC Staff Opinion 2014-016.

After thorough study, research, conversation, and observation at Cooperatives similar to our own, Grayson believes it would be better to invest in a technology upgrade that would allow for future growth in technologies. Therefore, this Assessment, Research and Vendor Selection is pursuant to the correspondence between Grayson and the Commission found in PSC Staff Opinion 2014-016 and PSC Staff Opinion 2014-016A.

Grayson solicited four vendors to submit proposals for evaluation of Automated Metering Infrastructure utilizing Radio Frequency (RF) technology. These vendors were evaluated on longevity, security, fast and accurate communications with each meter to the office, reliability, future capabilities, and ease of integration with our existing Customer Information System (CIS) and Outage Management System (OMS) software vendors.

Grayson received bids from three vendors and considered both a RF solution and a PLC solution. They also gathered information and evaluated costs of vendor equipment, installation, additional materials required, third party costs of meter changes, testing and disposal of old meters. The gathering of data and evaluations were conducted over approximately an eight (8) month period. After serious consideration of our history with Landis+Gyr and an in-depth evaluation of the costs of an AMI update, Grayson has selected Landis+Gyr's technology and course of business as the best fit with our current and future needs.

Self-forming, Self-healing, Mesh Network



© Landis+Gyr | September 4, 2014 | CONFIDENTIAL

FOCUS AX

E330 FOCUS AX • E350 FOCUS AX-SD Single Phase • E330 FOCUS AX Polyphase

The FOCUS family of meters featuring advanced residential metering and light commercial applications.

The FOCUS® AX platform features a single circuit board design, mounted at the front of the meter, allows room for modular advanced metering communications or a KYZ option output board. Fewer parts and connectors throughout the board design increase reliability and contribute to better overall end point performance. Highly accurate load performance and the use of a field-proven Digital Multiplication Measurement Technique ensure reliability and dependability during the entire life of the FOCUS AX meter.

The Next Generation of Advanced Residential Metering

The FOCUS AX-SD is an advanced meter platform with features that rival any meter in its class. With available service disconnect integrated into the meter base, utilities can take advantage of the 200 Amp relay to disconnect power or limit service remotely using an advanced metering technology or manually at the meter. The combinations of FOCUS Service Disconnect base module and powerful AX register provides a flexible system that supports a variety of connect/disconnect and service-limiting applications.

Economical and Reliable Option for Light Commercial Applications

The FOCUS AX Polyphase meter provides a cost-efficient alternative for light commercial metering applications that do not require all of the functionality of the S4e meter. The FOCUS AX Polyphase meter contains a 120V to 277V auto-ranging power supply suitable for both 277/480V, 4W, WYE and 240/480V 4-wire Delta Services. As an addition to the FOCUS family of meters, the AX Polyphase brings the same proven solid-state performance utilities have come to expect from FOCUS meters, in an economical and AMI-ready platform for commercial and industrial applications.



Key Benefits

- Digital Multiplication Measurement Technique
- Non-volatile memory
- Designed for a 20+ year life
- Meets or exceeds industry and ANSI standards
- Uses ANSI protocol (between meter and communication device)
- 6 digit LCD and 3 Alpha ID
- Selectable meter multiplier up to 240 (1200:5 CT)

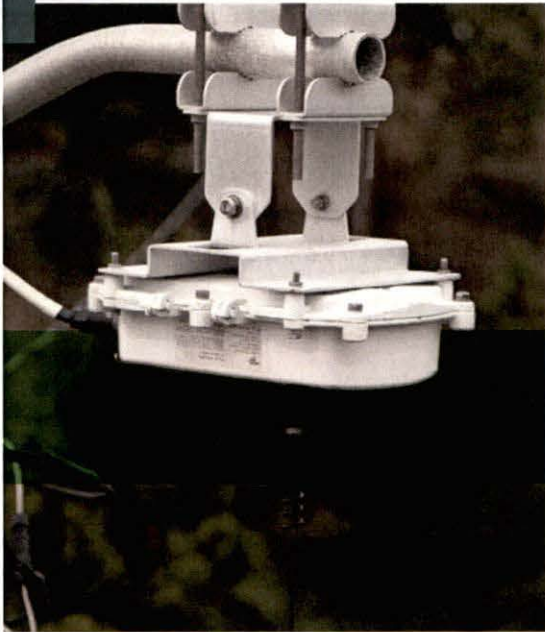


Product Specification and Schedule Sheet

Specifications

General Specifications	Active Energy "kWh-kW" meter	
	Digital Multiplication Measurement Technique	
	Non-Volatile Memory	
	Designed for 20+ years life	
	Meets ANSI standards for performance	
	Utilizes ANSI protocol (between meter and AMI device)	
	9 digit LCD	
	Display scroll sequence programmable (factory or end user)	
	Configuration port – cover does not have to be removed or optional ANSI C12.18 optical port available	
	Operating Temperature	-40C to +85C under cover
Operating Voltage	80% to 115% of Vn	
Frequency	60Hz +/- 5%	
Humidity	5% to 95% relative humidity, non condensing	
Voltage Burden	≤ 1.9W Max	
Load Performance Accuracy	Accuracy Class 0.5% – typical accuracy 0.2%	
	Exception: Form 36S 0.5%	
Display Options	Energy Metrics: +kWh, -kWh, Net kWh, and added kWh (Security)	
	Metric Energy Display Format – 4x1, 4x10, 5x1, 5x10, 6x1 or 6x10	
	Time of Use and Demand Billing	
AMI Platform	Modular or Integrated	
Selectable Meter Multiplier	Up to 4096 as result of PT ratio = CT ratio	
Applicable Standards	ANSI C12.1 for electric meters	
	ANSI C12.10 for physical aspects of watt hour meters	
	ANSI C12.18 Protocol specifications for ANSI Type 2 Optical Port	
	ANSI C12.19 Utility Industry End Device Data Tables	
	ANSI C12.20 for electricity meters, 0.2 and 0.5 accuracy classes	
	CAN3-C17-M84 Canadian specifications for approval of type of electricity meters	
Service Disconnect	10,000 operations at full rated current (disconnect/connect)	
Landis+Gyr Communication	FOCUS AX Single Phase	2 Way Gridstream RF
		2 Way Gridstream PLC
	FOCUS AX-SD	2 Way Gridstream RF
		2 Way Gridstream PLC
Third Party Communication	FOCUS AX Polyphase	2 Way Gridstream RF
	FOCUS AX Single Phase	Aclara STAR Network - RF
		Aclara TWACS Technology - PLC
		Sensus 2 Way RF Flex Net
		Silver Spring 2 Way RF Mesh
		Trilliant 2 Way SecureMesh
		FOCUS AX-SD
		Aclara TWACS Technology – PLC
		Sensus Flex Net
		Silver Spring Network 2 Way RF Mesh
		Trilliant 2 Way SecureMesh
	FOCUS AX Polyphase	Aclara STAR Network – RF
Aclara TWACS Technology – PLC		
Metrum CDMA/1xRTT and GSM/GPRS under glass		
Sensus Flex Net		
Silver Spring 2 Way RF Mesh		
Trilliant 2 Way SecureMesh		

Product Specifications



Gridstream RF Router

Landis+Gyr+
manage energy better

Advanced, Yet Cost-effective, Communication Solution

Overview

The Landis+Gyr RF Router helps form the powerful Gridstream® RF wireless mesh network used in Advanced Metering, Distribution Automation and Demand Response applications. Network performance and reliability are assured via the routers basic mesh functions including full two-way, peer-to-peer communication to all devices in the network, asynchronous spread spectrum frequency hopping and dynamic message routing.

The RF Router is designed to deliver enhanced on-board memory and communication speeds to support future application and development needs. In addition, advanced functionality enables individual message prioritization, automatic network registration and localized intelligence. The router can also provide distributed device control capabilities via programmable applets.

To provide critical network operations—even during small or widespread system power outages—a typical purchase includes battery backup integrated within the aluminum housing.

FEATURES & BENEFITS:

Why Landis+Gyr makes a difference.

- Interoperability to enable integration with numerous partners and supported devices
- Standards-based, including IPv6, to protect existing and future investments
- Individual message prioritization provides end device interfacing with other smart grid applications and functions
- Dynamic routing by each radio in the mesh network
- Data security and error-checking algorithms to assure integrity and reliability
- Downloadable code for easy, over-the-air firmware updates for near real-time monitoring and control

Gridstream RF

Product Specifications: Gridstream RF Router

Specifications

Size	11.82"W x 9.30"D x 4.07"H
Weight	Base – 5 lbs 8 oz (2.49 kg) Battery adds 2 lbs 8 oz (1.13 kg)
Operating Temperature	-40°C to +85°C (internal ambient of enclosure)
Power Supply	Operating AC Voltage – 96-317 VAC Input for Receive mode / 120VAC Operation – 15 mA (max) Input for Transmit mode / 120VAC Operation – 95 mA (peak), 25 mA (Avg) Input for Battery charging mode / 120VAC Operation – 30 mA (max)
RF Output Power	21, 25, 30 dBm (user selectable)
General Radio Items	Frequency Range – 902-928 MHz Channel Spacing – 100 kHz, 300 kHz, or 500 kHz (dependent on mode) Channels – 56, 80, 240 (dependent on mode) RF Baud Rates – 9.6, 19.2, 38.4, 115.2, 300 kbps
Battery	Backup Time – 8 hours, typical Backup – 12V SLA 2500mAhrs, nominal Life – 5-7 years, typical
Processing	CPU – ARM9 SRAM – 16 MB Flash – 8 MB ANSI C12.1 Compliance
Approvals	FCC Certified Part 15.247
ANSI C12.1 Compliance	Operating vibration; operating shock; electromagnetic radiation emissions, electromagnetic susceptibility, surge withstanding capability, electrostatic discharge
Enclosure Material Type	Aluminum/NEMA-4, sealed
Standard Shipment Includes	White, die-cast aluminum all-weather enclosure Operation on DC (12/24 VDC) or AC power, with automatic switching between 120 VAC or 277 VAC when connected to power source RS-232/485 lines for both LPPx and transparent port communication Standard N-Female antenna connector Integrated filter for attenuation of out-of-band interference Mounting hardware

Phone: 678.258.1500

FAX: 678.258.1550

landisgyr.com

3.18.14

**Landis
Gyr+**
manage energy better

Product Specifications



Gridstream C6500 RF Collector



C6500 RF Collector
Ethernet only

C6530 RF Collector
with CDMA/EVDO wireless modem

Versatile and Cost-Effective Communication Solution

Overview

Ease of installation and dependable design make the Gridstream® C6500 Collector a cost-effective, workable option for efficient communication between Gridstream RF endpoints, routers and the Command Center server, while performing all necessary functions of the standard data collector.

The C6500 can be installed in a variety of locations and is configured to accept public backhaul communication options. The C6500 can be ordered with an internal CDMA/EVDO wireless backhaul modem or without a modem in cases where an Ethernet connection is available.

FEATURES & BENEFITS:

Why Landis+Gyr makes a difference.

- Interoperability to enable integration with numerous partners and supported devices
- Standards-based, including IPv6, to protect existing and future investments
- Integrated wireless radio backhaul modem
- Data security and error-checking algorithms assure integrity and reliability
- Simpler and reduced installation time
- Dynamic routing by each radio in the mesh network
- Downloadable code for easy, over-the-air firmware upgrades and near real-time monitoring and control

 **Gridstream** RF

Product Specifications: Gridstream C6500 RF Collector

Specifications

Dimensions (excludes antennas)	5.04"H x 11.82"W x 9.30"D
Antennas	Two (2), one blackhaul (top) and one (1) Gridstream (bottom)
Antenna Height Minimum	20 ft.
Weight	9.6 lbs.
Standard Compliance	FCC Part 15, Class B
Operating AC Voltage	96-277 Vrms
Power Consumption	9W typical – batteries not charging 18W typical – batteries charging
Operating Frequency Band	902-928 MHz, unlicensed
Transmit Output Power	1W maximum for single IWR radio
Baud Rate Range	9.6, 19.2, 38.4, 115.2, 300 kbps
Endpoint Capacity (initial)	4,500
Processing	CPU – ARM 9 Internal Memory – 16 MB Flash – 8 MB
Operating Temperature	-40°C to 60°C, outdoors
Storage Temperature	-40°C to 85°C
Color	White
Enclosure Material/Type	Aluminum/NEMA-4, sealed
Battery	Backup Time – 8 hours, typical Backup – LiFePO4 cells in a 4s4p arrangement, 13.2V, 10000mAh nominal Life – 15 years, maintenance free
Backhaul Communications	Integrated wireless CDMA/EVDO or wired Ethernet connection
Supplied Cellular Carriers	C6530: Verizon or Sprint
Mounting Options	Utility poles and streetlights

Phone: 678.258.1500

FAX: 678.258.1550

landisgyr.com

8.7.14



Exhibit 4

Summary of RF Benefits to Grayson and Consumers

Initial Benefits

- **Demand Data** – RF has the ability to send 15, 30 or 60 minute demand readings. This information could be integrated into our Meter Data Management System (MDM System) allowing for more accurate analysis of the usage patterns.
- **Automated Outage Reporting** – RF meters will report loss of power, which will assist Grayson's crews in locating the cause of the outages, as well as verify that all customers' power has been restored after an outage and before crews leave the area.
- **Direct Load Control** – Due to the slow response times of our existing PLC direct load control (DLC) it takes approximately 20 minutes before a DLC reports back to the control center slowing the decision whether more DLC's should be activated to assist in the load reduction process. RF DLC should give responses times of one to two minutes.
- **Pre-Pay Metering** – Grayson currently offers Pre-Pay metering to any of its members. If their funds run out, the meter will automatically disconnect. Currently, due to the PLC speeds, the CIS system does not receive the disconnected state of the meter for approximately 20 minutes. If the consumer pays for a reconnect before the status is updated an employee has to intervene. With RF speeds, that issue would be alleviated.
- **Remote Connect\Disconnect** – With the use of meters that have built in Remote Service Switches, Grayson will be able to quickly connect or disconnect power to any meter as requested by the consumer without having to send personnel to the site. This would greatly reduce our truck rolls.
- **Voltage Data** – The ability to receive voltage readings from individual meters will allow Grayson to build historical voltage data to a) verify voltage levels are being maintained as required by the PSC and b) verify voltage calculations within the engineering analysis software.
- **Better Backhaul** – The PLC systems require internet access at the collectors located at each substation. Not all substations have reliable internet access. RF allow the collectors to be located anywhere reliable internet is available reducing truck rolls for DSL outages.
- **Remote Meter Evaluation** – Grayson's meter shop would become part of the WAN created by the RF network giving Grayson the availability to remotely evaluate a meter and therefore avoiding truck rolls.
- **Data Restrictions** – PLC systems have a limited amount of data that can be programmed in the return packet. RF allows for large amounts of data to be sent allowing more information to be gathered.
- **Self-healing Benefits** – When part of a PLC network fails, no data is collected from that point to the end of the line. Getting the system repaired becomes number one priority sometimes costing extra for overnight shipping of replacement equipment. RF is 'self-healing' meaning the readings will find an alternate path and the repair can be made with a lesser degree of urgency.
- **'Hot Socket'** – Landis+Gyr's software has the ability to report internal temperatures of the meter indicating there may be a loose connection at the meter location. Utilizing this feature could save both meters and/or homes from damage.

Future Benefits

- **Historical Information for Consumers** - The availability of 15/30/60 minute data intervals and storing of this data allows consumers to access this data via a web portal allowing for better control of their spending and energy usage.
- **Security Light Control** – Landis+Gyr offers a security light control that replaces a photocell allowing the light to be turned on or off from the office. When a Pre-Pay customer’s service status changes, there would be no need to roll a truck to disconnect or reconnect the security light, as Grayson is required to do currently.
- **Additional Revenue** – Grayson would like to develop a rate for local gas and/or water companies to utilize the RF infrastructure. Local gas and/or water companies could gain some of the same benefits that we would enjoy without the expense of building a network. We currently have two companies that have shown interest in such a plan.
- **Distribution Automation** – Developing an RF network allows Grayson to add some distribution automation in the future. Landis+Gyr offers a variety of products that tie distribution equipment together with the RF network for remote monitoring and/or control.