

Cover Letter

Summary of Expertise

Provide a concise overview of the vendor's experience in the utility sector, specifically in multi-utility AMI implementations.

Landis+Gyr Response:

Landis+Gyr is the leading global provider of integrated energy management solutions for the utility sector. Offering one of the broadest portfolios of products and services to address complex industry challenges, the company delivers comprehensive solutions including Electric/Gas/Water AMI and smart metering, distribution network sensing and automation tools, load control, analytics, and grid optimization applications. Landis+Gyr operates in more than 30 countries across five continents. With sales of approximately USD \$1.7 billion, the company employs 5,000+ people with the sole mission of helping the world manage energy better. Landis+Gyr offers more than 30 years of experience specific to AMR/AMI and DA solutions and over 125 years as an energy measurement company. More information is available at www.landisgyr.com.

The differentiators of Landis+Gyr include the longevity (over 100 years) of providing multi-generational technology driven solutions to our focus target utility market segment. The investment in next generation technologies, the consistent and cost-effective application of those technologies including multiple standards-based connectivity models, and the services organization to keep our clients informed and moving forward, has enabled Landis+Gyr to be a trusted global supplier of energy and natural resources management solution.

Landis+Gyr portfolio summary includes, but is not limited to:

AMI Endpoints and Metering

- Electric - Landis+Gyr Revelo, Focus AXe, and S4x metering platforms
- Gas - Landis+Gyr AMI retrofit modules and ultrasonic meter
- Water – Master Meter AMI retrofit modules and ultrasonic water meter
- Smart City – Streetlight Controllers

Connectivity

- Mesh IP (IEEE802.15.4g standards based)
- Cellular (LTE, LTE-M, NB-IoT, PLTE supported)
- Wi-SUN
- Wi-Fi

Software Applications

- Gridstream Connect App Ecosystem (AppDev, AppManager, AppStore)
- DA/SCADA (monitoring and control)
- AMI Head End
- MDMS
- Analytics
- Consumer Portal with Prepay (Vertex One/MyMeter)
- Prepay (PayGo)
- Load Control
- EV Solutions Fleet Management
- Flexibility Management (DERs)
- Smart Community Center (Streetlight control)
- Landis+Gyr DERMS, Powered by OATI

Services:

- Program / Delivery / Training
- Cloud/SaaS
- PKI as a Service
- Omni carrier as a Service (cellular IoT connectivity for WAN backhaul and edge devices)
- Data as a Service
- Global Security (Head End + Operational Technology)
- System Optimization
- Professional Services (Delivery, Managed, and a la carte)

Statement of Commitment

Confirm the vendor's commitment to delivering a scalable, adaptable solution that aligns with Greenville Utility Commission's long-term goals for an eight-year implementation.

Landis+Gyr Response:

Today, there are hardware items in the field supported by Landis+Gyr software platforms which have provided continuous operation since late 1990s. This dates back to the popular Cellnet one-way AMI, two-way AMI, and Distribution Automation network offerings which functioned in the unlicensed 900MHz spectrum. For those clients who benefited from early adoption of Landis+Gyr RF systems, which had little industry wide standardization at the time, Landis+Gyr has continued to offer backwards compatibility and upgrade paths forward which are allowing these clients to now benefit from the more recent industry direction to increased network utilization, broader industry wide utility and IoT standards, and improved cost structures for device connectivity options. Landis+Gyr's technologies are aligned with industry standards which are inclusive with the proposed Greenville Utilities Commission solution. We are committed to providing Greenville Utilities Commission a flexible and future ready AMI system with Gridstream Connect.

Landis+Gyr has found the best approach to future proofing a technology is to ensure the following fundamental elements are considered and applied wherever possible to meet market and client related requirements.

Key Features of a Future Proofed Portfolio	Landis+Gyr	Proof Point
In sync Marketing and Engineering Global Organization to fully understand trends and adoption rates of widely available components and impact to newly released technologies.	Yes	Global Research & Development guidance with local geographic representation that includes approved vendor and approved components list qualification and management.
Align and adopt industry standard device level and communication protocols to enable long life of installed assets.	Yes	Industry standards for ANSI and UL meter related certifications, Wi-SUN aligned IP mesh networking based on RPL routing standard and operation within a widely adopted and proven unlicensed 900MHz spectrum, Wi-Fi and ZigBee HAN related protocol support, TCP/IP WAN backhaul, emerging LTE-M cellular support with omni-carrier option across multiple suppliers, and finally use of utility industry related MultiSpeak and CIM compliant integration standards.
Design with additional memory to facilitate remote upgrade options at the device level. (Edge device and infrastructure)	Yes	Each end-device and network infrastructure design is sized to support all foreseeable functionality and application support requirements. Future Revelo metering design is adopting a separate edge card with advanced application support to facilitate more client created and focused use cases at the endpoint.

Key Features of a Future Proofed Portfolio	Landis+Gyr	Proof Point
Include remote upgrade features that allow reconfiguration and over the air upgrades to be conducted without need to visit and replace any assets.	Yes	For over fifteen years, Landis+Gyr has employed remote upgrade capability into the AMI and DA offering. The process has been refined to increase confidence, reduce time to upgrade, and ensure reliability of the procedure.
Specify industry standard IT hardware and operating systems which will offer best priced and most supported upgrade path over the design life of the application software and related databases.	Yes	Landis+Gyr specifies the most common IT OS, server, and database infrastructure to ensure economical and confident delivery model and ongoing IT maintenance best practices can be realized.
A holistic and end-to-end security architecture	Yes	The Landis+Gyr security solution addresses cyber security in a holistic way. This means that security extends beyond securing communications links. Beyond a communication vendor perspective, the security encompasses the head end, the network communications, the field tools, the network devices, the meters and the secure development of these products and systems. Security is built-in to the AMI solution and designed to meet the operational needs of the utility. The Landis+Gyr security philosophy is to use a standards-based solution that uses validated security components, an open security architecture and non-proprietary cryptography. The security library utilized for cryptography is built by cryptographers and validated by NIST. This includes full abstractions to allow for crypto agility and ensure a secure lifetime for the full product line.
A corporate culture that strives to ensure that there is “no client left behind.”	Yes	Landis+Gyr has demonstrated a “no client left behind” operational protocol which includes upgrade paths, engineered solutions, and conversion projects to allow our existing clients to maximize original investment and migrate to future technological advances as they become more mainstream and economically available.

Contact Information

Include the primary contact person's name, title, email, and phone number for any follow-up questions or clarifications.

Landis+Gyr Response:

Blake Zorn, Area Sales Manager
blake.zorn@landisgyr.com
(912) 293-6917

Company Background and Relevant Experience

Company Overview

Describe the vendor's history, years in the utility industry, size, and core areas of expertise. Include information about ownership structure, location of headquarters, and any relevant subsidiaries or partnerships that support AMI capabilities.

Landis+Gyr Response:

Landis+Gyr has a rich history and proudly reflects on over 125 years of excellence. From the production of the first electricity meters at a time when the use of electricity was in its beginnings, to the events that impacted the way the Company operates and Landis+Gyr's social commitment and focus on sustainability, which has been part of the DNA since 1896.

With the proliferation of IoT connectivity today, the role of AMI and Smart Grid solutions requires a future-ready network solution that is open and secure, flexible, and scalable to help fulfill the business needs of today and offer the agility to address the challenges of the future. Gridstream® Connect from Landis+Gyr is backed by over 25 years of proven utility IoT interoperability experience with one of the largest partner ecosystems.

Gridstream® Connect, our multipurpose utility IoT platform, has a long history of supporting electric, water, and gas. From the networked Gridstream RF AMI solution comes the ability to leverage the investment in a network to support various smart grid applications, such as meter data management, distribution automation, home automation, load control, micro grids, smart street lighting, prepayment, consumer portal, advanced grid analytics, and voltage conservation solutions.

In the summer of 2017, Landis+Gyr became a publicly traded company on the Swiss SIX Exchange (LAND) with its global headquarters in Cham, Switzerland.

The Landis+Gyr North America headquarters is in Alpharetta, GA. In the US, Landis+Gyr maintains R&D Centers in Alpharetta, GA; Bloomington, MN; Minneapolis, MN; Lafayette, IN; Pequot Lakes, MN and Raleigh, NC. Additionally, Landis+Gyr operates numerous regional customer operations program offices to provide deployment services and ongoing AMI managed services in various locations in the US.


Landis+Gyr has domestic teams located in Atlanta, Minneapolis, Lenexa, and Lafayette to support all time zones of North America. In addition, we have international-based teams in India to complement our 24x7 support model. Development and support resources have been co-located within our Atlanta and India offices for more than 10 years.

Today, Landis+Gyr proudly serves utilities around the globe as a critical infrastructure provider. With more than 335 million installed devices, of which 150 million are connected intelligent devices, the Company is a leading provider of integrated energy management solutions. Over the past 125+ years, the Company has shaped the energy industry through constant change. Through continuous commitment to R&D, M&A, strategic partnerships and investments, the Company is transforming once again to meet the changing needs of its customers, provide stability to its employees and create shareholder value. Rooted in its shared values of Customer Intimacy, Innovative Technology, Uncompromising Performance, Entrepreneurial Spirit and Sustainable Impact, Landis+Gyr's first priority remains to manage energy better for utilities, energy consumers and entire communities.


Relevant Project Experience

Provide high-level descriptions of at least three AMI projects that include electric, water, and natural gas utilities, preferably projects similar in scale to Greenville Utility Commission's requirements. For each project, detail the scope, objectives, challenges encountered, and the outcomes achieved, emphasizing multi-utility deployments, scalability, and adaptability to technological changes. If available, include references to relevant case studies, white papers, or public-facing project summaries that highlight successful implementations.

Landis+Gyr Response:

Customer:	Conway Corporation Conway, Arkansas	
Reference:	AMI – Landis+Gyr Gridstream RF – 30,000 Electric Endpoints – 26,000 Water Endpoints – 10,000 Smart Luminaires – MDMS	
Original Entry Date:	1/4/2019	
Client Name: Address: Main Phone: Website:	Conway Corporation 650 Locust St. Conway, AR 72034 Main Headquarter Phone: 501.450.6000 Web Site: https://www.conwaycorp.com	
Application:	AMI Communications Network – Electric, Water, Streetlight Control & MDMS	

Deployment Period:	2016 – 2017 Deployed RF Mesh System 2018 – 2019 Deployed Water endpoints 2019 – 2020 Deployed Streetlight Control
Primary Contact:	Name: Chris Boudreaux Title: Operations Systems Coordinator Office Phone Number: 501.450.6062 Cell Phone Number: 501.514.2618 Email Address: Chris.Boudreaux@conwaycorp.com
Alternate Contact:	Name: Preston Glover Title: Senior Meterman Office Phone: 501.548.3014 Cell Phone Number: 501.269.5820 Email Address: Preston.Glover@conwaycorp.com
Conway Corporation operates a city-owned multi-service utility system in central Arkansas. They installed a Landis+Gyr's RF Mesh network to support advanced metering for electric and water consumers. Electric deployment of 30,000 devices started in 2016 and concluded in 2018. Water followed with 26,000 endpoints and will finish in 2019. The water deployment is predominantly interpreters and some pit boosters. Conway has successfully used the 0.1-gal resolution and 15-minute load profile data to identify leaks. Conway Corp is also using Landis+Gyr's MDMS for advanced reporting.	

Customer:	Beatrice BPW (Board of Public Works) Beatrice, Nebraska	
Reference:	AMI – Landis+Gyr Gridstream RF – 6,800 Electric Endpoints – 5,500 Water Endpoints	
Original Entry Date:	AMI – 12/1/2014	
Client Name: Address: Main Phone: Website:	Beatrice Board of Public Works 400 Ella Street Beatrice, NE 68310 Main Headquarters Phone: 402.228.5211 Web Site: https://www.beatrice.ne.gov/	
Application:	AMI Communications Network – Electric & Water	
Deployment Period:	2015 - 2016	
Primary Contact:	Name: Pat Feist Title: Electric Superintendent Office Phone Number: 402.228.5213	

	Cell Phone Number: 402.239.3236 Email Address: pfeist@beatrice.ne.gov
Alternate Contact:	Name: Bob Wallen Title: Foreman Office Phone Number: 402.228.5211 Cell Phone Number: 402.223.0438 Email Address: rwallen@beatrice.ne.gov
<p>After careful consideration, Beatrice BPW (Board of Public Works) selected Landis+Gyr Gridstream RF in 2014 for their AMI requirements - electric and water. They have approximately 6,850 electric customers and 5,500 water. They are a Landis+Gyr SaaS (Hosted) customer.</p> <p>Electric deployment started in 2014 and concluded in 2016. Water followed and was complete in 2017. Total system has been up and running for several years and their average daily read rates continues to be ~99.8% or better.</p>	
Customer:	<div> <div>Piedmont Electric Cooperative Hillsborough, North Carolina</div> <div>  <p>Piedmont Electric COOPERATIVE</p> </div> </div>
Reference:	AMI Communication Network - Landis+Gyr Gridstream RF, 35,000 endpoints
Original Entry Date:	Network and Meter Deployment 2020
Client Name: Address: Main Phone: Website:	Piedmont Electric Cooperative 2500 NC-86 Hillsborough, NC 27278 Main Headquarters Phone: 800.822.3107 Web Site: https://pemc.coop/
Application:	AMI Communications Network – Electric, with expressed interest in Advanced Load Management (ALM)
Deployment Period:	2020-2023 RF Mesh
Primary Contact:	Name: Jordan Overbee Title: CEO Office Phone: 919.649.9565 Email Address: overbeej@pemc.coop
Piedmont Electric Cooperative has been a long-standing Landis+Gyr customer. Piedmont has been an L+G powerline carrier customer for over 15 years before migrating to RF Mesh in 2020.	

Project References

List three client references with contact information (name, title, organization, phone, and email) for similar AMI projects. These references should reflect the vendor's experience in handling complex, multi-utility AMI implementations.

Landis+Gyr Response:

Please see three client references in question above.

Technical Approach and Solution Design

AMI System Design and Scalability

Provide a high-level description of the vendor's approach to designing AMI systems for multi-utility environments, including examples of modular or scalable architectures.

Landis+Gyr Response:

The Landis+Gyr Gridstream Connect platform of AMI and utility-wide edge device connectivity includes the following features that satisfy the utility's System Architecture expectations.

Head End System (HES): The Landis+Gyr Gridstream AMI Head End System (HES) software is the gateway for all Gridstream metering technologies and the control point for grid management network sensors. It is the critical link for opening access to valuable data for utility systems and directing actions which occur within the distributed intelligence residing at the network's edge.

The HES is a scalable, highly secure, modular, and standards-based platform with an extensible architecture that brings data from multiple communication technologies—including Wi-SUN Mesh, RF Mesh IP, and cellular, for multiple types of commodities such as electricity, natural gas, and water—into a single application. The HES innovative platform is designed for growth and extensibility to ensure a future ready solution for our customers.

- **Connectivity:** Proven WAN to FAN IP standards-based mesh network with RPL routing and security based on Wi-SUN interoperability standards. Supplemental support exists to accommodate LTE-M cellular metering.
- **Edge Devices:** Configurable and intelligent endpoint devices with data processing and remote user managed data scheduling that enable support of various energy use and grid monitoring use cases. The Revelo metering devices come in both mesh and LTE-M cellular connectivity options, all supported via the Emerge head end user interface. Gas and water modules provide connectivity from existing water and gas meters to the AMI head end and ultrasonic gas meters are available as well.

- **GSIS:** Gridstream Integration Suite with established library of file-based, CIM/MultiSpeak, and common APIs to simplify current and future data sharing needs with the most common utility enterprise applications.
- **Project and Services:** A proven technology implementation organization which has more than 25 years of experience with fixed network and edge device deployments in the AMI and Distribution Automation utility sector.

Outline how the system would accommodate future technology advancements and support the integration of additional services (e.g., electric vehicle charging, distributed energy resources).

Landis+Gyr Response:

Future-forward products and services offered by Landis+Gyr are designed to help utilities meet current use cases and prepare to meet the unknown use cases of the future.

DERMS, Powered by OATI: By leveraging edge-to-enterprise DERMS functionalities, our integrated, end-to-end solution unlocks advanced features for optimizing DER operations, managing demand response orchestration, and delivering robust analytics and forecasting capabilities.

Residential Energy Management:

- Landis+Gyr, in partnership with SPAN, provides whole-home DER aggregation to provide additional behind-the-meter visibility and control.
- Using Load Management (software and hardware) Landis+Gyr can offer scalable control of residential loads over the AMI network.

Fleet Electrification: Landis+Gyr's offers an EV Fleet Software Platform enabling planning, simulation, and control.

C&I Demand Flexibility: With TCS Clever Energy™, Landis+Gyr offers load control solutions for commercial and industrial buildings.

Grid Edge Intelligence: Utilizing the Revelo's high-resolution waveform processing, Landis+Gyr's flexible, scalable approach to true grid edge intelligence. Combined with AI-powered cloud Analytics to support grid and consumer-side apps, Landis+Gyr enables the utility to optimize grid management and improve consumer engagement.

Network Infrastructure Deployment

Describe the general approach to establishing and scaling a network infrastructure that covers urban and rural areas, including RF mesh and any hybrid solutions that may be proposed.

Landis+Gyr Response:

Our experience is a key asset to the network design process, giving us a unique awareness of requirements for many types of designs. During our design process we incorporate all the specific system requirements into our

modeling process. This is then combined with very detailed capabilities of each piece of equipment which will be used in the design and the specific area in which the equipment will be deployed. The tools and processes we use are designed specifically around designing Mesh-based networks. The tools utilize thousands of simulations to determine the projected connectivity which will occur. Using the available GUC assets the network infrastructure is then placed to provide the most robust network to meet the prescribed business use cases. The FCC guidelines determine the maximum output power which can be used in the 902-928 MHz ISM band so the performance between vendors using this technology should be very similar.

Utilizing our tools and over 25+ years of building RF networks for utilities, we back our designs with guarantees on network device counts to help provide peace of mind to VIWAPA and your business case. Cellular connectivity can be used under the same head end and offers an alternative to mesh or can be used along with mesh designs where mesh coverage is difficult to achieve.

Include examples of past projects where the vendor successfully deployed a flexible, multi-utility AMI network with a mix of communication technologies.

Landis+Gyr Response:

Landis+Gyr has 30 customers using a mix of Mesh IP and Cellular communication technologies (hybrid). We Energies is currently the only SaaS customer operating a hybrid system with electric, water, and gas endpoints.

Integration Strategy

Summarize the vendor's approach to integrating AMI systems with Billing, SCADA, GIS, OMS, and potentially ADMS and DERMS, providing examples from similar projects where multi-platform integration was successfully achieved.

Landis+Gyr Response:

The Landis+Gyr AMI head end has utilized standards-based interfaces for years. We are active in defining, developing, and implementing interfaces based on emerging standards, such as IEC 61968-9 (CIM) in addition to our rich inventory of MultiSpeak interfaces, at some of the largest utilities in North America. By focusing on implementing standards that are subjected to industry interoperability testing, we ensure success for our customer installations. By focusing on ensuring successful integration points, we are lowering the total cost of implementation of AMI for our customers. Any external system, including GIS, OMS, MDMS, SCADA and others, can be integrated with the AMI HES via flat file or APIs in MultiSpeak or CIM protocols. Landis+Gyr has successfully integrated with most commercially available enterprise systems.

Project Management and Implementation Strategy

Phased Rollout Plan

Outline the general phased implementation strategy, including an approach to initial pilot testing, scaling, and risk mitigation for a multi-year AMI deployment.

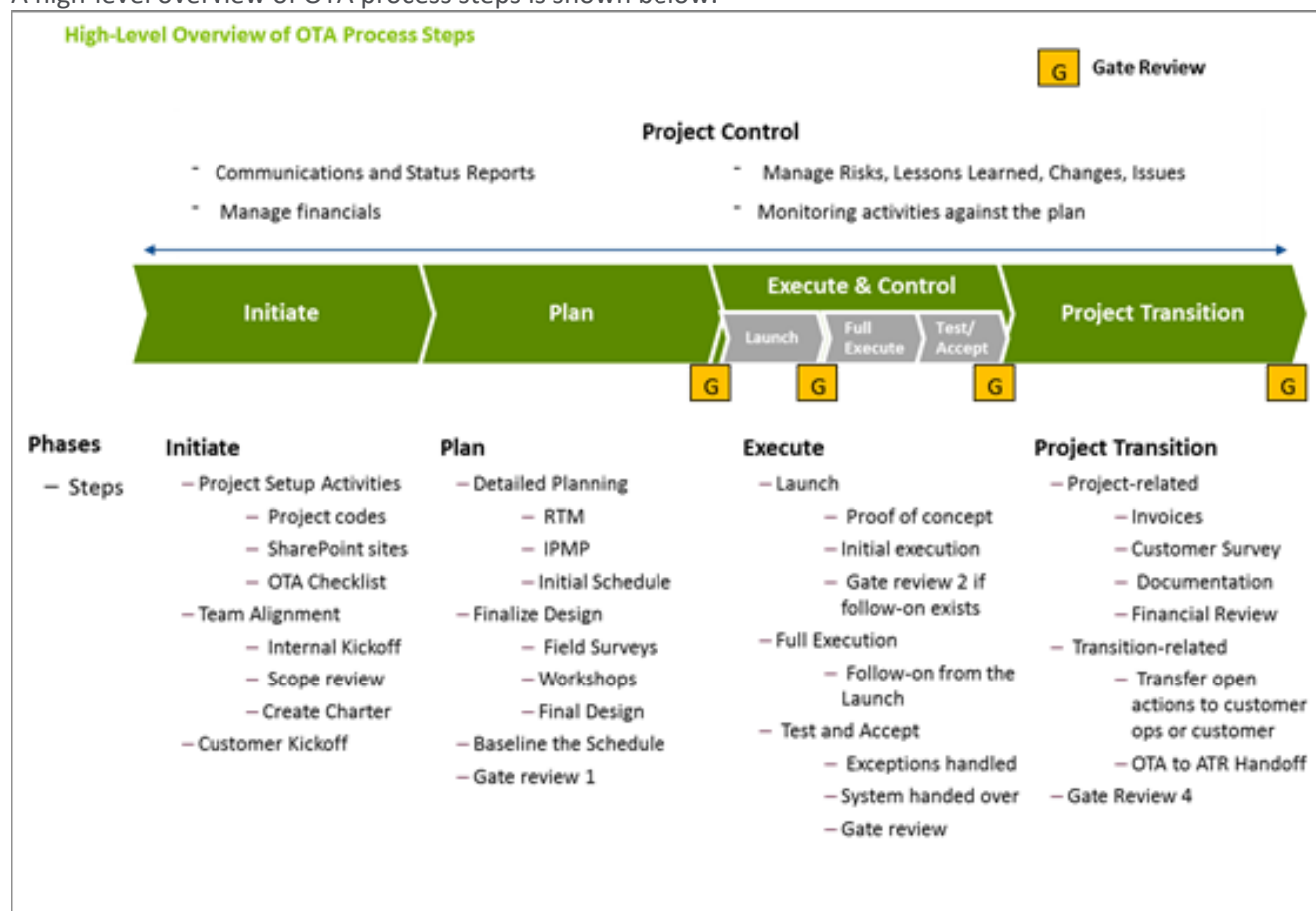
Landis+Gyr Response:

Order to Acceptance (OTA), Landis+Gyr's project implementation methodology is rooted in the principles of the internationally recognized Project Management Institute's Project Management Body of Knowledge (commonly called PMI's PMBOK). All of Landis+Gyr's Project and Program Managers are certified by the Project Management Institute (PMI) as Project Management Professionals (PMPs), meaning each project leader has been trained in project management best practices and certified as a project management expert. Landis+Gyr's methodology functions in accordance with the Landis+Gyr Integrated Management System (IMS), with rigorous and disciplined ISO 9001 (Quality Management), 14001 (Environmental Management) and 18001 (Health and Safety Management) registered processes.

OTA is a gated process that has been applied and refined in over hundreds of deployments of all sizes. The OTA process is composed of four main implementation phases:

1. Initiate
2. Plan
3. Execute & Control
4. Project Transition

A high-level overview of OTA process steps is shown below.



Provide examples of how phased rollouts have been managed in previous projects, including any lessons learned from initial pilot areas and strategies for addressing project scale-up.

Landis+Gyr Response:

All of Landis+Gyr's Project and Program Managers are certified by the Project Management Institute (PMI) as Project Management Professionals (PMPs), meaning each project leader has been trained in project management best practices and certified as a project management expert. Landis+Gyr's methodology functions in accordance with the Landis+Gyr Integrated Management System (IMS), with rigorous and disciplined ISO 9001 (Quality Management), 14001 (Environmental Management) and 18001 (Health and Safety Management) registered processes.

Initiate Phase

In the Initiate phase the Project Manager engages internal resources to set up the project, develops an initial understanding of project requirements, obtains internal authorization to allocate team resources to the project, engages the Landis+Gyr project team, and kicks off the project with the customer in an on-site review. Customer-facing Project Deliverables are presented at the Customer Kickoff and may require input from the customer, including:

Table 1: Initiate Phase Customer Deliverables

<u>Landis+Gyr Deliverable</u>	<u>Customer Responsibility</u>
Team member definition (Landis+Gyr and Customer)	Provide customer lead as primary contact point for project; identify other team members or stakeholders
Project Scope overview	Validation/input to ensure concurrence
Initial system design	Provide accurate premise data as requested by Landis+Gyr to assure accurate design
Initial project schedule and milestones (typical milestones are shown in the Statement of Work provided in this RFP)	Provide accurate order forecasts to the PM and clear expectations for when activities should take place
High-level project management plan (management of scope, schedule, change, risk, communication, testing and acceptance.)	During meeting, customer clearly states expectations in response to the PMs initial plan
Next steps as the project moves into the Planning Phase	Provide input to achieve concurrence

Plan Phase

In the Plan Phase the project team plans for success by preparing for project execution, including formally documenting and achieving agreement with the customer on the final requirements, final system design, the integrated project management plan, and the baseline schedule. The Plan phase concludes with a Landis+Gyr internal gate review.

Table 2: Plan Phase Customer Deliverables

<u>Landis+Gyr Deliverable</u>	<u>Customer Responsibility</u>
<u>Requirements Traceability Matrix (RTM)</u> approved by the customer	Requirement review and discussion as required to achieve concurrence; explicit approval
<u>Integrated Project Management Plan (IPMP)</u> approved by the customer that defines HOW the project will be managed (management of scope, schedule, change, risk, communication, testing and acceptance)	Project plan review and discussion as required to achieve concurrence; explicit approval
Completed Site Survey Report (including final quantities and locations of hardware)	Resources as required to guide Landis+Gyr RF technicians to equipment premise locations
Final System Design Documents	Review and discussion as required to achieve concurrence; explicit approval
Materials orders are validated for accuracy and delivery	Updated POs for materials as required; clear, prompt answers to specification questions; Customer FAT testing completed on time
<u>Baseline Project Schedule – defines the agreed upon tasks and dates for completion to execute the project</u>	Review and discussion as required to achieve concurrence; explicit approval

Execute & Control Phase – Overview

In the Execute & Control phases the Project Manager actively manages and controls the project delivery according to the methods described in the Integrated Project Management Plan. Delivery is divided into three stages: Launch, Full Execution, and Testing and Acceptance.

Execute & Control Phase – Launch

Launch is an execution stage in which system suitability is verified before moving forward into full execution. It may also be referred to as a Proof of Concept (POC) phase. In this sub-phase:

- Software is installed and configured in the appropriate and specified environment.
- Integration workshops are held, and integration support services are provided to the customer.
- Customer completes training to install and operate the system.
- Written customer approval to proceed to full deployment is obtained.

After customer approval to proceed is granted, then an internal gate review takes place that allows the project to move forward to Full Execution. If the project scope only includes management of the Launch stage, the Full Execution stage is omitted, and the project moves to Testing and Acceptance.

Execute & Control Phase – Test and Acceptance

In the Test and Acceptance stage of Execution, formal and rigorous test plans are administered to validate system performance against agreed-upon performance criteria. The project is completed, and the customer is positioned for system operation and sustainment.

- Testing and exception-handling processes take place.
- Issues are resolved or escalated if required for resolution.
- The Project Manager verifies that all training has been completed; if the Project Manager is not satisfied that the customer has demonstrated sufficient capability through the training provided, he/she should recommend additional Landis+Gyr training resources to the customer.
- Customer System Acceptance Testing (SAT) is completed.
- The Requirements Traceability Matrix (RTM) is completed
- The project is completed, all requirements have been met, and the customer accepts the system from Landis+Gyr.
- The Project Manager requests a gate review and provides appropriate documentation as required in the OTA Checklist. If the gate review is approved, then the project moves forward into the Project Transition Phase.

Table 3: Execute and Control Phase Customer Deliverables

<u>Landis+Gyr Deliverable</u>	<u>Customer Responsibility</u>
Project management activities and records completed and updated	Participate in agreed-upon communication meetings and adhere to the project plan components

<u>Landis+Gyr Deliverable</u>	<u>Customer Responsibility</u>
Commissioning completed and records captured	Depending on the scope of services offered, commissioning by Landis+Gyr may be limited; remaining commissioning then to be completed by the customer
SAT Completed	Customer agrees to participate in test case development and execution
RTM completed (requirements are checked off and agreed to as completed)	Customer understands requirements and concurs with results; clearly states exceptions where belief exists that requirements are not met
Final training completed	Customer completes training; validates with project team members that sufficient understanding of system function and operation exists; if not then accepts recommendations for further training
Written Customer Acceptance	Customer provides written acceptance of project

Project Transition Phase

In this final phase, the project is prepared for internal Landis+Gyr closure and the customer is transitioned to Landis+Gyr Customer Operations as specified in the customer agreement.

- The Project Manager issues the Customer Satisfaction Survey to the customer.
- The Project Manager conducts the OTA to ATR handoff meeting seeking written approval from Customer Operations to make the transition.
- After acceptance to ATR, the Project Manager prepares a thorough and accurate Lessons Learned report and uploads all project documentation to the project's SharePoint site.
- The Project Manager requests a gate review and provides appropriate documentation as required in the OTA Checklist.

Table 4: Project Transition Phase Customer Deliverables

Landis+Gyr Deliverable	Customer Responsibility
Customer Survey	Complete the customer survey and return to the project manager
Transition customer to support as specified in contract documents	Begin using the customer support desk for support rather than the project manager

Data Security and Compliance Strategy

Security Framework and Protocols

Provide an overview of the vendor’s security framework, including encryption standards, access control, device authentication, and intrusion detection measures, specifically for AMI systems in multi-utility environments.

Landis+Gyr Response:

The Landis+Gyr security solution addresses cyber security in a holistic way. This means that security extends beyond securing communications links. Beyond a communication vendor perspective, the security encompasses the head end, the network communications, the field tools, the network devices, the meters and the secure development of these products and systems. Security is built into the AMI solution and designed to meet the operational needs of the utility. The Landis+Gyr security philosophy is to use a standards-based solution that uses validated security components, an open security architecture and non-proprietary cryptography.

The solution provides Application Layer security for messaging. Secure messaging is based on encryption and integrity (AES 256 encryption, SHA256HMAC integrity check). The solution utilizes NIST approved and FIPS validated cryptographic libraries. As the messaging is secured at the application layer, the security solution does not rely on any specific backhaul security between the collectors and the head end. These application layer protections can build upon any TLS or VPN connectivity options that are deployed.

The head end security features include role-based access control with password complexity rules. For enterprise level password rules, user access management, and single sign on, the head end supports Active Directory integration. Enterprise integration using web services requires web service authentication, and the web service user must be authorized in the system. The integrations also support TLS. All commands, configuration changes, and entries are logged in the database for auditing purposes. The head end also hosts a security dashboard that provides a single page view on security events. The security events can be integrated with a third party SIEM or the security administrator can subscribe to security event email alarms.

The field tools follow a similar procedure to the head end. The user must authenticate with their credentials. The authorization check confirms the user has sufficient privileges to access the field tool features. Should either authentication or authorization fail, the field tool exits.

The device security mitigates the attack vectors at the individual device level. Only signed firmware is accepted by the devices to prevent an installation of rogue firmware. Devices are configured to be secure by default. Software and hardware debug and diagnostics features are disabled to prevent exposure of capabilities that are not required in production. Tampering and security events are detected at the device level and reported back to the head end.

Landis+Gyr's product development employs a Secure Development Life Cycle. This ensures security is considered from the start. Security architects review requirements and ensure security is factored into any new feature and device. During design threat and misuse analysis are done, and design reviews are performed to ensure security is considered in the design from the start. The developers are trained for secure coding principles, and code reviews are used to verify the principles are followed. Internal security testing is done continually and on annual basis. Landis+Gyr contracts with a third-party company to run penetration tests for our system. Landis+Gyr is a participant in many process control security initiatives such as ICSJWG.

Landis+Gyr utilizes NIST-recommended and FIPS-approved cryptography algorithms in its products. The cryptography library used in all products is built and maintained by a team of cryptographers and is FIPS 140-2 validated. Utilities have utilized the Landis+Gyr solution in their DA/SCADA environments and the solution meets their NERC CIP requirements. The offered solution meets the full requirement of the NIST IR 7628, NIST SP 800-53, NIST SP 800-82 including specific technical controls and technology to ensure utilities meet policy/process controls. Full RBAC support as defined in ANSI INCITS 359-2004. Full public key interchange (PKI) support for automated ECC key establishment and exchange. In addition, Common Criteria Certified Root of Trust and ISO 27001 certification are utilized.

The Landis+Gyr solution utilizes uniquely keyed endpoints protected end to end at the application layer. These are utilized for end-to-end encryption (under an endpoint unique AES 256 key) and end-to-end integrity checks (under an endpoint unique SHA256 HMAC).

The Landis+Gyr solution includes a full suite of cryptographic controls utilize NIST approved algorithms running on FIPS 140 validated cryptographic libraries built by cryptographers. This includes encryption at the networking, interface, and end-to-end application layers. Please note that end-to-end means that the intermediate equipment such as the collector and networking device does not decrypt and re-encrypt messaging at the Network Gateway. This layering of networking and end-to-end encryption mechanisms provides the strongest level of controls in the industry to provide messaging confidentiality and integrity.

Landis+Gyr will communicate to utilities based on the incident type and level of severity. Landis+Gyr maintains a cyber security incident response plan which includes the process for communicating security incidents to utilities.

All data is encrypted at rest and in transit with AES 256 CTR, as well as all stored backups.

Landis+Gyr maintains annual 12-month SOC 1(SSAE18) and SOC II type 2 (SSAE16) audit reports.

The proposed solution provides extensive logging. Landis+Gyr defaults to logging all transactions within the system, including but not limited to configuration changes, record updates, remote disconnect/reconnects,

on-demand reads, requests coming from third-party systems, and requests initiated from the user interface, etc. In addition, logs can be provided from the events our meters capture and those can be categorized as alarms, advisory events, or log only events. All logging also captures the user details with timestamps for auditing purposes. The HES can send logs, alerts, and additional tracking items to a syslog server using the Landis+Gyr HES Integration Suite.

Future-Ready Security Capabilities

Outline the vendor's preparedness to adapt to emerging security technologies, such as AI-driven threat detection, and any flexibility in the security architecture that would allow for future upgrades.

Landis+Gyr Response:

To stay current with emerging security technologies, Landis+Gyr actively contributes and provides content to the following security-related standards development working groups:

- IEEE 802.15.4, 802.15.9, 802.15.21
- ANSI C12 security-related working groups
- Across the IEC standards including COSEM/DLMS, 62443
- Security-related to SIM and MultiSpeak

Training and Knowledge Transfer Plan

Initial Training Program Structure

Provide an outline of the training program that would be offered to Greenville Utilities Commission staff, including modules tailored to each utility service (electric, water, natural gas) and roles (e.g., field operations, IT, customer support). Include descriptions of training content for system operations, troubleshooting, and data management.

Landis+Gyr Response:

Training is essential for ensuring the customer's success during implementation of the Gridstream Solution. Our goal at Landis+Gyr is to provide a foundation of knowledge that will allow personnel to quickly and accurately understand how the system functions and take full advantage of the information provided. Modular, process-based training allows employees from all areas of the utility to understand their role in the Gridstream system and enables them to integrate it into their daily processes. Below are the recommended session agendas. Each agenda can be customized to accommodate specific deployments.

Required Training - AMI

Training includes introductory training on the Equipment and Head-End Systems software of the Gridstream solution. Training consists of two online, Landis+Gyr instructor led, Standard Security training sessions, as well as two (2) three (3) day classroom training sessions at a Landis+Gyr facility. Recommended class size is 12 people at a large appropriate classroom type setting and typical training days are Tuesday-Thursday, 8:30 AM to 4:30 PM with one (1) hour for lunch.

RF Network Deployment Training Class

Class Length: 3 Days – Classroom training at a Landis+Gyr Facility. This training will be conducted after receipt of network equipment in conjunction with field services installation.

- Gridstream IP Mesh System Overview
- Network Gateway Installation & Configuration
- Router Installation & Configuration
- TechStudio Software
- RadioShop Software

Command Center Software Training Class

Class Length: 3 Days – Classroom training at a Landis+Gyr Facility. This training is scheduled based on planned meter deployment.

- Setting up Command Center
- Deploying and managing collectors
- Deploying meters and routers
- Managing meters and routers
- Daily system monitoring
- Command Center reports
- Billing & Extract tools

Implementing 2-Way Water (RF AMI Add On)

Implementing 2-Way Water Meters in the Gridstream Solution (Instructor Lead, On-Line Training.)

Class Length: 150-180 minutes (This training is scheduled based on planned meter deployment.)

Attendees will learn the skills needed to install, register, and manage, Two Way Water modules in the Gridstream RF solution. This is a required class prior to deployment.

- 2 Way Water Module Overview
- Deploying 2 Way Water Modules
- Managing 2 Way Water Modules in Command Center

Implementing 2-Way Gas (RF AMI Add On)

Implementing 2-Way Gas Meters in the Gridstream Solution (Instructor Lead, On-Line Training.)

Class Length: 150-180 minutes (This training is scheduled based on planned meter deployment.)

Attendees will learn the skills needed to install, register, and manage, Two Way Gas modules in the Gridstream RF solution. This is a required class prior to deployment.

- 2 Way Gas Module Overview
- Deploying 2 Way Water Modules
- Managing 2 Way Water Modules in Command Center

Knowledge Transfer and Documentation

Outline the approach to knowledge transfer, including how the vendor will ensure that utility staff gain the knowledge necessary to independently operate and maintain the AMI system post-deployment.

Landis+Gyr Response:

Landis+Gyr is providing comprehensive training during the deployment of the solution. Additionally, our technical staff will work hand in hand with participating GUC staff for added on the job training.

Include information on documentation provided (e.g., user manuals, maintenance guidelines) to support continued learning and reference.

Landis+Gyr Response:

Landis+Gyr offers a comprehensive documentation package for all Product and Service offerings in a framework that is virtually accessible. These packages include electronic and print format across our solution systems. Landis+Gyr provides all product documentation in electronic form in PDF format for our customers to easily download. Customers attending our University have ability to download the student course guides prior to attending their registered course or receive a print version in class. Additionally, we offer our customers access to our knowledge base platform through our Customer Portal. This allows our customers access to numerous sources of information to assist in supporting and leveraging their Landis+Gyr solutions to maximize their investment.

Data Analytics and Predictive Capability

Data Management and Analytics Approach

Provide an overview of the vendor's data management protocols and analytics capabilities, including general approaches to operational intelligence, usage forecasting, and predictive maintenance.

Landis+Gyr Response:

Landis+Gyr's data management protocols and analytics capabilities are comprehensive and designed to optimize utility operations. Our AMI head end stores 45 days of captured data online and archives data older than 45 days for one year. The system supports integration with MDM and other utility applications for broader data storage and analysis. For operational intelligence, data is presented via dashboards and reports in the AMI head end.

Landis+Gyr leverages artificial intelligence (AI) and machine learning (ML) in various aspects of our solutions to enhance grid operations and customer experience. Our solutions include advanced analytics and grid optimization applications that utilize AI and ML to provide real-time insights, predictive maintenance, and improved decision-making capabilities.

These technologies are used by our products such as the Revelo platform, which generates high-resolution data and uses edge computing to process this data efficiently, enabling applications like real-time consumer experience, home analytics, and intelligent voltage monitoring. These applications help utilities manage energy better by providing timely and actionable insights.

Additionally, Landis+Gyr's cloud-based analytics software uses AI/ML to:

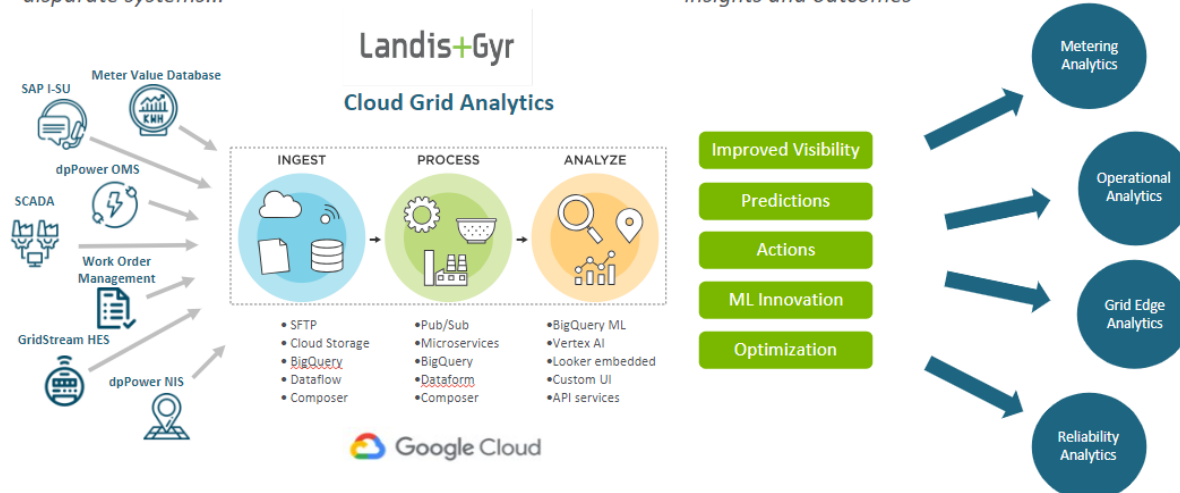
- Integrate data
- Validate data models
- Monitor power quality
- Identify EVs and forecast
- Analyze impacts and plan for solutions

This enables utility planning and operations departments to turn data from disparate systems into actionable insights and outcomes by using machine learning pipelines in predefined use cases to improve the accuracy of recommendations and predictions.

Cloud Grid Analytics – How does it work?

Turn data from
disparate systems...

...into actionable
insights and outcomes



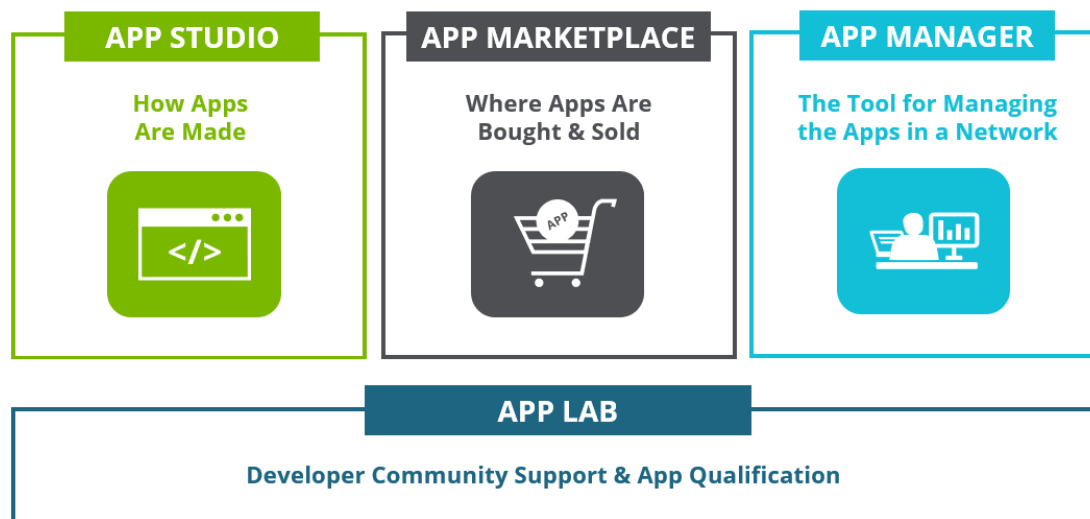
Future Technology Adaptability

Explain how the proposed system is designed to adapt to advancements in technology, including AI and machine learning, to address future utility needs. Vendors should describe strategies for incorporating emerging tools to enhance system functionality, such as integrating advanced analytics, improving load forecasting, and enabling proactive maintenance.

Landis+Gyr Response:

To allow GUC to adapt to emerging use cases, the Gridstream Connect Apps ecosystem is designed as an open development community and marketplace. This encourages innovation and competition and uses the market to ensure continual improvement of apps as well as the ecosystem. There are four key components to the Gridstream Connect Apps ecosystem: App Studio, App Marketplace, App Manager and Landis+Gyr App Lab.

The Gridstream Connect Apps Ecosystem



Simply put, App Studio is how apps are made. The App Marketplace is where apps are bought and sold. App Manager is the tool for managing the apps in a network. All three of these products are supported by the App Lab.

In summary, Landis+Gyr is offering a range of apps that can run on its meters and are supported by an infrastructure that enables open development and management of apps through their entire lifecycle. Apps have been developed to complement “big data” solutions when data transport is not cost effective and/or when latency requirements cannot be satisfied. The apps that Landis+Gyr has developed itself or with its customers enhance the AMI meter’s ability to deliver customer, grid operations, and societal benefits.

In addition, Landis+Gyr continues to expand the capabilities of its analytics platform to meet additional use cases for actionable data.

Required Forms and Adherence to GUC Policy and Other Requirements

The Respondent must fill out all the forms included in this RFQ and return them with your submission. Failure of the Respondent to provide any of the required forms may result in your proposal being rejected for non-responsiveness. These required forms will not count against the maximum page count (indicated above) for your response.

Landis+Gyr Response:

Comply