Nexgrid, LLC.

Response to:

Greenville Utilities Commission

Advanced Metering Infrastructure
(AMI) Vendor Selection RFQ 25-10

March 11, 2025

March 11, 2025
Greenville Utilities Commission
PO Box 1847
Greenville, NC 27835

Attn. Cleve Haddock

COVER LETTER

Re: RFQ for Advanced Metering Infrastructure (AMI) Vendor Selection

Summary of Expertise

Nexgrid has been a leader in smart grid technology for over 16 years, with approximately 62% of our deployments supporting multi-utility AMI solutions. Our system is purpose-built for electric, water, and gas integration, ensuring seamless data management across all services.

Designed for Multi-Utility – The ecoOne Utility Management Software natively supports all three utilities, providing a unified platform for operations.

Comprehensive Field & Customer Tools –

- ecoOne Mobile App – Streamlines field installations and work orders.
- Customer Web Portal & Mobile App – Provides Greenville's customers with a single access point to monitor their home or business meters.

Plexus Smart Grid Communications Platform –

- Multi-utility design supports multiple communication methods optimized for different meter types.
- Battery-powered meters use low-power, long-range protocols like LoRaWAN, while AC-powered meters utilize high-bandwidth options such as 802.11 or LTE.
- Ruggedized communication ensures reliable connectivity in harsh environments, including meters installed under pit lids or in remote locations.

Scalable & Future-Proof – Supports DERMS, ADMS, EV management, and IoT devices, ensuring long-term adaptability.

Nexgrid's multi-utility expertise, advanced technology, and ongoing support provide Greenville Utility Commission with a proven, future-ready AMI solution built for reliability and long-term success.

Statement of Commitment

Nexgrid is committed to delivering a scalable, adaptable, and future-proof smart grid solution that aligns with Greenville Utility Commission's long-term goals for an eight-year implementation and beyond.

Proven Reliability & Longevity – With over 16 years of experience in smart grid technology, Nexgrid ensures that even our earliest customers continue to receive the latest software and system updates.

Ongoing Software & Security Updates – Nexgrid provides monthly software updates, security patches, and server maintenance to keep the system optimized and protected against emerging threats.

Future-Ready & Scalable – Our modular architecture and open communication platform (LTE, 802.15.4, 802.11, LoRaWAN, Multispeak) support DERMS, ADMS, EV management, and IoT integration, ensuring long-term adaptability.

This commitment extends beyond the sale, ensuring continuous innovation, security, and long-term value for Greenville Utility Commission.

Best regards,

Costa Apostolakis
Founder & CEO

CONTACT DETAILS

Nexgrid
Attn: Haim Shaul
100 Industrial Dr
Fredericksburg, VA 22408
Tel: 833-NEXGRID
Fax: 540-328-9895
www.nexgrid.net

COPYRIGHT STATEMENT

All contents of this document are subject to change without notice and do not represent a commitment on the part of Nexgrid or its subsidiaries or its subcontractors.

Every effort is made to ensure the accuracy of this information. However, due to ongoing product improvements and revisions Nexgrid cannot guarantee the accuracy of this material, nor can it accept responsibility for errors or omissions. No guaranties of any nature are extended by the information contained in these copyrighted materials. Usage or implementation of any one of the concepts, applications, or ideas described in this document may infringe one or more patents or other intellectual property rights owned by Nexgrid LLC, its subsidiaries and/or third parties.

Procurement of appropriate intellectual property rights and license is solely the responsibility of the system implementer. The software referred to in this document is provided under a Software License Agreement.

This document is confidential, and any copying or disclosure of its contents is strictly prohibited, unless prior written consent is obtained from Nexgrid, LLC., its subsidiaries and parent.

The Nexgrid name and logo and all related product and service names, design marks and slogans are trademarks, service marks or registered trademarks of Nexgrid, LLC. All other product and service marks are the property of their respective owners.

TABLE OF CONTENTS

1 COMPANY OVERVIEW, EXPERIENCE, REFERNCES

Nexgrid was founded in 2008 with a goal to develop smart grid products built on standards-based industry proven technologies. Its management team has over 40 years of experience related to smart grid, advanced metering infrastructure, and communications. Nexgrid's products enable the smart grid to dynamically adapt to a changing environment while providing a real-time, secure infrastructure that can be utilized for applications beyond automated metering.

Nexgrid, LLC is a fully funded private company with no outside debt that has been in business since 2008. Its financials are reviewed each year by third party external auditors and these reviewed financials have a rendered opinion that is used to maintain compliance to third party bank relationships, insurance sureties, and taxing authorities.

Project Team

A first-in-class team has been assembled to provide the best approaches to all phases of the project. Each partner has experience on multiple projects that create a formula for success in reaching the goals for GUC.

Nexgrid, LLC will supply the network infrastructure communication backbone system, software, engineering, and support to manage all aspects of the Advanced Metering Infrastructure design and implementation.

Costa E. Apostolakis is the Founder and CEO of our company, responsible for shaping its vision, strategy, and growth initiatives. With over 35 years of experience in leadership, engineering, sales, and management, Costa holds five patents specific to smart grid and advanced metering and has been a key player in the industry for 24 years.

As the principal developer of ecoOne, our cutting-edge smart grid energy management software, Costa has revolutionized the industry by integrating real-time energy visibility with AI and EV management. This allows power utilities to gain instant insight into electric distribution grids, offering advanced outage reporting and control over various IoT and smart metering devices across the network.

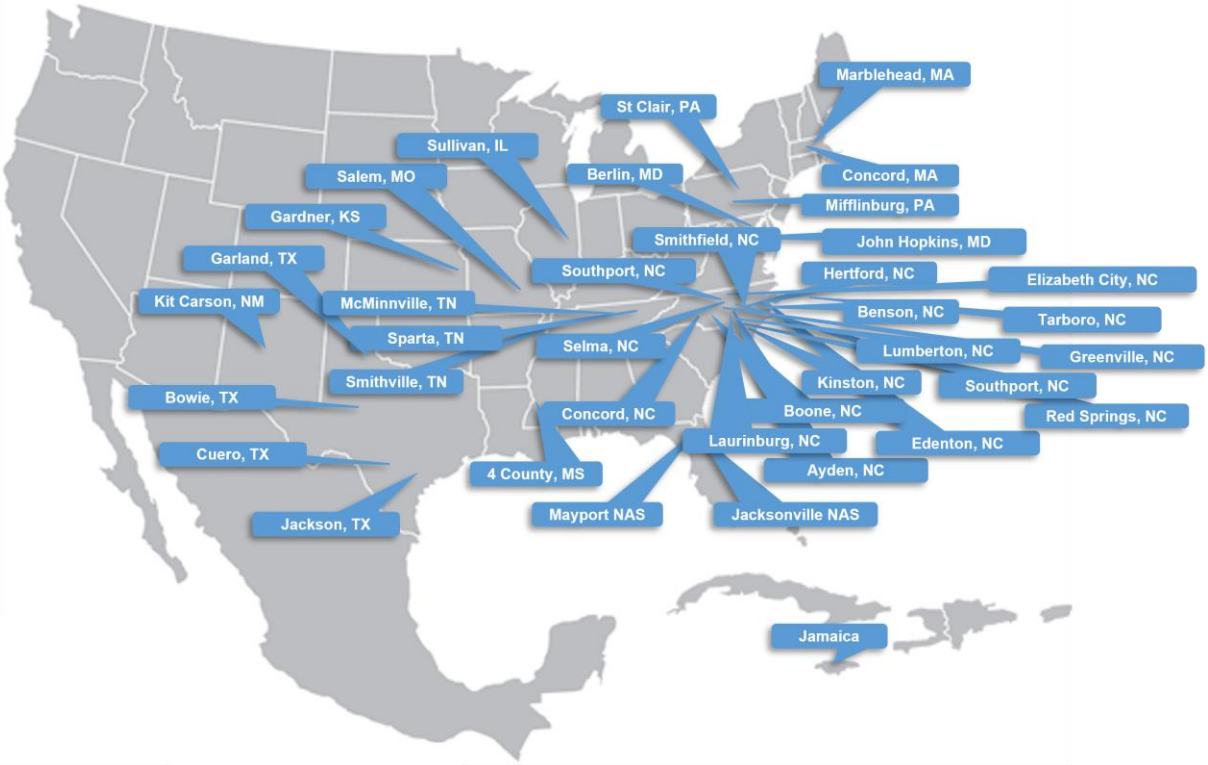
Costa has led multiple companies in the communications sector, overseeing operations, software development, sales, and support. In October 2003, he managed the first successful commercial Broadband over Powerline (BPL) deployment in the U.S., located in Manassas, VA.

.

Haim Shaul is Nexgrid's COO and has successfully managed the deployment of over 40 projects. Haim is considered a smart grid and wireless expert and was instrumental in the design of Nexgrid's Plexus communication infrastructure. Prior to Nexgrid Haim held senior technical and management positions at MainNet Communications Ltd. He performed "hands on" technical & marketing functions in the energy and communications industry involving broadband over power line (BPL) communications and advanced metering network design, engineering, implementation, and project management. Haim has played a significant role in the adoption of BPL communication in the US markets and is heavily involved in its standardization (FCC & IEEE). With over 15 years of IT and communication experience, 8 years specific to high-speed communication over power lines, Haim is considered an industry expert which is a distinction only a few others share.

Todd Height is a senior network administrator at Nexgrid and is responsible for setting up all the local and cloud-based servers as well as scheduling any necessary upgrades or scheduled maintenance. Todd has over 20 years of network administration experience where he has managed, designed, and maintained many complex wired and wireless networks. He is well versed in all aspects of networking with a broad range of knowledge which includes routers, firewalls, servers and wireless technologies.

Jessenia Remond joined Nexgrid in 2010. She is the Director of Customer Support and leads the dynamic client services team, ensuring clients engagements worldwide are delivered with the highest level of quality and professionalism. Jessenia acts as a liaison between customers and Nexgrid; making sure that the lines of communication remain open, the customers are trained on all the Nexgrid software and ensuring that we deliver excellent customer service. She has over 20 years of customer support experience, 14 years specific to the smart grid industry.



Relevant Experience

Nexgrid and their management team have deployed advanced communication elements with over 35 utilities, passing over 500,000 homes worldwide. This proposal includes providing the Smart Grid and Advanced Metering Infrastructure hardware and all the engineering and support necessary to have a rapid and successful deployment to GUC.

The following Utilities have or are working with Nexgrid and/or the various partners that comprise the project team discussed in this response. If GUC wishes to contact any of the below references, please coordinate with Nexgrid to schedule discussions with the contacts listed in order to respect the busy schedules of the references.

Marblehead Municipal Light Department
Marblehead, MA
Joseph Kowalik

Marblehead Light Department is a Municipal Utility in Massachusetts. Marblehead replaced 12,000 electric meters with Nexgrid GE intelaMeters and ecoNet smart grid infrastructure. The meter-replacement program is part of a national DOE program to manage electricity usage. Marblehead sought a real-time, standards & broadband based system to support dynamic pricing at the residential level as well as future based applications. With the smart meters deployed, customers are now able to view their usage through a web portal or a smart phone.

McMinnville Electric System (MES)
McMinnville, TN
Brittany Davis

McMinnville is a Municipal Utility in Tennessee. McMinnville sought a real-time two-way system to support advanced meter reading with the ability to seamlessly add load control or other future applications without additional network infrastructure. McMinnville has deployed Nexgrid's ecoNet smart grid infrastructure throughout the city and installed 8,250 Nexgrid's intelaMeters since 2012. This system enables MES to comply with stricter Tennessee Valley Authority (TVA) requirements for load control and provides operational visibility into such measurements as KVAR, KVA, and Voltage.

The Borough of Saint Clair
Saint Clair, PA
Roland Price

The Borough of Saint Clair is a Municipal Utility in Central Pennsylvania. Saint Clair released an RFP looking for an AMR Solution that would complement their small utility staff in 2011. After comparing pricing and features they selected Nexgrid's system to deploy a full-scale AMI system which was completed using St Clair's existing staff of 4 within one year. In Addition to AMI, Nexgrid system provides St Clair with Outage, Transformer, Meter and Load Management, Customer Web Portal and Billing integration.

Smithville Electric Systems
Smithville, TN
Richie Knowles

The City of Smithville is a Municipal Utility in Tennessee. Smithville deployed pilot projects from various smart grid vendors in their search for a real-time two-way advanced metering infrastructure and smart grid. In 2012, they selected Nexgrid over all other solutions to deploy a 100% cloud hosted smart grid with 2540 IntelaMeters. In addition, Smithville offers pre-pay metering and remote disconnect and reconnect on all electric meters utilizing Nexgrid's prepay functionality included in the ecoOne and intelaHome software.

Kit Carson Electric Cooperative
Taos, NM
Richard Martinez

Kit Carson Electric Cooperative (KCEC) is a rural coop in New Mexico. KCEC deployed pilot projects from a number of vendors in search of a real-time two-way advanced metering infrastructure and smart grid. Nexgrid, partnered with Fujitsu America, and began a pilot in Taos, NM in August 2013 including 1700 electric meters,

streetlight control, outage management and a full meter data management system. Operating in a rural environment, Nexgrid's intelaMeters communicate in real-time covering distances up to 2.5 miles.

Red Springs Municipal Utility
Red Springs, NC
Aaron Scippio

Red Springs is a Municipal Utility in the southern part of North Carolina. Red Springs is a small utility with limited staff that were seeking an AMI system for the water and electric departments that would provide all the advantages of an AMI system and be very easy to use and maintain. After comparing pricing and features they selected Nexgrid to deploy a full-scale AMI system which was installed in less than a year.

New River Light and Power
Boone, NC
Matthew Makdad

New River Light and Power is a utility in North Carolina that is owned by the Appalachian State University. They were seeking an AMI solution that was able to provide them with all the bells and whistles of a modern AMI solution, including remote disconnect, prepay for their ~10,000 customers. They completed the deployment in less than a year and are continuing to use the system to better their electric grid.

2 TECHNICAL APPROACH AND SOLUTION DESIGN

AMI System Design and Implementation

Overview

The AMI system will be designed to serve electric, water, and natural gas services. The system architecture will be modular, allowing for future expansion and integration with emerging technologies. The system will be rolled out across all services, with water and gas meters receiving ERT (Encoder Receiver Transponder) upgrades rather than full replacements, while electric meters will be fully replaced. Water meter module connections are IP 68 compliant Itron connectors.

Key Features

Modular System: Designed to incorporate future technology decisions like DERMS, ADMS, and other edge computing systems where necessary.

Nexgrid's AMI system supports electric, water, and gas services with a modular architecture that enables seamless expansion and integration with emerging technologies. The Plexus Smart Grid Communications Platform integrates with all major electric, water, and gas meters to deliver a real-time, secure, and future-proof solution.

A key differentiator is that Nexgrid's system includes many advanced features as standard—features that other smart grid platforms often lack. At the core of this platform is ecoOne Utility Management Software, which includes:

- Smart Grid GIS that stores "energy pathway to substation" data.
- Automated data aggregation every 15 minutes, providing a live and historical load profile of key grid assets without additional hardware.
- Comprehensive monitoring of transformers, circuits (A, B, C phases), and substations.
- DERMS and ADMS-ready features, leveraging real-time data for grid optimization.

Key Capabilities

- EV Management
  - Level 2 chargers managed and monitored within the system.
  - Dynamic load management to prevent transformer overloads.
- Advanced Load Forecasting
  - Uses historical energy usage, time of day, and weather data.
  - Predicts demand to optimize grid performance.
- Grid Optimization & Reliability
  - Circuit Phase Balancing
  - Secondary Voltage Deviation Management
  - End-of-Line Voltage Optimization
  - Circuit & Substation Technical Loss Analysis
  - Distribution Outage Detection & Mitigation

Nexgrid's system provides utilities with a scalable, intelligent solution that enhances grid performance, supports renewable energy integration, and ensures reliable service without requiring additional hardware investments.

Unified Data Platform: Consolidates data across electric, water, and gas services for seamless reporting and analysis.

The Nexgrid ecoOne Enterprise Management software monitors and manages the entire smart grid network on one unified portal. ecoOne provides fully functional Network Management System, Energy Management System, Water Management System, Outage Management System, Streetlight Management System and Load Management System for managing and operating the smart grid. This also includes email and text notifications for issues if they occur customized by each individual user. For example, a user can subscribe to a text or email alert if the meter communication falls below 95% or the database is 80% capacity.

System Components: Includes necessary hardware and software such as meters, load control switches, communication modules, and control systems that are compatible with standard connector specs.

Comply.

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.

No field survey or planning is required to support the layout of the network node. Our proprietary models will leverage utility provided end point device addresses to design and place the ecoNet gateways. The gateways self-provision upon installation and dynamically adjust based on communication links with other gateways. When a backbone is connected (Ethernet) the gateway will provision as an access point automatically.

With Nexgrid, no extensive field survey is necessary to design a reliable network. Our wireless engineers utilize utility provided end point addresses to establish the preliminary design. This sets up 70% of the final engineered design. The network's intelligence engineers the rest as we will explain. This is an important differentiator. Others require extensive prop studies using theoretical data to determine new collector pole and power placements. Nexgrid does not need to do these types of studies nor do we believe it creates the best sustainable design. We would rather let the real time environment participate in the design not some modeling software that gets dated. Plus, our robust and reliable architecture leverages existing asset extensively for ease of deployment. See for yourself. Watch this video on YouTube. https://www.youtube.com/watch?v=DBXCc_GkC4I.

In more detail: All end point devices form the first layer of the mesh and once installed will see on average 10-15 neighbors or alternative paths of communication. Our engineers will leverage utility provided end point device addresses to design and place approximately 60-70% of the initial ecoNet gateways. The gateways self-provision upon installation and dynamically adjust based on communication links with other gateways. The gateways will see on average 7-12 neighbors and alternative paths. The ecoOne software will use real time data, rather than a theoretical model, to identify areas that require additional gateways to be deployed to achieve the minimum recommended number of neighbors of 5. The software will be used to deploy the additional 30-40% of the gateways. Roughly 9-10 of the gateways will be attached to a Ubiquity point to point radio to act as backbone communications to 360 degree radio clusters installed on the utilities water towers.

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

Nexgrid's system is already equipped with electric vehicle charging and management capabilities, as well as distributed energy resource (DER) applications, ensuring seamless integration with existing and emerging energy solutions.

To support future advancements, Nexgrid's open communications platform is designed with standards-based interoperability, allowing utilities to adopt new technologies without costly infrastructure changes. Key capabilities include:

- Flexible, Future-Proof Communication Network
    - Utilizes industry-standard communication protocols, including:
        - LTE, 802.15.4, 802.11, and LoRaWAN over an IP-based backbone.
        - Ensures secure, scalable, and high-performance data exchange across the grid.
- Seamless System Integration
    - Supports Multi-Speak and other standard integration frameworks, enabling easy interoperability with DERMS, ADMS, and third-party utility applications.
    - Future-ready for AI-driven analytics, predictive maintenance, and real-time grid automation.
- Modular & Scalable Infrastructure
    - Easily incorporates emerging technologies such as blockchain energy trading, smart inverters, and advanced microgrid management.
    - Supports IoT-based smart city applications, including streetlight control, environmental monitoring, and distributed sensor networks.

With Nexgrid's IP-based open communication platform, utilities gain a future-proof foundation for continuous innovation, ensuring long-term adaptability and efficiency.

Network Infrastructure

Overview

A robust network infrastructure will be deployed to ensure reliable communication across urban and rural areas within the service territory. The network will be scalable and designed to accommodate future technological advancements, withstand extreme weather conditions, and have warranted battery life.

Key Features

Hybrid Network Design: Network that functions properly in dense areas as well as rural areas. Some areas only support water and/or gas services.

Comply. Nexgrid's Plexus communication platform embraces communication and security standards that provide a broadband based open architecture that is future proof. By supporting IEEE Standards of including Ethernet, ZigBee 802.15.4 (2.4GHz), and Wi-Fi 802.11 N (2.4GHz), as well as commonly used communication protocols including Cellular LTE and LoRaWAN (915MHz) the Plexus Smart Grid Network is the most robust platform available.

2.4 GHz Wi-fi 100 Mbps (gateways)
2.4 GHz ZigBee 250 kbps (meters and smart devices)
915 MHz LoRa (water only areas)

The proposed system is FCC part 15 compliant requiring no licensing and operates well under the 1-Watt FCC limit. Nexgrid's patented pending multi mesh Plexus network utilizes automated channel and power level adjusting to optimize the network so that it coexists with the environment as it changes. This proven technology has been installed for over 12 years and has the highest bandwidth and communication success rate in the industry.

Scalability: Designed to support emerging technologies like 5G and IoT-enabled devices.

Nexgrid's system is designed for seamless scalability, ensuring long-term adaptability as emerging technologies. Our ecoNet Smart Grid Gateway is a multi-communication platform gateway.

- Supports 5G, providing ultra-reliable, low-latency communication for advanced grid applications.
- Built-in Zigbee and LoRaWAN support, enabling direct integration with a wide range of IoT-enabled devices, including smart sensors, distributed energy resources, and load control devices.

Communication and Management: Two-way communication with endpoints and support for remote firmware updates. GUC would like to utilize the network backbone for alternate control purposes (via SCADA).

Comply. Major functionality releases occur when required Firmware upgrades typically occur on a semi-annual basis and include security, performance updates and bug fixes.

System Integration

Overview

We expect to integrate with some existing core utility support systems. We currently support a Customer Information System (CIS), Customer Portal, SCADA, GIS, OMS, and are considering supporting ADMS/DERMS in the future. See Appendix A for a listing of currently support systems.

Key Features

Real-Time Monitoring: Supports integration with utility systems for enhanced outage management and operational control.

Nexgrid's ecoOne system includes a fully functioning MDMS system thus eliminating the need to integrate with other third-party systems. However, if UTILITY desire, there are multiple methods for integration to third-party systems: The Energy Data Server supports Multispeak, the industry standard for data exchange and operation commands. Other methods include Nexgrid's ecoSync application which provides interoperability to third party systems that do not support Multispeak. EcoSync supports all methods of defined integration (flat file, web API, SQL, FTP file generation, etc.) and converts them to Multispeak.

GIS-Enabled Asset Mapping: Links AMI data with GIS for efficient asset management and visualization.

Comply. See above response.

Data Exchange: Ensures smooth data flow between the AMI system and other utility platforms for billing, outage management, and operational analysis.

Comply. Nexgrid has fully integrated with multiple customers including CIS, Meter Exchange, Asset Information and Billing File via Multi-Speak.

Additionally, Nexgrid supports integration with all major billing system in multiple ways including Multispeak or utilizing Nexgrid's ecoSync which is an application that converts SQL, Web Service APIs, or flat files to standardized Multispeak format. Nexgrid's ecoSync application which provides interoperability to third party system that do not support Multispeak. EcoSync supports all methods of defined integration (flat file, web API, SQL, FTP file generation, etc.) and converts them to Multispeak.

3 PROJECT MANAGEMENT AND IMPLEMENTATION STRATEGY

Testing and Quality Assurance

A structured testing and quality assurance process will be implemented to ensure system reliability, data accuracy, and interoperability across all services.

Key Features

System Testing: Comprehensive testing of electric, water, and gas meters to ensure performance under various conditions will be performed, including leak detection for water meters.

Comply. Prior to the shipping of all Nexgrid products quality assurances guidelines provide the sampling and testing methods to insure exceptional product functionality. After products have been installed the ecoOne software monitors for anomalies and potential issues of products and is reported automatically.

Interoperability Testing: Ensures smooth integration with other utility systems.

Comply.

Performance Benchmarks: Establishes metrics for meter accuracy, network reliability, and data latency.

Nexgrid maintains rigorous performance, reliability, and accuracy standards across all products to ensure long-term system integrity and compliance.

- Manufacturing & Reliability Standards
    - All Nexgrid products are built with components rated for a minimum of 20-year MTBF (Mean Time Between Failures).
    - Each device undergoes comprehensive testing before deployment to guarantee performance and durability.
- Dynamic Network Performance Monitoring
    - Once deployed, the system continuously monitors communication performance, automatically detecting and flagging potential network issues.
    - Real-time performance metrics, including latency, signal strength, and data throughput, are available within ecoOne Utility Management Software.
- Meter Accuracy & Compliance
    - All electric meters are ANSI-certified and meet all relevant UL and ANSI standards.
    - Every meter is pre-tested for accuracy, with test results stored and accessible in ecoOne Utility Management Software, ensuring full transparency and traceability.

  These stringent performance benchmarks and continuous monitoring ensure that Nexgrid delivers a highly reliable, accurate, and standards-compliant smart grid solution.

4 DATA SECURITY AND COMPLIANCE STRATEGY

Data Security and Compliance

Overview

The AMI system will incorporate robust security measures to protect customer data and comply with all relevant federal, state, and local regulations.

Key Features

Data Encryption: Strong encryption protocols for secure data transmission and storage.

The proposed solution utilizes various security protocols and techniques throughout. Communication infrastructure gateways have achieved NIST FIPS 140-2 certification which is the highest security standard for wireless encryption available by NIST. Our Wi-Fi Mesh communication is encrypted via WPA2 TKIP and all communication check-ins via HTTPS over TCP/IP.

The Nexgrid system defends in layers, with encrypted wire/wireless protocols, encrypted application interfaces (SSL/HTTPS), and appropriate precautions taken in the application code to prevent malicious code from being executed. The system monitors itself and reports abnormal behavior both to the network administrators defined by the Utility and ecoOne administrators.

Nexgrid has defined methods for every type of interaction that would fall under the category of cyber security. This includes database access, billing system integration, messaging system interfacing, email/SMS integration, and many other common integration operations. These methods relate to best practices (i.e. using prepared statements or an ORM tool for database access), frameworks and third-party libraries (spring framework for MVC development), and security specifications (3DES encryption for storing passwords in databases).

The smart devices (meters, thermostats, load control switches, etc.) use AES-256 Bit encryption for the fundamental network security. Our systems encryption on the 802.15.4 ZigBee network provides each end-device with a unique encryption key.

ecoOne and intelaHome cloud-based server connections and authentication is handled via https EV 256 Bit encryption. Additionally, the system supports logging and auditing capabilities to allow for tracking of unauthorized access attempts to the network.

Security Layers: Multi-layered security, including device authentication, intrusion detection, and tamper alerts.

Nexgrid's system employs a multi-layered security approach to ensure data integrity, prevent unauthorized access, and detect potential threats in real time.

- Device Authentication & Encryption
    - All devices utilize mutual authentication with unique cryptographic keys to prevent unauthorized access.
    - End-to-end encryption (AES-256) secures data transmission between meters, gateways, and the utility network.

- Intrusion Detection & Threat Monitoring
    - Real-time anomaly detection identifies suspicious activity, unauthorized access attempts, and network intrusions.
    - Automated alerts notify operators of potential security threats, allowing for immediate response and mitigation.
- Tamper Detection & Physical Security
    - Built-in tamper sensors detect and log any unauthorized access to meters or gateways.
    - Instant tamper alerts are sent to the ecoOne Utility Management Software, ensuring rapid response.
- Regulatory Compliance
    - Meets NERC CIP, IEEE 1686, and NIST cybersecurity standards for critical infrastructure protection.
    - Designed to comply with utility-grade security best practices, ensuring ongoing protection against evolving cyber threats.

With these comprehensive security layers, Nexgrid delivers a highly secure, resilient, and compliant smart grid platform.

Regulatory Compliance: Ensures compliance with data privacy regulations and industry standards for utility operations.

Comply.

5 TRAINING AND KNOWLEDGE TRANSFER PLAN

Training and Knowledge Transfer

Overview

A comprehensive training program would be available for utility staff, ensuring they can operate, maintain, and troubleshoot the AMI system effectively and independently.

Key Features

Utility-Specific Training: Training tailored for field technicians, IT support, and customer service staff.

Nexgrid's training includes the following subjects:

- System Administration
- System Configuration
- AMI and MDMS (ecoOne software) software overview
  - Electric Distribution Management
  - Outage Management
  - Water Management
  - Gas Management
  - Load Management (if purchased)
  - Streetlight Management
  - Reporting
  - Alerts
  - Troubleshooting
- Installation and Provisioning including use of Nexgrid handheld
- Consumer Portal Usage

Knowledge Transfer: Documentation and ongoing support to ensure long-term operational independence.

Nexgrid's Annual Professional Services and Software Agreement provides all required services under one agreement. This includes system and firmware upgrades, customer support and ongoing training. Please see the attached PSSA Brochure.

6 DATA ANALYTICS AND PREDICTIVE CAPABILITY

Data Analytics and Predictive Capability

Overview

The AMI system will include advanced analytics and predictive capabilities to help the utility optimize operations and enhance decision-making.

Key Features

Operational Analytics: Real-time data analysis for insights into consumption trends, anomaly detection, and outage prediction.

Nexgrid's system provides real-time data analysis to optimize grid performance, detect anomalies, and enhance outage prediction.

Consumption Trend Analysis:

- Continuously monitors energy, water, and gas usage patterns.
- Provides historical and real-time insights to help utilities manage demand, optimize load, and improve efficiency.

Anomaly Detection & Grid Event Alerts

- Automatic alerts for abnormal consumption or system faults help prevent service disruptions.

Outage Prediction & Detection

- Location based predictive outage forecasting based on historical outage patterns.
- Uses load profiling, voltage deviations, and communication failures to identify potential failures.
- Enables faster response times by providing accurate fault location data to utility crews.

AI-Powered Predictive Tools: Machine learning for predictive maintenance and load forecasting.

Nexgrid's machine learning-driven analytics optimize grid performance by enabling:

Predictive Maintenance – Identifies equipment issues before failure, reducing downtime.

Advanced Load Forecasting – Uses historical trends, weather, and demand patterns for precise energy predictions.

Automated Grid Optimization – AI-driven circuit balancing and voltage management improve reliability.

These tools enhance efficiency, cut costs, and strengthen grid resilience.

Data Visualization: Intuitive tools for monitoring performance and making data-driven decisions.

Nexgrid provides intuitive, real-time visualization tools that enable utilities to monitor performance and make informed, data-driven decisions.

EcoOne Utility Management Software

- Interactive dashboard with real-time and historical data views for electric, water, and gas services.
- Customizable reports and trend analysis tools for consumption, outages, and load forecasting.

Live Grid Monitoring

- Geospatial Smart Grid GIS provides a real-time energy pathway to substation view.
- Color-coded heat maps for load distribution, circuit balancing, and transformer capacity.

Actionable Insights & Alerts

- Dynamic charts and graphs visualize voltage levels, energy demand, and network performance.
- Instant alerts and predictive analytics highlight anomalies, enabling proactive decision-making.

Regulatory Compliance

Overview

All components of the AMI system must comply with applicable federal, state, and local regulations to ensure data privacy, security, and environmental compliance.

Key Features

Nexgrid ensures full compliance with federal, state, and local regulations to protect customer data, maintain security, and meet environmental standards.

Data Privacy & Security

- Adheres to NIST cybersecurity frameworks and NERC CIP standards for utility data protection.
- Implements AES-256 encryption and multi-layered authentication to safeguard customer information.

- **Public Utility Standards**
  - Complies with North Carolina Utilities Commission (NCUC) and other regulatory bodies.
  - Supports Multi-Speak and industry-standard protocols to ensure seamless utility integration.

- **Environmental Compliance**
    - Meets all Coastal Area Management Act (CAMA) and local environmental regulations.
    - Designs hardware for energy efficiency, reduced emissions, and minimal environmental impact.

Nexgrid's regulatory-first approach ensures secure, compliant, and future-proof smart grid operations.

7 REQUIRED FORMS

- 1 – RFQ Acknowledgement and Signature Form
- 2 – Insurance Acknowledgement Statement
- 3 – E-Verify Form

8 INCLUDED ADDENDUMS

- 1 - Nexgrid Solution Overview
- 2 - intelaHome Brochure
- 3 - ecoNet Duo Brochure
- 4 - ecoSwitch SLRD Brochure
- 5 - ecoSwitch Mini Brochure
- 6 - intelaMetering Standards
- 7 - Aurium Pro Brochure
- 8- intelaMeter H2O Brochure
- 9 – Electric Vehicle Brochure
- 10 - ecoSync Brochure
- 11 - Software License Agreement
- 12 - FIPS Certification
- 13 - ISO Certifications

RFQ Acknowledgement and Signature Form

RFQ No.: 25-10, Advanced Metering Infrastructure (AMI) Vendor Selection

The undersigned having carefully examined the location of the proposed work, the local conditions of the place where the work is to be done, the Invitation, the General Conditions, the Specifications and all of the documents for this project, proposes to enter into a contract with Greenville Utilities Commission in Greenville North Carolina perform the work listed in this RFQ, including all of its component parts, and to furnish any and all required labor, materials, equipment, insurance, bonding, taxes, transportation and services required for this project in strict conformity with the plans and specifications prepared, including any Addenda, within the time specified.

Addendum Acknowledgement:

The following addendum (addenda) is (are) acknowledged in this RFQ:_____

Acknowledgement and Signature:

1. No Proposal is valid unless signed in ink by the person authorized to make the proposal.
2. I have carefully read, understand and agree to the terms and conditions on all pages of this RFQ. The undersigned agrees to furnish the services stipulated in this RFQ.

Respondent's Name and Title:

Company Name: Nexgrid, LLC

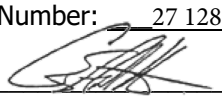
Address: 100 Industrial Drive, Fredericksburg, VA 22408

Telephone: 1-833-Nexgrid Fax: _____

Email: costa@nexgrid.net Cell Number: _____

Contractor License # (if applicable): _____ Expiration Date: _____

Federal Tax Identification Number: 27 1288354

Authorized Signature:  Date: March 11, 2025

Decline RFQ:

We **do not** wish to submit a RFQ on this Project. Please state your reason below. Please also indicate if you would like to remain on our Supplier list.

Reason: _____

_____

_____

Company: _____ Address: _____

Name: _____ Signature: _____ Date: _____

E-Verify Form

Letter of Compliance to E-Verify for Greenville Utilities Commission. Please complete the form below.

1. 1.I have submitted a bid for contract or desire to enter into a contract with the Greenville Utilities Commission;
2. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that I am aware of and in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
3. CA After hiring an employee to work in the United States I verify the work authorization of said employee through E-Verify and retain the record of the verification of work authorization while the employee is employed and for one year thereafter; or
4. CA I employ less than twenty-five (25) employees in the State of North Carolina.
5. As part of my duties and responsibilities pursuant to said bid and/or contract, I affirm that to the best of my knowledge and subcontractors employed as a part of this bid and/or contract, are in compliance with the requirements of E-Verify, Article 2 of Chapter 64 of the North Carolina General Statutes, to include (mark which applies):
6. CA After hiring an employee to work in the United States the subcontractor verifies the work authorization of said employee through E-Verify and retains the record of the verification of work authorization while the employee is employed and for one year thereafter; or
7. CA Employ less than twenty-five (25) employees in the State of North Carolina.

Specify subcontractor: _____

Nexgrid, LLC (Company Name)

By: Costa Apostolakis (Typed Name)

 (Authorized Signatory)

CEO (Title)

March 11, 2025 (Date)

It is certified that this proposal is made in good faith and without collusion or connection with any other person bidding on the same above listed items. It is also certified that this proposal is made in good faith and without collusion or connection with any GUC employee(s).

Certified check or cash for ___N/A_____ or bid bond for _____N/A_____ attached.

Firm Name:___Nexgrid LLC__ Phone: (_833_)_NEXGRID____

Address:_____100 Industrial Drive, _____

City _____Fredericksburg_____ State __VA_____ Zip Code _____22408_____

Fax (____)_____ E-mail ___costa@nexgrid.net_____

Authorized Official __Costa Apostolakis_____ Title ____CEO_____
Typed Name

_____Date ___March 11, 2025_____
Signature

Your Proposal should be received no later than March 11, 2025, 2:00PM (EST)

Solution Overview

Turnkey standards-based end-to-end smart grid

Nexgrid's full suite of products include smart grid network infrastructure, software, and intelligent devices necessary for seamless electric, water and gas metering, street light management, load control, outage and restoration management, disconnects/re-connects, smart home, two-way messaging and real-time pricing.

Communication Infrastructure

Nexgrid's ecoNet + is a Dual MESH Smart Grid Gateway with a wireless streetlight controller. This compact plug and play product provides access to hundreds of smart meters and smart devices over a secure encrypted network. Additionally, the ecoNet+ enables remote management of streetlight functions through Nexgrid's ecoOne® software system. The gateway includes a 16-amp relay for direct control of streetlights as well as dimming functionality within a Utility's power grid. In addition, the ecoNet+ has the capability to monitor light bulb status, power consumption, and current sensing for buld outage and status. This powerful feature allows for detailed load study functions and more specific scheduling capabilities to better manage energy usage of streetlights. Nexgrid's ecoNet+ includes Wi-Fi (802.11N) and ZigBee (802.15.4) radios that provide a robust sophisticated MESH Smart Grid that's broadband based and future-proof. LTE cellular available as an option.

Intelligent Devices

Devices include:

- Load Control Switch
- Thermostat
- Street light control module
- ecoRTU

Features include:

- Over-the-air upgradeable
- Wireless real-time communication
- Remote management and control
- Device Monitoring
- Self provisioning

intelaMetering

(Electric, Water, & Gas)

Electric metering features include:

- Wireless real-time communication
- Net-Metering (Received/Delivered registers)
- Instantaneous outage reporting
- Tamper and disconnect alerting
- On board memory (120 days)
- Over-the-air upgradable
- Remote disconnect/reconnect

Water/Gas metering features include:

- Wireless communication
- Instantaneous tamper alerting
- Leak and disconnect alerting
- Over-the-air upgradable

02212025

915 Maple Grove Drive Suite 200
Fredericksburg, VA 22407
Toll Free: 1-833-nexgrid
www.nexgrid.net

Enterprise Management Software

ecoOne Energy Management System

Meter Data Management
- Water, gas and electric metering
- Asset mapping and monitoring
- Paginated reporting
- Meter reads
- Customer portal management
- Home, transformer, circuit, and substation outage reporting

Load Management
- Load event scheduling and status
- Asset mapping
- Paginated reporting
- Remote management and control
- Historical Event graphing

Street Light Management
- Streetlight control and scheduling
- Maintenance reporting
- Asset mapping
- Remote management and control
- Integrated public safety alerting

Data Analytics
- Predictive energy at the meter, TX, circuit, Substation and system levels
- Voltage Management
- Load Balancing
- Alerts to email and SMS

Network Management
- Monitoring of all smart grid
- Asset mapping
- Paginated reporting
- Live status reporting
- Alerts to email and SMS

Customer Portal

intelaHome™

intelaHome® is a simple to use web-based portal designed for consumers to manage and monitor their home and/or office's energy and smart home products. In addition, it is a powerful energy auditing system that provides real-time information regarding electric, water, and gas usage. For the first time, customers can control costs and conserve energy through an online management tool that is as easy to use as online banking.

Energy Data Server Cluster (EDS Cluster)

Cloud Hosting Available

Nexgrid's EDS is an advanced data management system manager for smart grid solutions, enabling utilities to retrieve accurate and historical information about the status, security, and performance of the end devices.

- Minimizes future obsolescence: Compatible with industry leaders and standards groups to assure support for a wide range of future devices.
- Supports open system industry standards for integration to third party software: XML, SOAP, Web Services, MultiSpeak and CIM.
- Automatic data recovery advisor, automatic backups, snapback capable, hot failover with automatic direction to the standby site within seconds
- Provides continuous discovery for Level 2 – Level 3, faults, device configuration and management, auditing health performance, remote firmware upgrades, security, and device interoperability
- Network management: Monitors network health, performance and security; performs preventative measures to the WAN and LAN
- Multi-utility service management: Offers management applications for Smart Metering (electric, gas, water), Grid Modernization, Demand Response (ZigBee, 802.11n), as well as future smart grid applications.

02062019

915 Maple Grove Drive Suite 200
Fredericksburg, VA 22407
Toll Free: 1-833-nexgrid
www.nexgrid.net

intelaHome
Customer Web Portal

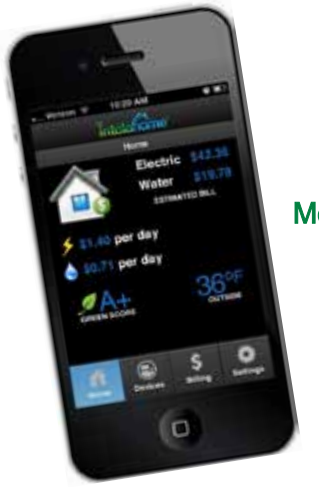
intelaHome is a simple to use web based portal designed for consumers to manage and monitor their home and/or office's energy and smart home products. In addition, it is a powerful energy auditing system that provides real-time information regarding electric, water, and gas usage.

The **intelaHome** customer portal provides the ability for Utilities to reduce peak demand by enabling customers to conserve energy through a password protected online portal. Customers obtain real-time visibility into their energy consumption and costs and through circuit-level management (i.e. how much energy is consumed by each appliance). Customers can also obtain detailed cost savings information related to their participation in Utility-sponsored demand response programs (i.e. charging low rates during off-peak periods to reduce peak demand).

For the first time, customers can control costs and conserve energy through an online management tool that is as easy-to-use as online banking. With a few clicks, customers can create a personal energy profile to automatically optimize energy usage based on consumption patterns and utility rate schedules.

Customers can access easy-to-understand data comparing their live usage with similar homes in their area and be notified when a devices energy consumption is not normal (i.e. the hot water heater is not functioning properly and using 15% more energy).

Desktop Web Portal



Mobile App

Customizable Widgets

01022019

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

ecoNet™ SL

Smart Grid Gateway

The **ecoNet Duo Communication Gateway** provides the central link between intelligent endpoint devices and your Utility's mission-critical systems, enabling intelligent network control and monitoring. Simple no-tool-required twist and lock installation replacing the existing photocell sensor greatly simplifies the installation process. A sophisticated Dual MESH communication technology utilizing Nexgrid's patent pending algorithm provides ubiquitous coverage throughout the network at a low cost. **ecoNet Duo** smart grid gateways support 3 standards-basedcommunication technologies, Ethernet (RJ45), ZigBee(802.15.4) and Wi-Fi (802.11N). **ecoNet Duo's** management software provides the ability to mix and match the different systems to achieve maximum efficiency in the network while also providing maximum redundancy. **ecoNet Duo** provides a scalable broadband infrastructure that supports the advanced metering of electric, water and gas and real time management and control of intelligent end devices like load control switches, capacitor bank controllers and thermostats. It features robust security to ensure full regulatory compliance and network safety and an internal power source for outage management. **ecoNet Duo** gateways communicate with third party devices to create a platform for Demand Side Management, Smart Home, and other Utility asset devices that require communication.

Additionally, the **ecoNet Duo** monitors the streetlight for energy consumption usage, outage detection and allows for custom on/off programming. Lights can be controlled in a more intelligent and efficient manner than provided by the standard photocell, and monitoring in real-time reduces truck rolls and overall maintenance.

Technical Specifications

Nexgrid Part Number	ecoNet **Duo**
Interface	10/100 Base t, half/full duplex. Rate auto negotiated (IEEE 802.3 compliant) Wi-Fi (IEEE 802.11N compliant) and ZigBee (IEEE 802.15.4 compliant)
Input Power	95 – 264 VAC 50/60 Hz
Wireless Signal Rate	Wi-Fi 2 GHz or 5 GHz , 100Mb & ZigBee 240 Kbps
Channel Width	Wi-Fi 20 and 40 MHZ, 802.15.4 5 MHZ
Wind Survival	118 miles/hr. (190 lm/hr.)
Power Consumption	7.5 Watts maximum
Mechanical Dimensions	**3.75" W x 3.5" H x 1.3" D**
Weight	.69 Kg
Encryption	AES , DES support *NIST FIPS 140-2
Mesh Routing	ZigBee
FCC IDs	SWX-M5B, SWX-M2B,
Modulation Type	Wi-Fi OFDM, ZigBee OQPSK
Safety Standard Compliance	EN50178, Category III
Temperature	-25 C to +70 C
Humidity	5% - 85%
Casing	Polycarbonate UL 94-V0
Mounting Type	NEMA twist lock plug connection ANSI C136.10
Internal Power	Internal super capacitors provide one minute of sustained power during outages
EIRP	Adjustable from 10 dB to 28 dB
Antenna Connector	SMA-TYPE Male

*optional

Key Features

Streetlight photocell mount

Standards-based communication

Provides full security including AES, DES support

Dynamic provisioning & self healing MESH network

Easy installation. No tools required data (100 Mbps)

Over-the-air (OTA) enabled firmware update support

MESH Wireless technology provides ubiquitous coverage

Real-time monitoring and control of lamp on/off schedule and voltage/current monitoring

01022019

915 Maple Grove Drive Suite 200
Fredericksburg, VA 22407
Toll Free: 1-833-nexgrid
www.nexgrid.net

ecoSwitch SLRD

Streetlight Relay and Monitoring

Nexgrid's **ecoSwitch SLRD** is a ZigBee based wireless streetlight controller that enables remote management of streetlight functions through Nexgrid's ecoOne® software system. The **ecoSwitch SLRD** houses a 30 amp relay for direct control of streetlights within a Utility's power grid. The **ecoSwitch SLRD** is configured with the ability to control streetlight on/off functions with a number of scheduling options that include light sensor and time based schedules defined by the customer. In addition, the **ecoSwitch SLRD** has the capability to monitor light bulb status, power consumption, and current sensing for bulb out age and status. This powerful feature allows for detailed load study functions and more specific scheduling capabilities to better manage energy usage of streetlights.

Nexgrid's **ecoSwitch SLRD** utilizes an IEEE standards-based communication technology (ZigBee 802.15.4). The **ecoSwitch SLRD** communicates seamlessly into a sophisticated MESH communication technology that provides ubiquitous coverage throughout the network at a low cost. In addition, the **ecoSwitch SLRD** communicates with third party devices to create a platform for Demand Side Management and other Utility assets that require communication. Nexgrid's **ecoSwitch SLRD** ensures greater reliability and redundancy on a future-proof broadband network that is easily deployed and managed.

The **ecoSwitch SLRD** provides the same streetlight monitoring features found in the ecoNet SL and communicates with other ZigBee enabled devices on the network.

Key Features

ZigBee Communication or LoRa Technology

Distributed Intelligence Control

Time-Based Control

Multi Schedule Support

Light Bulb Status Monitoring

Current Sensing for Bulb Outage

Power Consumption Monitoring

ANSI C136.10 NEMA Twist Lock

Technical Specifications

Nexgrid Part Number	ecoSwitch SLRD
Interface	ZigBee Wireless (IEEE 802.15.4 compliant) or LoRa
Input Power	120 - 240 V 50 - 60 Hz
Signal Rate	240 kbps
Power Consumption	0.3 Watts/ 2.9 VA @ 240VAC
Mechanical Dimensions	2.5" W x 1 .75" H x 1.1" D
Weight	.12 Kg
Ambient Light	5 - 45 Lux
Temperature	-20 C to +70 C
Humidity	0% - 95%
Complies with Standards	FCC Part 15, ANSI C136.10
Encryption	Standard AES/DES Capable
Frequency	2.4 GHz to 2.48 GHz, 16-MHz channels
RX Sensitive	-95 dBm nominal
TX Power	-32 dbm to +20 dbm (100mW)

01022019

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

ecoSwitch Mini

Load Control Relay

The ecoSwitch Mini is a load control relay with ZigBee communication that enables remote management of high energy devices through Nexgrid's ecoOne® and intelaHome® sotfware systems. The ecoSwitch Mini houses a 30 amp relay, with 2 optional 3.8A relays, for direct load control of water heaters and other large load devices. The ecoSwitch Mini is also configured with load sensing including a unique feature that will sense when the load is "calling to run" but is inhibited by the Utility.

The ecoSwitch Mini also provides power measurement capabilities. This powerful feature allows for detailed load study functions. Utilizing IEEE standards-based communication technologies the ecoSwitch Mini will communicate with third party devices to create a platform for Demand Side Management, Smart Home, and other Utility assets that require communication.

The ecoSwitch Mini ensures greater reliability and redundancy on a future-proof broadband network that is easily deployed and managed.

Key Features

Distributed Intelligence Control

Repeating or Singular Direct Load Control

Adaptive Algorithms for AC Control

Junction Box and Conduit Fittings

Time-Based Control

LED State Indicators

Optional 3-relay switch

Tamper Alert

Technical Specifications

Nexgrid Part Number	ecoSwitch Mini
Signal Rate	240 kpbs
Casing	IP 66, NEMA 1, 2, 4, 4X rating UL 94 - 5VA flammable rating
Frequency	2.4 GHz to 2.48 GHz 16-MHz channels
Power Ratings	Main Relay: 30A Maximum, 100-240 VAC; Two Secondary Relays: 3.8A Maximum each, 10-60 VA
Mechanical Dimensions	7.87" H x 3.92" W x 2.76" D

01312019

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

Nexgrid® Technology Solutions

intelaMetering
Standardized Solutions for Advanced Electric Metering

Nexgrid's intelaMetering solution supports multiple meters while providing one common platform for advanced electric metering of residential, commercial and industrial meters. The intelaMeter module is a powerful network integrated card that is installed under the glass of various vendor's meters. The intelaMeter provides real time communication between the electric meter and Nexgrid's Energy Data Server. The intelaMeter connects directly to the metrology board and supports 802.15.4 wireless communications.

At Nexgrid, we've leveraged our expertise to ensure you get the most out of your investment in Nexgrid products. The intelaMeter gathers standardized measurement and diagnostic data from various vendors meters and transmit that data in a standardized format to the Nexgrid Energy Data Server. In addition Nexgrid's system provides the ability to interrogate any of the meters ANSI C12.19 tables for additional measurement and diagnostic information.

Below are the standard data points that the intelaMeter module sends at the specified interval (every 15 minutes by default). Additionally, all meter data is stored in non-volatile memory for a period of 90 days at 15 minute increments.

MEASUREMENT, DIAGNOSTIC AND METER DATA

Cumulative Measurement
- kWh (Delivered)
- kWh (Received)
- KVArh
- kVAh
- Time of Use (Block A, B, C, D)
- Custom Summation 1
- Custom Summation 2
- Meter Read Timestamp

Counters
- Voltage Sag
- Voltage Swell
- Power Failure
- Demand Reset
- Meter Rotation (Inversion)

Power Outage and Tamper
- Meter Tamper
- Meter Pull
- Power Outage
- Power Restore
- Power Outage Time
- Power Restore Time

Instantaneous Measurement
- kW
- Voltage (Phase A, B, C)
- Power Factor (Phase A, B, C)
- Amps (Phase A, B, C)
- Current Angle (Phase A, B, C)

Diagnostic and Alert
- Meter Reset
- Meter Problem
- Meter Inversion
- Reverse Flow
- DC Voltage Detection
- High Temperature
- CRC error
- Nv ram Error
- Disconnect/Connect Switch State
- Low Battery
- RAM/ROM Failure
- Config Error
- Low Loss Potential
- Clock Error
- Demand Overload
- Self Check
- Validation (Registers)
- Unprogrammed
- Clock Error
- Distortion
- High Demand
- Phase Outage

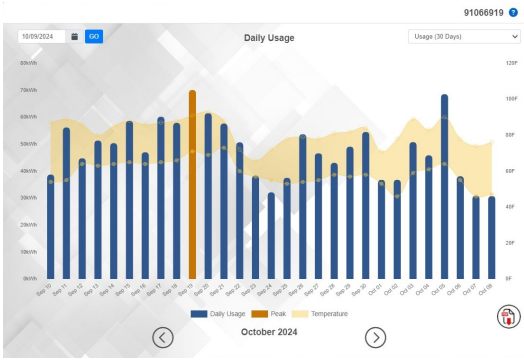
Peak Measurement
- kW
- kVA
- kVAr
- Custom Peak 1

Meter Information
- Temperature (Meter Base)
- Display Multiplier
- Display Number of Digits
- Firmware Version
- Up Time
- Communication Signal Levels
- Remote Disconnect Supported
- ANSI Key
- Demand Reset Date
- Serial Number
- Meter ID
- ANSI Key Level
- Make
- Model
- Hardware Version
- Form
- Class
- Meter Base Type
- Element Voltage
- Frequency (50, 60 Hz)

100 Industrial Drive, Fredericksburg, VA 22480 • Toll Free: 1-833-nexgrid • www.nexgrid.net

Aurium Pro
Smart Meter Platform

The first electric meter designed for smart grid. Nexgrid's Aurium Pro meter platform for advanced metering and smart grid applications enhances the Nexgrid ecosystem with proven reliability and innovative features. Integrated secure smart grid communications provides real time visibility and remote management using Nexgrid's ecoOne energy management software. The Aurium Pro provides over 100 points of data on each scheduled transmission including power usage and quality measurements, alerts and operational data. It enables greater operational efficiency, enhanced network performance, and reduced energy costs.



KEY FEATURES

- Advanced metering solution
- Engineered for smart grid
- Cost efficient
- 4 year warranty
- Bi-directional demand meter
- AMI signal indicator on display
- Integrated remote disconnect switch
- Tamper sensing
- Standards- based communication
- Over-the-air firmware update support

nexgrid

Aurium Pro
Smart Meter Platform

PRODUCT SPECIFICATIONS

General Specifications	• All models support demand billing and time-of-use (TOU) • Load profiling with AI enhanced analytics • Designed for 20+ years life • Utilizes ANSI protocol (for optical port and between meter and AMI device) • 9-Digit LCD including AMI signal strength • Display scroll sequence programmable (factory or end user) • Configuration Port – standard plastic: Optional ANSI C12.18 optical
Operating Temperature	-40 C to +85 C
Nominal Voltage	120V or 240V
Operating Voltage	80% to 115% of Nominal voltage
Frequency	60HZ +/- 5%
Humidity	5% to 95%relative humidity, non-condensing
Starting Load (Watts)	• Class 20: 0.005 Amp (0.6W) • Class 100: 0.030 Amp (3.6W) • Class 200: 0.050 Amp (12W) • Class 320: 0.080 Amp (19.2W) • Class 480: 0.120 Amp (28.8W)
Voltage Burden	< 1.9W Max
Load Performance Accuracy	Accuracy Class 0.2% (reactive energy 0.5%)

AVAILABLE FORMS

Self Contained	1S,2S,12S,16S,25S
Transformer Rated	3S,4S,9S,

Display Options	• Energy Metrics: +kWh, -kWh, Net kWh, added kWh (Security), kVAh or kVARh • Metric Energy Display Format: 4x1, 4x10, 5x1, 5x10, 6x1 or 6x10 • TOU, demand billing and two demands (selectable kW, kVA or kVAR)
Communications	Integrated 2.4 GHz 802.15.4 intelaMeter AMI Communication Module
Selectable Multiplier	Up to 4096 as result of PT ratio x CT ratio

APPLICABLE STANDARDS

ANSI C12.1	Code for Electricity Metering
ANSI C12.10	Physical Aspects of Watthour Meters - Safety Standard
ANSI C12.18	Protocol Specification for ANSI Type 2 Optical Port
ANSI C12.19	Utility Industry End Device Data Tables
ANSI C12.20	American Nat'l Std. for Electricity Meters — 0.1, 0.2, and 0.5 Accuracy Classes
CAN3-C17-M84	Canadian specifications for approval of type of electricity meters
UL 2735	UL Standard for Safety Electric Utility Meters

SERVICE DISCONNECTS

200A Disconnect	• 10,000 operations at 200 Amps • Available forms: 1S, 2S, 12S, 25S

INTERNATIONAL CERTIFICATIONS

Measurement Canada (MC)	• AE-1967, AE-2398, AE-2474, AE-2475

For more information visit us at nexgrid.net or call us at 833-639-4773.

nexgrid

A leader in smart grid technology

Nexgrid is an US-based technology company We design, manufacture and market smart grid and advanced metering hardware and software. We have delivered innovative, secure solutions for utilities that have been proven at scale in some of the least hospitable environments on the planet. Today, we apply our innovation to address the challenges facing the power grids with a focus on reliability, energy savings, and return on investment.

intelaMeter™ H_2O

Nexgrid's water meter interface provides users with a real-time, two-way, standard based water AMI system. Nexgrid's **intelaMeter H_2O** is equipped with a ZigBee compliant radio or LoRa technology that support MESH networking capability to communicate with Nexgrid's ecoNet™ gateways and intelligent end devices. The **intelaMeter H_2O** also provides interval data along with tamper and battery health information. Nexgrid's Utility Management portal, ecoOne® provides real-time management and monitoring of the Water Network. Additionally, consumers can view their water usage at intelaHome.com, a web-based consumer portal. intelaHome® can be accessed from any computer, mobile phone, or ecoStat in-home display.

Nexgrid's **intelaMeter H_2O** is compatible with the UI-1203 standard and supports all major water meter brands on the market.

Technical Specifications

Nexgrid Part Number	intelaMeter H_2O
Interface	ZigBee Wireless (IEEE 802.15.4 compliant)
Mechanical Dimensions	99 x 108 x 44 (L x H x D, mm)
Minimum Mounting Hole Dimension	59.055 (Diameter, mm)
Weight	7.5 g
Operating Temperature	-40 C to +60 C
Operating Humidity	0% - 100%, condensing
Transmit Power	100 mW
Transmission Interval	User Configurable
Interval Meter Data Storage	Configurable; 180+ days at 15 minute reads
Encryption	AES/DES capable
Signal Rate	250kbps
Frequency	FCC regulated 2400 MHz to 2483.5 MHz (part 15 compliant)
Environmental	IP68
Battery	(3) Lithium Thionyl Chloride AA Cell
Battery Life	20 years at default settings
Antenna	Integrated Antenna Diversity
Rx Sensitivity	-99 dBm

Key Features

Standards-based communication IEEE 802.15.4 ZigBee protocol and LoRa technology

Remotely Configurable

Tamper Detection

Leak Detection

Low Battery Indication

Sophisticated power management for long battery life

Full Two-way communication

Secure OTA Upgrades

Effectively services hard-to- reach meter environments

Configurable usage updates and alarm thresholds

Accurate time stamps on register reads and events

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

01022019

TAKE CHARGE

Electric vehicle charging platform for utilities

nexgrid

Nexgrid now offers system-wide electric vehicle charge management allowing utilities to manage in home and public EV charging to increase energy sales and manage electric vehicle charging impact on the distribution grid. An integrated smart grid and charging infrastructure provides utilities with more visibility and control while offering electric vehicle charging to their customers.

Features	Nexgrid	Others
Remote Management Chargers are monitored using Nexgrid's ecoOne smart grid software providing real time visibility, control and maintenance reporting.	✓	✓
Billing Integration and Time Of Use Supports dynamic smart tariffs and TOU billing rates to encourage EV drivers to charge during off-peak hours. Charger automatically adjusts to charge during off peak.	✓	✗
Automated Transformer Load Management Level II chargers can have drastic effects on transformers with loads of 11.5 kW. Smart grid monitoring dynamically adjusts based on the transformer's real time load.	✓	✗
Smart Grid Integrated Chargers become part of the smart grid providing real-time and historical load profiling on transformers, circuits and substations.	✓	✗
Customer Visibility Customers can see their true cost of EV charging and enroll in Time of Use programs offered though their utility.	✓	✗

ecoSync

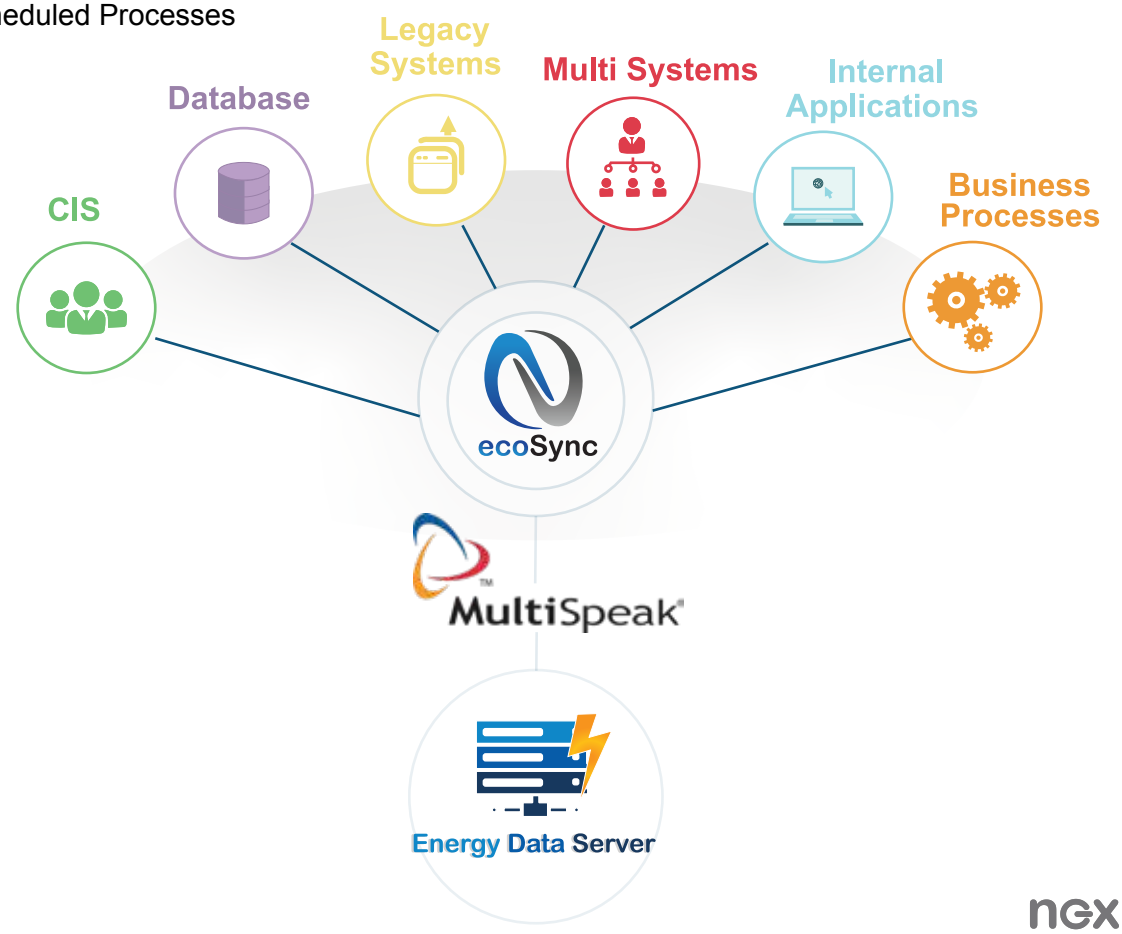
The explosion of APIs, devices, applications, and data sources have complicated the task of building connectivity across various smart grid applications including CIS, OMS, MDM, Asset Management and other systems. Nexgrid's intelaMeters gather up to 60 data points every 15 minutes which is stored in the Energy Data Server, exchanging this data and insuring that various systems are synchronized can be a challenging but necessary task.

Nexgrid provides a middleware solution to help Utilities overcome the challenges of integration. Nexgrid's ecoSync Service Bus is a middleware technology that quickly, easily, and securely connects various systems. Utilizing Multi Speak as well as Nexgrids Energy Data Server API ecoSync is a Java-based solution that is easy to implement and can be customized to connect multiple systems converting them to a standard communication platform. Smart Sync is a powerful application that provides the ability to integrate non standard systems enabling the exchange of information between systems.

ecoSync supports various integration protocols including Multispeak, XML, CSV, Flat File, FTP, secure FTP. Additionally it can integrate with multiple data base types including Amazon Aurora, PostgreSQL, MySQL, MariaDB, Oracle, and Microsoft SQL Server.

ecoSync Main Capabilities:

- Customer Capabilites
- Multi-Database Connectivity
- FTP File Transmit
- Custom File Generation
- Scheduled Processes



01022019

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

Professional Services and Support Agreement

ONE FEE

Nexgrid is committed to helping you get the most value, reliability, and performance from your smart grid system. The Professional Services and Support Agreement (PSSA) is tailored to your needs in terms of support, management and overall operation of your smart grid network. One simple agreement provides all managed hardware devices within your Nexgrid advance metering and smart grid system including Energy Data Servers, ecoNet™ gateways, electric, gas, and water meters, thermostats, load control devices, and any other HAN devices that are managed within the network for one low annual fee.

Software functionality evolves quickly and at Nexgrid we are continuously improving our software products to better meet our customers needs for innovation and efficiency. The PSSA ensures you will receive maintenance releases including performance enhancements and new features as they are available. It's a smart, simple way to protect the investment you've made in your smart grid solution and to ensure your system is up-to-date with the latest enhancements and security implementations. The Nexgrid PSSA is an annual licensing agreement based on the number of managed devices on the network. Nexgrid offers two levels of the PSSA – the standard PSSA as well as the optional PSSA PLUS for customers desiring additional services. The PSSA includes the following benefits at each level.

INCLUDED IN THE STANDARD PSSA

Software License

Annual license that includes unlimited use of Nexgrids ecoOne and intela-Home software applications.

intelaHome®

Utility customers receive full access to the intelaHome® customer portal to view their homes energy usage and command and control their Smart home devices.

Nexgrid Hardware Support

Nexgrid will provide hardware support for all Nexgrid products.

Updates

Nexgrid provides regularly scheduled updates to ecoOne® and intela-Home® Web Portals as well as Firmware upgrades to all Nexgrid intelligent end-point devices. This ensures optimal performance and the latest security and bug fixes.

Cloud Based Asset Back-up

Included is the cloud based back-up of all asset data at a secure off-site location. This ensures no data is lost in the event of a server crash or natural disaster.

ecoOne®

Included is unlimited access to the ecoOne® Utility Management software which includes, Energy Management, Network Management, Outage Detection and Notification and more.

Service Desk

Our Service Desk will provide Level 3 Phone and Online Support to the utility staff.

Remote Assist

Nexgrid will provide off-site support via ecoOne to assist with your system when required.

INCLUDED IN THE PSSA PLUS**

Network Communication

Included is a weekly communication audit that provides recommended actions to improve the performance of the smart grid infrastructure.

Private Webinar

Included is a private quarterly webinar that focuses on recent updates, new feature and tips on managing your network.

Extended Warranty

Included in the PSSA PLUS is a prorated 10 year warranty on Nexgrid products from the date of purchase.

Backbone

The smart grid backhaul health is the foundation of the smart grid infrastructure. Nexgrid will monitor and manage your backhaul connection to ensure optimal performance.

Security

Keeping your data and network secure with weekly security audits of your system including server security, security updates as well as firewall configuration and health.

**additional fee

01102019

nexgrid
100 Industrial Drive
Fredericksburg, VA 22408
Toll Free: 1-833-nexgrid
www.nexgrid.net

FIPS 140-2 Consolidated Validation Certificate

The National Institute of Standards and Technology of the United States of America

The Communications Security Establishment of the Government of Canada

Consolidated Certificate No. 0013

The National Institute of Standards and Technology, as the United States FIPS 140-2 Cryptographic Module Validation Authority; and the Communications Security Establishment Canada, as the Canadian FIPS 140-2 Cryptographic Module Validation Authority; hereby validate the FIPS 140-2 testing results of the cryptographic modules listed below in accordance with the Derived Test Requirements for FIPS 140-2, Security Requirements for Cryptographic Modules. FIPS 140-2 specifies the security requirements that are to be satisfied by a cryptographic module utilized within a security system protecting Sensitive Information (United States) or Protected Information (Canada) within computer and telecommunications systems (including voice systems).

Products which use a cryptographic module identified below may be labeled as complying with the requirements of FIPS 140-2 so long as the product, throughout its life-cycle, continues to use the validated version of the cryptographic module as specified in this consolidated certificate. The validation report contains additional details concerning test results. No reliability test has been performed and no warranty of the products by both agencies is either expressed or implied.

FIPS 140-2 provides four increasing, qualitative levels of security: Level 1, Level 2, Level 3, and Level 4. These levels are intended to cover the wide range and potential applications and environments in which cryptographic modules may be employed. The security requirements cover eleven areas related to the secure design and implementation of a cryptographic module.

The scope of conformance achieved by the cryptographic modules as tested are identified and listed on the Cryptographic Module Validation Program website. The website listing is the official list of validated cryptographic modules. Each validation entry corresponds to a uniquely assigned certificate number. Associated with each certificate number is the module name(s), module versioning information, applicable caveats, module type, date of initial validation and applicable revisions, Overall Level, individual Levels if different than the Overall Level, FIPS-approved and other algorithms, vendor contact information, a vendor provided description and the accredited Cryptographic Module Testing laboratory which performed the testing.

Signed on behalf of the Government of the United States

Signature: _____

Dated: 2/17/2012

Chief, Computer Security Division
National Institute of Standards and Technology

Signed on behalf of the Government of Canada

Signature: _____

Dated: February 8, 2012

A/Director, Architecture and Technology Assurance
Communications Security Establishment Canada

TM: A Certification Mark of NIST, which does not imply product endorsement by NIST, the U.S., or Canadian Governments

Certificate Number	Validation / Posting Date	Module Name(s)	Vendor Name	Version Information
1631	01/24/2012			
1645	12/15/2011	McAfee Web Gateway WG5000 and WG5500 Appliances	McAfee, Inc.	Hardware Versions: (5000 and 5500) with Part Number: 820-1919-00; Firmware Version: 7.1.0
1651	01/05/2012	ecoNet smart grid gateways: ecoNet SL and ecoNet MSA	Nexgrid, LLC	Hardware Versions: ENSL2, ENSL5 and ENMSA2; Firmware Version: 3.1.2-FIPS
1663	01/05/2012			
1664	01/10/2012	Security Builder® FIPS Module	Certicom Corp.	Firmware Versions: 4.0 B and 4.0 S
1665	01/10/2012	Network Security Platform Sensor M-8000 S	McAfee, Inc.	Hardware Version: P/N M-8000 S, Version 1.40; FIPS Kit P/N IAC-FIPS-KT8; Firmware Version: 6.1.15.35
1666	01/25/2012	Motorola Mobility Cryptographic Suite B Module	Motorola Mobility, Inc.	Software Version: 5.4fm
1667	01/11/2012	Secure Media Block	Qube Cinema, Inc.	Hardware Versions: Z-OEM-DCI-Q-R0, Z-OEM-DCI-Q-R2 and Z-OEM-DCI-Q-R3; Firmware Version: 1.0.1.0
1668	01/19/2012	Cisco Common Cryptographic Module (C3M)	Cisco Systems, Inc.	Hardware Versions: Intel [Core i5, Core i7 and Xeon] with AES-NI; Software Version: 0.9.8r.1.1
1669	01/19/2012	BlackBerry Cryptographic Kernel	Research In Motion Ltd.	Firmware Versions: 3.8.7.0 [1] and 3.8.7.1 [1,2]

FIPS 140-2 Consolidated Validation Certificate

The National Institute of Standards and Technology of the United States of America

The Communications Security Establishment of the Government of Canada

Consolidated Certificate No. 0013

The National Institute of Standards and Technology, as the United States FIPS 140-2 Cryptographic Module Validation Authority; and the Communications Security Establishment Canada, as the Canadian FIPS 140-2 Cryptographic Module Validation Authority; hereby validate the FIPS 140-2 testing results of the cryptographic modules listed below in accordance with the Derived Test Requirements for FIPS 140-2, Security Requirements for Cryptographic Modules. FIPS 140-2 specifies the security requirements that are to be satisfied by a cryptographic module utilized within a security system protecting Sensitive Information (United States) or Protected Information (Canada) within computer and telecommunications systems (including voice systems).

Products which use a cryptographic module identified below may be labeled as complying with the requirements of FIPS 140-2 so long as the product, throughout its life-cycle, continues to use the validated version of the cryptographic module as specified in this consolidated certificate. The validation report contains additional details concerning test results. No reliability test has been performed and no warranty of the products by both agencies is either expressed or implied.

FIPS 140-2 provides four increasing, qualitative levels of security: Level 1, Level 2, Level 3, and Level 4. These levels are intended to cover the wide range and potential applications and environments in which cryptographic modules may be employed. The security requirements cover eleven areas related to the secure design and implementation of a cryptographic module.

The scope of conformance achieved by the cryptographic modules as tested are identified and listed on the Cryptographic Module Validation Program website. The website listing is the official list of validated cryptographic modules. Each validation entry corresponds to a uniquely assigned certificate number. Associated with each certificate number is the module name(s), module versioning information, applicable caveats, module type, date of initial validation and applicable revisions, Overall Level, individual Levels if different than the Overall Level, FIPS-approved and other algorithms, vendor contact information, a vendor provided description and the accredited Cryptographic Module Testing laboratory which performed the testing.

Signed on behalf of the Government of the United States

Signature: _____

Dated: 2/17/2012

Chief, Computer Security Division
National Institute of Standards and Technology

Signed on behalf of the Government of Canada

Signature: _____

Dated: February 8, 2012

A/Director, Architecture and Technology Assurance
Communications Security Establishment Canada

TM: A Certification Mark of NIST, which does not imply product endorsement by NIST, the U.S., or Canadian Governments

Certificate Number	Validation / Posting Date	Module Name(s)	Vendor Name	Version Information
1631	01/24/2012			
1645	12/15/2011	McAfee Web Gateway WG5000 and WG5500 Appliances	McAfee, Inc.	Hardware Versions: (5000 and 5500) with Part Number: 820-1919-00; Firmware Version: 7.1.0
1651	01/05/2012	ecoNet smart grid gateways: ecoNet SL and ecoNet MSA	Nexgrid, LLC	Hardware Versions: ENSL2, ENSL5 and ENMSA2; Firmware Version: 3.1.2-FIPS
1663	01/05/2012			
1664	01/10/2012	Security Builder® FIPS Module	Certicom Corp.	Firmware Versions: 4.0 B and 4.0 S
1665	01/10/2012	Network Security Platform Sensor M-8000 S	McAfee, Inc.	Hardware Version: P/N M-8000 S, Version 1.40; FIPS Kit P/N IAC-FIPS-KT8; Firmware Version: 6.1.15.35
1666	01/25/2012	Motorola Mobility Cryptographic Suite B Module	Motorola Mobility, Inc.	Software Version: 5.4fm
1667	01/11/2012	Secure Media Block	Qube Cinema, Inc.	Hardware Versions: Z-OEM-DCI-Q-R0, Z-OEM-DCI-Q-R2 and Z-OEM-DCI-Q-R3; Firmware Version: 1.0.1.0
1668	01/19/2012	Cisco Common Cryptographic Module (C3M)	Cisco Systems, Inc.	Hardware Versions: Intel [Core i5, Core i7 and Xeon] with AES-NI; Software Version: 0.9.8r.1.1
1669	01/19/2012	BlackBerry Cryptographic Kernel	Research In Motion Ltd.	Firmware Versions: 3.8.7.0 [1] and 3.8.7.1 [1,2]