Grid IQ™
Solutions as a Service

Subscription based integrated Smart Grid solutions

With any Smart Grid implementation, utilities face extremely large up-front and on-going expenses as well as the daunting task of planning, executing, and managing the entire project – all of which may expose the utility to an undue amount of integration risk and financial stress.

Grid IQ Solutions as a Service delivers subscription based hosted Smart Grid service “packages” designed to leverage GE’s breadth, experience, and Smart Grid technology to shift integration, financial, and deployment risks away from the utility and provide a cost-effective Smart Grid solution.

The offering utilizes GE-owned Smart Grid software and hardware technologies and strategic partnerships to provide meters and metering services, AMI, meter data management, pre-payment Outage Management System (OMS), Interactive Voice Response (IVR) and Geospatial Information System (GIS) as pre-integrated standard packages for faster deployment at a low up front cost and with low utility risk.

Grid IQ Solutions as a Service Capabilities

- GE assumes the integration, technology, and up-front financial risks, and if desired, the ownership of both the hardware and software. GE will manage and update the IT infrastructure, hosted data center, AMI network, meters, and software based upon Service Level Agreements (SLAs) and deliver the valuable data back to the utility, thus alleviating any concerns over technology obsolescence and maintenance.

- Pre-integrated GE hosted packages allow for faster deployment through the utilization of a standard architecture which requires little to no customization. A typical base package including AMI, meters, OMS, and GIS can be deployed in 6 months compared to a typical AMI only deployment which may take 12-18 months.

- Depending on your utility’s current level of Smart Grid implementation, GE offers a Core Package which provides the foundational metering, AMI, outage management, consumer portal, and GIS capability. In addition, we offer an Advanced Package which provides advanced asset management and mobile mapping application capabilities.

Why Solutions as a Service?

- Enable utilities a pathway to advanced analytics and software.
- Accelerated deployment with immediate benefits.
- GE assumes the integration, IT and obsolescence risk.
- Standard, tested and integrated system architecture.
- Advanced capability without cost of ownership.
- Assures tight security, integration and data protection standards.
- Enables new market driven offerings:
  - Pre-pay
  - TOU & demand based rates

Customer Benefits

- Minimize risk by leveraging GE’s resources and expertise to implement an end-to-end Smart Grid solution.
- Reduce operating costs and bad debt expense to improve your bottom line.
- Improve service quality and end user satisfaction with near real-time information to optimize the consumption of power.
- Simplify backroom IT and operations processes.
- Maintain a continued partnership with an industry leader.
Grid IQ Solutions as a Service – What is it?

GE’s Grid IQ Solutions as a Service combines the benefits of AMI, OMS and GIS into a packaged service. The secure, fully redundant, and monitored hosted solution provides a web portal to engage customers with a wealth of information. GE’s Grid IQ Solutions as a Service offering significantly accelerates Smart Grid deployment while removing the need for a large up front expenditure.

Packaged Solutions & Flexible Delivery Options

Selection of package offerings depending on current level of Smart Grid implementation:

**Solutions as a Service Packages**

**Core Package**
- Meter Services (Electric-Water-Gas)
- Outage Detection
- GIS
- Prepaid Electricity Billing
- Consumer Web Portal

**Advanced Package**
- Asset Management Suite
- Mobile
- Consulting

**Can Be Delivered As**

**Implementation Service**
GE installs, commissions, and gets the system up and running, then hands operations over to the utility – utility then owns the solution.

*Ideal For:* Utilities who wish to utilize their own IT staff and/or wish to own the assets, but wish to take advantage of GE’s standard, preintegrated architecture.

**Hosted Service**
GE hosts the software in a GE data hosting center for the utility to access and utilize. Hard assets (meters, etc.) are owned by the utility.

*Ideal For:* Utilities who want control of software without having to maintain the IT infrastructure and/or purchase licenses.

**Managed Service**
GE manages & owns everything - meters, software, IT - and delivers the data to the utility.

*Ideal For:* Utilities who are resource strapped, seeking a “hands-free” solution.

---

**Fully secure, protected & certified GE hosted data centers**

- Complies with industry standard cyber security requirements
- Physically monitored via CCTV, badged access, 24x7 security personnel
- Data transferred securely through site to site VPN tunnel between systems
- Fully redundant systems
- ISO2001 certified centers
- Data is physically and logically separated and secured from other networks and customers

---

**GE Hosted Data Center**

- Pre-Pay
- GIS, OMS, Asset Manager
- MDMS
- Consumer Portal
- IVR
- AMI Head End
- Utility Portal

---

**Residential Consumer**

- Smart Meter
- Consumer Web Portal

**Utility Data Center**

- Utility Web Portal

---

**Utility Data Center**

- AMI Network
- Smart Meter
Core Package

With the Core Package, utilities can begin to reap the benefits of advanced metering (water, gas, and electric), pre-payment, AMI, outage detection, meter data management, and a consumer portal. The Core Package is specifically crafted to provide utilities with the optimal integrated bundle resulting in reduced costs, increased cash flow due to reduction in bad debt, and better engagement with consumers.

Metering & Pre-payment Services

GE has long been a valued provider of electric solid-state meter technology. With the Core Package, GE can deliver its feature-rich I-210+c residential electric meter with remote disconnect and its kV2c polyphase meter for commercial applications. The package also includes a pre-payment application and portal, which GE will integrate with the utility CIS billing system. Pre-payment services give consumers the ability to pay for their electricity up-front and avoid large security deposits, while at the same time reducing the utility’s bad debt expense and carrying costs.

Advanced Metering Infrastructure

GE will integrate with a variety of different AMI technologies from many different vendors. As part of the Core Package, GE’s Grid IQ Solutions as a Service engineers will evaluate the utility territory, topography, and system requirements to select the best long term communications infrastructure.

Geospatial Information System (GIS)

With GE’s Core Smallworld (GIS) application, utilities have the ability to view the network exactly as it is deployed in the field. This allows utilities to identify the precise location of metering assets and customers to best utilize network resources.

Outage Detection & Interactive Voice Response (IVR)

Fully integrated with the GIS in the core package is GE’s PowerOn Outage Management System. PowerOn OMS increases operational efficiency and improves the speed of the location of faults.

Coupled with IVR, utility customers will be automatically contacted either via text, phone call, or e-mail to ensure they are up-to-date on estimated outage duration. This allows Customer Service Representatives to focus on the most critical consumer cases.

Consumer Web Portal

Consumers desire more and more information on their energy usage. GE’s web portal can empower utility customers with the display of near real-time energy usage and price. The portal engages consumers with the tools to better manage energy habits, and removes uncertainty with their bill at the end of the month.
Advanced Package
The Advanced Package is designed to give utilities even more visibility and control of assets, network, and processes. It includes the GE Smallworld Asset Management suite, which efficiently designs and models complex network infrastructures and supports asset management lifecycle processes. Also included in the integrated package are mobile capabilities to provide GIS, map and facility data out to the field.

If a utility already has the core package or elements of core package in place, the advanced package can be easily integrated into the utility’s current systems.

Asset Management Suite
The GE Smallworld Asset Management suite provides advanced GIS functionality. Utilities can take advantage of configurable network tracing, transformer load management, event history, and CAD tools for mapping, designing, and updating the network.

Network updates and work requests can be optimized through field force automation tools – as outages and new equipment are completed or repaired, the geospatial network can be automatically updated when work orders are completed, insuring accurate network build. The Asset Management Suite will assist in equipping a utility with a full network model of a utility’s assets, opening the door for distribution management, substation automation, demand response, load forecasting and much more.

For utilities with gas and/or water metering assets, GE will deliver its Water Office & Gas Office software, providing ease in managing and designing their ever-growing water and gas network. These software applications are specifically designed for water and gas networks, each equipped with standard gas or water data models, thus reducing database design and improving operational efficiency.

Mobile
Integrate and extend your back office systems (i.e., computer information systems, work management and dispatch), along with the entire GIS, into the field and throughout the enterprise, providing field workers the ability to:

- Access up-to-date asset information, customer data, and supporting documentation
- View not only GIS data, but also AutoCad®, Microstation®, Raster data, and Aerial Imagery
- View work order assignments geographically and obtain point to point routing directions
- Utilize asset and trace information for outage diagnostic troubleshooting
- Create redlines and sketches in the field and send those changes back to the main office
Pathway to Demand Optimization

The Grid IQ Solutions as a Service offering provides a foundation for advanced load management. GE’s Demand Optimization software can help manage and smooth demand peaks by utilizing continuous learning algorithms and feedback data to deliver a new level of precision and control to demand-side management. The GE hosted Demand Optimization software can be quickly and easily integrated into your base package.

For more details on GE’s Demand Response Software please visit GEDigitalEnergy.com/UOS/catalog/poweron_precision.htm.

Customer Value Analysis Tool – What can Solutions as a Service bring to your utility?

The GE Grid IQ Solutions as a Service offering is uniquely structured to provide utilities the best possible Smart Grid foundation with the least amount of financial, implementation and technology risk. GE has leveraged its broad Smart Grid experience, utility feedback and data, joint action agencies, and industry research to refine and develop a Customer Value Analysis Tool to assist in quantifying the projected cost savings and benefits Solutions as a Service can bring to utilities. The tool is designed to answer questions about cost savings, benefits of implementing the solution and return on investment. This ensures common understanding between the utility and the GE solutions team before any purchase is made.

To learn more about Grid IQ Solutions as a Service, please visit GEDigitalEnergy.com/GridIQSolutions