

# Guelph Hydro



## Guelph Hydro Goes Beyond Smart Meter Mandate

Serving residential, commercial, and industrial customers in Guelph and Rockwood, Ontario, Canada, Guelph Hydro is committed to delivering sustainable energy solutions that safeguard the environment now and for future generations.

In anticipation of pending energy conservation mandates, Guelph Hydro partnered with Silver Spring Networks to launch an Advanced Metering Infrastructure (AMI) technology pilot. The pilot's success convinced Guelph of the smart grid's value to increase operational efficiencies and improve service reliability through a powerful self-forming and self-healing network.

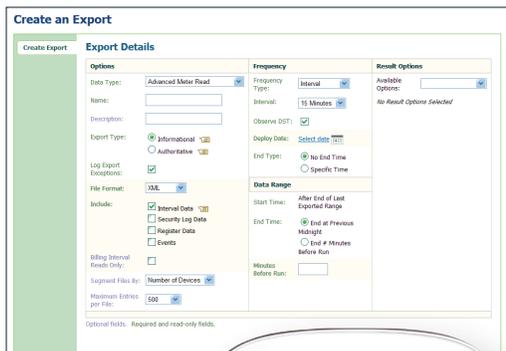
Faced with the government mandates for energy reduction and rollout of time-of-use pricing, Guelph Hydro knew that it didn't just want to meet the requirements – it wanted to exceed them. To do so, it needed a smart grid infrastructure that would support AMI and also achieve the following criteria to modernize its energy network:

- » Automate and streamline key business processes
- » Upgrade its Demand Response (DR) program
- » Enhance network reliability
- » Deliver a communications platform capable of supporting a wide range of smart grid applications

Guelph also knew it wanted the platform to support hardware and software from a variety of smart grid providers – to avoid being locked into a proprietary solution and to ensure compatibility with existing devices and applications.

Using UtilityIQ® AMM, Guelph has achieved a daily read success rate of more than 99 percent for interval data and register reads, boosting billing accuracy, reducing estimated bills, and lowering field visits required to manually read meters.

Silver Spring's IPv6 network gave them an open, standards-based platform fully interoperable with third-party products and services. In field testing of the AMI, the utility was "blown away" by the speed of the network. Silver Spring's advanced metering technology enabled Guelph to gather more than 98 percent of its meter data in less than an hour and a half. Guelph Hydro immediately identified Silver Spring as the ideal partner to both exceed the province's emerging energy requirements and meet its own high internal standards for the smart grid initiative.



## Maximizing Operational Efficiencies with AMI

The Silver Spring Smart Energy Platform™ supports the hardware, software, and services needed for Guelph's AMI solution. Hardware includes third-party meters integrated with Silver Spring's standards-based Communications Modules, Access Points (APs) that provide WAN connectivity to Guelph's back office, and Relays that boost the wireless signal. Each meter also acts as a Relay, sending data on behalf of its neighbors.

A key component of Guelph's AMI solution is the Silver Spring UtilityIQ Advanced Metering Manager (AMM) software. Guelph operators use UtilityIQ AMM to easily measure, collect, and analyze key metering data, including:

- » Energy consumption
- » Interval and time-of-use data
- » Power quality measures
- » Status logs

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UtilityIQ is integrated with Guelph's existing back-office systems, enabling critical data to be easily and instantly transferred between applications in any needed format. For example, Guelph uses UtilityIQ AMM to automatically gather and export its meter data to Ontario's province-wide meter data management repository (MDMR), which then processes the data and returns it as 'bill-ready' information compatible with Guelph's applications.

Similarly, all usage and other meter data easily feed into other Guelph systems, such as its SunGard Customer Information System (CIS) and billing system.

Guelph has gained significant operational efficiencies through other key features of the Silver Spring Smart Energy Platform:

**Outage notification** – Silver Spring's outage detection and management capabilities feed into Guelph's in-house developed Outage Messaging System, helping operators quickly identify and assess outage issues, and generate "last gasp" notifications. This tool reduces outage response time and increases customer service.

**Remote power verification** – Utility staff can quickly verify the status of a customer's power, including voltage, in real time, providing better service and reducing unnecessary truck roles.

**Transformer loading visibility** – By tracking meter interval data collected in UtilityIQ AMM, operators can more precisely monitor transformers, ensuring they do not get overloaded.

## Getting Customers Involved in the Demand Response (DR) Process

Given the ability of the Silver Spring Smart Energy Platform to support multiple applications on a single network, Guelph was able to readily extend its Silver Spring deployment to support modernization for DR. As one element of a DR conservation program, Guelph has undertaken a project of providing in-home-displays (IHDs) to residential and small business. IHDs give customers a much clearer picture of their electricity consumption and associated costs, helping to reduce peak loads and empowering customers to become better informed about their energy conservation efforts. With Guelph's Community Energy Initiative calling for the community to consume less energy per capita than comparable Canadian cities by 2031, such DR programs are vital to encourage proactive participation. Guelph has also upgraded its existing online account access tool, allowing customers to view and download their consumption data.

## Incorporating Distribution Automation (DA) on the Network

Guelph has also leveraged Silver Spring's standards-based communications to support DA, enabling significant capital and operational savings. Guelph has deployed Silver Spring Bridges to connect its DA devices to the Supervisory Control and Data Acquisition (SCADA) systems.

## The Long-Term Value of a Standards-Based Smart Grid Investment

Working with Silver Spring, Guelph Hydro has been able to meet the deadline of the government's time-of-use mandate and make good progress towards mandated energy targets. The company is well positioned to support the conservation goals set by the province and city. The Ontario Ministry of Energy AMI specification anticipated an investment lifespan of 15 years. By selecting Silver Spring as its smart grid provider, Guelph has ensured its infrastructure will serve the utility well into the future.