Automating metering infrastructure technologies to build greener, smarter energy solutions

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Creating a Greener World

As governments and utilities worldwide seek to reduce carbon footprints and conserve energy, they are using wireless Internet of Things (IoT) technologies to transform traditional energy infrastructure into interconnected “smart grids.” Smart metering is an essential element—and usually the first milestone—in smart grid implementations.

Smart metering benefits utilities by improving customer satisfaction with faster interaction, while giving consumers more control of their energy usage to save

money and reduce carbon emissions. With power visibility all the way to the meter, utilities can optimize energy distribution and even take action to shift demand loads.

Smart metering helps utilities to:

- Reduce operating expenses by managing manual operations remotely
- Improve forecasting and streamline power-consumption
- Improve customer service through profiling and segmentation
- Reduce energy theft
- Simplify micro-generation monitoring and track renewable power

In addition Smart Meters can enable an array of new smart services to residential, commercial, and industrial customers to better manage their energy usage patterns, reduce overall power consumption and even benefit from new pricing models.

Cellular communications provides a reliable connectivity option for smart metering infrastructure, including full IP infrastructure and low latency in 4G LTE. With the ubiquitous reach of modern cellular networks, and the development of LTE-M (LTE for M2M) providing long range low power cost effective solutions, utilities can connect meters easily and inexpensively virtually anywhere. And they can benefit from a proven, highly reliable communications infrastructure without taking on the costs of deploying and maintaining it themselves.

Sierra Wireless has more than a decade of experience helping utilities and OEMs build and deploy smart metering solutions worldwide. We offer industry-leading cellular machine-to-machine (M2M) technologies including industrial-grade embedded modules with long life spans, cloud platforms, expert application development assistance and more.

EDMI Builds Industrial-Grade Smart Metering Solutions with Cellular

EDMI, a global leader in smart metering infrastructure and energy management solutions, relies on Sierra Wireless AirPrime® embedded modules to connect its cellular smart metering products. The solution is easy to install and maintain, and lowers operating costs by allowing utilities to manage, configure and upgrade metering technology over the air.

With their rugged specifications to operate in environments with extreme temperatures, humidity, and vibration, AirPrime modules meet EDMI’s demands for always-on, industrial-grade metering communications. Sierra

Wireless’ expert development assistance and solutions are pre-certified for carrier networks around the world, allowing EDMI to scale to more markets faster.

“Many of our customers prefer to take advantage of existing communications infrastructure managed by a cellular network operator, rather than building out new infrastructure themselves. These networks have proven themselves over many years and provide nationwide coverage in all the markets where we operate.”

Graeme Lees, Chief Operating Officer
EDMI

Vattenfall

Vattenfall is one of Europe´s largest generators of electricity and the largest producer of heat. Vattenfall has approximately 6.2 million electricity customers, 4.3 million electricity network customers and 1.9 million gas customers. The Group has approximately 31,900 employees.

Sierra Wireless provided Vattenfall, a large energy provider on the Swedish market, with communication services collecting accurate and timely electricity meter readings through a range of formats. They needed a new solution when meters supporting remote readings were going to be rolled out all over Sweden. Sierra Wireless´ solution gives Vattenfall full control of data availability and ensures that all meters stay reliably connected.

“Vattenfall is dependent on collecting meter information from close to 1,000,000 customers all over Sweden. Flexibility when it comes to service provider is crucial for us in order to guarantee our customers the best services at all time.”

Erik Nordgren, Business Area Manager
Vattenfall

Technology Overview

Depending on the metering architecture utilities use–data concentrators, home network communication hubs, or point-to-point communications–cellular technology can be instrumental to successful smart

metering solutions. Cellular M2M connectivity helps utilities:

- Lower operating costs by eliminating the need to deploy and maintain communications infrastructure
- Reduce installation costs and bring new services to market faster
- Provide ubiquitous coverage, with cellular networks covering both dense urban and sparsely populated rural areas
- Leverage business flexibility, with the ability to use the best cellular network available in any location and the capability to switch operator contracts over the air for products already deployed in the field

Sierra Wireless has been helping the energy industry capitalize on intelligent cellular connectivity in smart metering solutions for many years. Major OEMs and utilities have deployed our M2M solutions across three continents.

We provide complete device-to-cloud IoT solutions, including:

- **Embedded Solutions:**AirPrime® embedded wireless modules and Sierra Wireless embedded SIMs are designed with low power consumption and are highly reliable, ruggedized, and cost-effective. They are simple to integrate, easy to program, secure, and scalable from 2G to 4G. AirPrime embedded modules portfolio feature also built-in application processors, modems, and optional GNSS to reduce system complexity and save board space. And we provide open-source Linux-based platforms such as Legato™, which accelerate the development of IoT applications for smart metering.

- **Networking Solutions, Routers and Gateways:**Our networking solutions include intelligent AirLink® gateways, management tools and services for rugged outdoor environments where reliability and security are essential. They provide persistent connectivity, location-based services, and remote monitoring to simplify the most demanding smart metering and smart grid applications.

- **Cloud and Connectivity Services:**Our cloud services provide the simplest and most scalable way to securely store, retrieve analyze and integrate data to build new value in smart metering applications. They accelerate time-to-market, reduce risk and lower deployment and maintenance costs with over-the-air monitoring and upgrades of cellular IoT devices.