



Intelligent solution for electricity, district heat and gas metering

The Landis+Gyr Gridstream smart metering solution selected by Lappeenrannan Energiaverkot Oy enables multi-energy metering and the utilization of smart metering data in energy management regarding electricity, district heat, gas and in the future also water. The advanced multi-energy project will be finished by December 2012.

Lappeenrannan Energiaverkot Oy is part of Lappeenrannan Energia Group, whose business activities include the management of electricity, district heat, gas and water networks and related distribution and sales. The network company was looking for a supplier for their smart metering solution that would be an experienced and skilled partner and have the potential to rise to the challenges of the transfer to smart metering during the whole process. The desired solution was also required to provide the benefits of real-time consumption data to all customers, regardless of the form of energy; it should also enable reliable and versatile management of multiple forms of energy through a single cost-effective system solution. The solution offered also needed to be technologically compatible with various field device technologies, as the network company was already using some smart metering technology.

Comprehensive solution from an experienced supplier

As the supplier of the smart metering solution, Lappeenrannan Energiaverkot Oy selected Landis+Gyr, a company with long experience of smart metering technology and service business,

ensuring that switching to smart metering could be performed with solid expertise. Landis+Gyr's strength as the choice of supplier was not only its versatile smart metering technology but also the company's strong competence in multi-energy metering. The project was a continuation of well-proven cooperation, as the energy company was already using Landis+Gyr's smart metering technology in the shape of a solution covering about 5,000 smart metering points.

The solution selected by contained about 55,000 smart meters for electricity, district heat and gas. Besides the delivery of meters, the turnkey delivery includes the planning, management and implementation of the roll-out project. The delivery also includes the integration of the Gridstream AIM smart metering system to Lappeenrannan Energia's own data systems. Landis+Gyr is also responsible for the system training of the energy company's personnel.

All of Lappeenrannan Energia's metering points, including the previous smart metering points, are included in the Landis+Gyr smart metering service. The duration of the service contract is 15

years. The flexible and open system architecture enables the combining of various past metering device infrastructures as parts of the new smart metering solution and service. The modular system structure also supports different data transfer technologies both in urban and rural areas according to the individual needs of the energy company.

In the smart metering service, Landis+Gyr will be responsible for the maintenance and operation of the whole smart metering solution and will provide any necessary metering data to the utility. Lappeenrannan Energia will receive hourly metering data of electricity, district heat and gas directly

Lappeenrannan Energiaverkot Oy

Lappeenrannan Energiaverkot Oy is a part of Lappeenrannan Energia Group, which also includes Lappeenrannan Verkonrakennus Oy and Lappeenrannan Lämpövoima Oy. At the beginning of 2011, Lappeenrannan Vesi Oy was also merged with the Group. The operations of Lappeenrannan Energiaverkot Oy include the planning, operation and building of networks.

to its customer information system on a daily basis, and it will also receive network status reports. Additionally, the reading services and remote controls needed in customer service situations are implemented quickly and reliably. As a consequence, the utility can focus on utilizing the real-time data in its own business.

Multi-energy for optimized costs

The multi-energy solution optimizes the cost structure, as system user training, maintenance and data transfer costs are for a single system only, instead of many. "Instead of having separate systems for electricity, district heat and gas, we can manage all energy forms with a single system. This brings us significant savings", says Arto Taipale, CEO of Lappeenrannan Energiaverkot.

The data management process of the Gridstream system is reliable in terms of both metering different forms of energy and processing the data. The system offers the same functionalities for

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processing the data of each form of energy. Moreover, access to the system can be authorised by user group when necessary, meaning that the metering data of different forms of energy is accessible only to the company managing them.

Smart network management, satisfied customers

Switching to smart metering creates for Lappeenrannan Energiaverkot some

major benefits: the data can be utilized in the management of electricity, district heat and gas networks, making, for example, monitoring of network loads and network calculations significantly easier. Also, the bottlenecks and problem areas can be located easier, which in turn improves, for example, the efficiency of investment planning. Any power outages caused by network problems can also be repaired sooner than before. The transfer to smart metering also provides actual data on loss in the networks and the location of any leaks.

Another purpose of transferring to smart metering is a more satisfied customer who gets clear invoices based on actual consumption. Customers can also be offered different energy management tools with which they can monitor their own energy consumption. Any unexpected changes seen in consumption may indicate defective devices to the customer, such as a faulty heat exchanger or leaky water fitting. Customer satisfaction is further increased also by quicker response to distribution problems and more efficient customer service. For example, when a customer is moving, meter reading on site is no longer necessary, as the reading and disconnection of power supply to the site can be performed remotely.

Gridstream solution

The Gridstream solution includes in total 50,000 smart E450 and E350 electricity meters, and about 800 T550 district heat meters. The rest of the district heat meters already used by Lappeenrannan Energiaverkot will be changed or switched to smart metering by fitting them out with data transfer units. Also, gas meters will be fitted out for smart metering. Data transfer between the electricity meter and the district heat or gas meter takes place through M-Bus. The data transfer



Smart metering improves Lappeenrannan Energia's customer service, as service personnel has easy access to real-time consumption information

between the electricity meter and the system utilises PLC or 2G/3G communications.

The integration of Gridstream AIM system and Lappeenrannan Energiaverkot Oy's customer information system utilizes the flexible and open AIMIA interface that enables bi-directional data transfer between the customer data system and the smart metering system. The field device installation project is supported by Site Manager application through which the field device and installation data is reliably transferred into the system. The application provides efficient tools for both installation planning and the field work of technicians.

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Multi-energy solution for electricity, district heat and gas



Our technology:

- + 50,000 E450 and E350 smart electricity meters
- + 800 T550 district heat meters
- + DC450 concentrators
- + PLC and 2G/3G communications
- + Gridstream AIM system
- + System integrations using AIMIA integration application
- + Site Manager application for field device installations

The Gridstream solution for Lappeenrannan Energiaverkot covers smart metering of electricity, district heat and gas; the technology is also available for the smart metering of water in the future. Smart metering technology already used by the utility was also included in the total solution.

The 15-year meter reading service relieves the energy company's personnel of the daily routines related to the maintenance of the smart metering solution and collecting and processing the metering data. This means Lappeenrannan Energia can focus on utilizing the metering data in developing its own operations. In addition, the maintenance costs of the solution are known far into the future.