

OVERVIEW OF FINLAND – ASPECTS OF SMART METERING AND SMART GRIDS

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BACKGROUND

Finland is a Nordic country with a population of 5,3 million people and with a similar land area as Germany but with less than 10% its population. This comparison contextualises the challenges faced with electricity distribution in Finland.

Most of the country's distribution network was built during 1960's and 1970's, which is why there is a need for investing in infrastructure and automation in the near future. Currently most of the Finnish utilities are working heavily on implementing AMR. In addition to having monthly billing, hourly data, remote switching, and support to network planning and operation are important issues.

Finland has separated electricity distribution and energy sales. Metering is the responsibility of distribution companies and data exchange is based on EDIEL messages between distributors and sales companies.

ASPECTS OF REGULATION AND CURRENT STATUS OF SMART METERING IN FINLAND

The electricity market regulator stated at the end of 2008 that by the year 2014 at least 80% of the approximately 3,3 million metering points are to be replaced with meters capable of hourly metering. Studies conducted concerning the current status of meter markets indicates that around one million have already been replaced, one million are currently being replaced and one million are still waiting to get closer to deadline.

The regulator is also expecting DNO's to publish plans on the transfer to smart metering. The idea is to keep track on how the replacing proceeds and if the timeframe is exceeded. In terms of regulating the distribution business the regulator still has outstanding issues to determine. AMR costs handling in terms of regulating the distribution business are not yet totally agreed upon.

In the future smart metering will include features to support energy sales companies. Multiple products and possibilities for demand side management, including distributed

generation are also challenges over the next decade.

SERVICE PROVISIONING AND NEW SERVICES

As stated earlier, metering is now the responsibility of the Distribution Company. However studies and market developments show that the trend is increasingly towards outsourced smart metering [TrAm09]. Independent service providers are typically taking care of metering which used to be the part of utilities in house operations. Reasons for this outsourcing include the risks of new technology and telecommunication and gaining the access to the best practices in the metering.

The change from doing things yourself to purchasing is not very simple [TrTo07]. This multiple partner role also causes a demand for flexible IT solutions. Integration is very much under discussion and service providers are asked to present solutions to truly deliver information from metering systems into operational systems such as customer information system (CIS) and distribution management system (DMS). In addition to that outsourced balance, settling must be working all the time and mass meter replacing projects from outsourced installing companies are updated to systems on daily basis.

FEATURES AND LINK TO INFORMATION SYSTEMS

Technological demands from the AMM solutions are also getting increasingly complex. Hourly data and some alarms of network faults are also delivered into distribution management system

(DMS). Power quality issues are also coming with additional modules on AMR [JäMä07]. Customer information systems are handling mass replacement projects, remote switching and in some case even data reporting. This continuous complexity is making systems more demanding to implement and operate. In some cases, separating functionalities into separate systems results cost and time saving.

Employees of the utilities are seeing the challenge and changing descriptions of their work. Previously utility expertise was needed. Now it is increasingly and additionally about IT, purchasing, economics, agreements, regulation and limited experience in all of this.

Smart grid related AMM and other measurements.

Some utilities also see that smart metering is not the answer to everything. This is one of the reasons why the utility, Helsinki Energy, has decided to implement comprehensive secondary substation monitoring [HyPe09]. This system is all about monitoring secondary substations in the city area with carefully selected monitoring units. These units communicate with highly advanced GPRS system to the utility's business processes. On top of that, SCADA and power quality systems are processing the data to support network operation, planning, maintenance, life cycle optimization, and power quality monitoring and fault analysis. ■

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ABOUT THE COMPANY:

PowerQ Oy(Ltd.) is a small company with expertise in data management with IT solutions. Power quality, network faults and energy data collecting, analysing and delivering are its core business. IT and AMM consultancy are also among its activities. PowerQ is constantly seeking new partners for selling companies products and sharing best practices on the field of energy.
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