



## Smart Metering, Alternative Approaches

### Introduction

Smart Metering is the next hot topic in the utilities world since the liberalization of the market. The digital electricity, gas, water or heat meter should provide for free and correct data in the utilities market thus lubricating the mechanisms and processes running in it. Yet there are still numerous questions to be answered and asked.

By far the most important question is how you will valorise a smart meter deployment in your organization. This question hides however a lot of other challenges for most of utility companies, not the least the technological choices to be made. What technology do we prefer or do we want to spread the risk and adopt a hybrid deployment? What kind of possibilities do we actually have nowadays? How do I integrate a Smart Meter in my organization?

### Alternative Approaches

It is hard to believe that at the basis of such a hot topic is a fairly unsexy instrument: the electricity meter. Almost forgotten, the meter has drastically transformed thanks to technological progress and the digitalization of the economy. Nowadays it is not only capable of registering electrical flows, but also to save these and a lot more data to its memory (consumption, quality, tariffs, etc.). What's more, all these data can be remotely accessed and collected in a safe way thus providing near real time and correct data to all market parties. Last but certainly not least smart meters can be switched on and off from a distance. Disregarding a few minor differences, all meter producers offer the same functions. Hence the choice of the right meter is not the most difficult or challenging one...

Once locally registered all information should be collected and communicated to a central system where they can be processed (validated, calculated, billed, exported, etc.). The impact of this process on the business case of your Smart Metering project(s) should not be underestimated at all. Be it through some form of a concentrator or directly, the transport of data is one of the most – if not the most – disputed aspect of Smart Metering at the moment as it can have a major impact on e.g. your TCO or ROI calculations.

First off you will have to choose on how data is transported from one meter to another, i.e. from the slave meters (usually gas, water and heat) to the master meter (usually electricity). There are two flavors: wireless (Radio Frequency, WiFi, Bluetooth) and wired (M-bus, PLC). Wireless applications have the advantage of lacking wiring (cost) and the ease of connecting "unreachable" meters, such as a water meter in a well in a garden. On the other hand wired solutions do have the advantage of less interference and the lack of batteries (needed to support the wireless communications), which are in some case still a matter of concern.

Once gathered by the master meter, data will be sent to a central point directly or via a data concentrator. Data concentrators are mainly used where data can be transported over the Power Line Carrier (electricity) network or by Meshed Radio Frequency networks. These data concentrators facilitate cheaper data traffic because more meters can be accessed through less broadband connections, which are relatively expensive. Power Line Carrier is especially suitable in good networks or places where several meters are concentrated (apartment buildings, etc.). In older or less documented networks Meshed Radio Frequency could be a valid alternative, although Meshed RF can be deployed in good networks or apartment buildings as well of course.

After deciding to work with data concentrators or not, a next question is raised: what kind of communication will you use from that point on? SMS, GSM, GPRS, EDGE, WiMax, HSDPA, ethernet, coaxial, etc.? Here the same dichotomy presents itself: wired vs. wireless solutions. Ethernet, ADSL and coax are a very reliable way of transporting data and moreover they are widely spread in most countries. Some utilities even have a hybrid portfolio: telco products and energy, making it possible to combine the two and perhaps even drastically reduce the price of data transfer.

The counterpart of wired solutions are wireless applications such as second or third generations mobile phone technologies. Since for the time being only few data should be transported as well slower as faster connections are suitable. What is more of a concern is how long your provider guarantees you the offered service and support. How long will GSM still be supported? GPRS? Are such networks still profitable in 10 years when they are only still of use for smart metering? Perhaps WiMax could be a solution and new opportunities present themselves to e.g. public transportation companies as their buses can collect data easily by driving around anyway.

### **Ferranti and smart metering**

Without doubt the introduction of Smart Metering poses several challenges and choices. They already start when choosing the meter and only become more complicated when deciding on what data transfer to use. Therefore it is of the utmost importance to team up with a competent and reliable partner to optimize the introduction of the Smart Meter in your company.

Ferranti with its decennia of experience in the utility sector obviously monitors the arrival and (r)evolution of Smart Metering. In addition to that we are now already shaping and building the applications that meet the challenges linked to Smart Metering. Besides, we do not only look at the central applications for validation, calculation, billing or exporting, but just as much at solutions that will help you to manage and operate a hybrid smart meter park.

Concerning the roll out and deployment of smart meters in the field Ferranti developed with its close associates a set of best practices that will meet to the utmost standards.

Please refer to our website for more on smart metering, central applications or best practices of deployment.