

Wien Energie Gasnetz:

Smart metering in historical surroundings

Sigmund Freud, founder of psychoanalysis, was a prominent Austrian doctor, depth psychologist and religious critic. You will now of course ask, quite rightly, what does Freud have to do with smart metering? Admittedly very little, except for the fact that one of Europe's largest smart metering projects in the gas sector happens to be being implemented close to where Freud used to live – at Berggasse 19 in Vienna.

The project is being carried out by Wien Energie Gasnetz, with the aim of testing technologies, adjusting to the conditions and becoming familiar with the purely practical features. The necessity for such a large pilot project is due not least to the third EU internal energy market package. According to this, by 2020 at least 80% of consumers should be equipped with smart meters, on the basis of economic efficiency assessments. In Austria, the necessary negotiations for this, between the electricity and gas sectors and the regulating body Energie-Control GmbH, were initiated in summer 2009. It is essential that central problems are clarified concerning the required functions, financing and the time scale for introducing the systems.

Wien Energie GmbH is the largest Austrian energy service provider and counts among one of the largest companies in Austria. In several of its projects it addresses the subject of smart metering. Already today, Wien Energie Fernwärme boasts a remote reading system for more than 10% of its meters. A smart metering project is now also underway for Wien Energie Stromnetz GmbH.

The Wien Energie Gasnetz project involves approx. 7,700 end points that are to be read out remotely. Metering technology and smart index technology from Elster and wireless technology from Diehl/Hydro-meter are being used. Wien Energie Gasnetz has opted for the standardized wireless M-Bus technology. With this, a radio communication protocol is sent every eight seconds (M-Bus EN 13757-4 – on overall completion, a system pursuant to the standard TC 294 should be used) and enables both "drive by" and "fixed network" installations. The aim in this phase is to

obtain information about the wireless performance in relation to the existing building structure. The art in complex projects of this nature lies in being able to simplify as much as possible the functions of the network periphery, the end units, the logistic processes and the applications, and to reduce them to the essentials. In this case, uni-directional communication is preferred, as this has the advantage that the contents of the radio communication protocols can be reduced and the technology of the meter and/or the index is straightforward. If this approach is taken to heart during the planning stage and only the really necessary functions are implemented, this will have a positive effect on the quality of the wireless links as well as the battery life of the units involved.

Wien Energie Gasnetz operates around 690,000 gas meters of different sizes in its networks. The great and irrefutable advantage of using diaphragm meters is their robustness, long-term stability and service life. Many gas meters have only just been installed or at most have gone through only their first calibration period. For this reason, the concept also allows for existing diaphragm meters to be retrofitted with the Absolute ENCODER index. The ENCODER indexes are delivered by Elster completely programmed and are exchanged with the standard mechanical index at the Wien Energie Gasnetz testing facility. Now approx. 25,000 additional meters should be fitted with smart index technology in order to be upgraded for remote data transfer.

In total, Wien Energie is pursuing the aim of developing a system that takes into consideration the demands for all energy



grids and meter systems, and that also enables synergies with regard to information technology and data management systems. It is essential that a system is established which guarantees investment security that will last decades thanks to open standards.

Even in Austria there is currently no binding agreement as to how the requirements of the EU Directive 2006/32/EC on energy end-use efficiency should be implemented with regard to smart metering or which standards will prevail.

One thing, however, can be said with certainty: current discussions within the European energy industry on concepts for the roll-out of smart meters are just as controversial as discussions surrounding Sigmund Freud's theories and methods continue to be even today.

But discussion alone does not make you any smarter – only those who begin dealing with smart metering technology early on and test this within their own ambient conditions can ultimately come to the right system decision.

Both Wien Energie Gasnetz and Elster are ready to face this challenge.