Elster and the ME3gas project

International cooperation

Smart Metering has generally been somewhat disregarded by the gas sector in contrast to the electricity sector. However, as gas consumes more primary energy than electricity, the potential savings, both in terms of energy and finances, are considerably higher in the gas sector.

The development of Smart Metering solutions for the gas sector is being spurred on by both this situation and the fact that throughout Europe, certain gas grid operators are affected by national plans to install smart gas meters.

In this context, the so-called ME³GAS project was one of the winners of the ARTEMIS Joint Undertaking (JU) Call 2009.

In general, the European Union has recognized the importance of "Embedded Systems" in almost all areas of life. Through the ARTEMIS JU, important strategic research projects are being implemented in the field of "Embedded Systems" and are being financially supported by industry, research organizations, participating Member States and the European Commission. The aim of ARTEMIS is to develop Europe's leading market position in the field of "Embedded Systems". In this regard, worthwhile projects are supported.

The duration of the ME³GAS project is to be 3 years in total and its final goal is to integrate gas meters with extended functions in a communications network based on home automation. The energy efficiency of households should thus be improved in accordance with European Directives. Thanks to the availability of real-time information on their energy consumption, the end users should be able to efficiently save energy on their own.

The project team is composed of a consortium of 15 partners including grid operators, research institutes and manufacturers such as Elster (Fig. 1). This combination has been chosen deliberately to ensure the quality of results and to develop products which are tailored to meet market requirements. The members of this consortium are from different European countries and can make use of a broad knowledge base in their field of expertise.

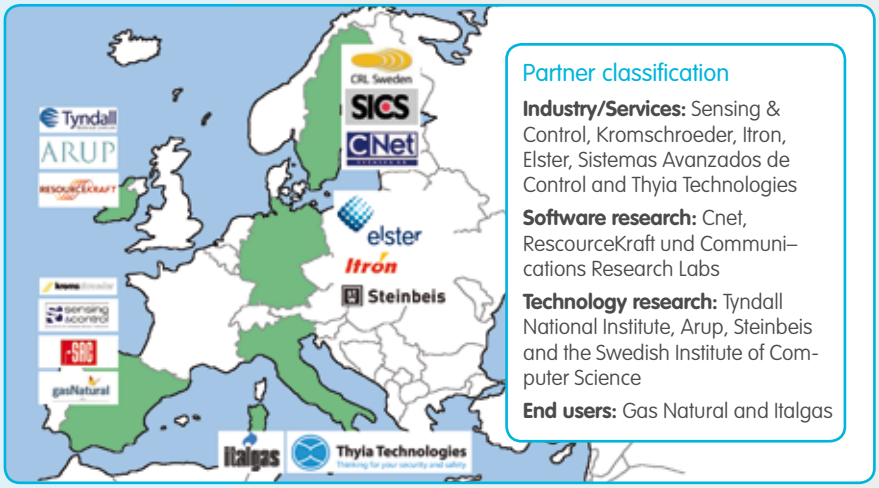

Fig. 1: ME³GAS consortium

Over the last few years, the European Union (and therefore the Member States) have been promoting and regulating the introduction of energy-efficient systems. One of the main objectives of the EU regulations is to provide accurate information to the customers in order to make them aware of their energy consumption. A key Directive in this context is 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC.

At the same time, the European Union has been pushing for the deployment of Smart Metering systems within the framework of the Internal Energy Market Package, including systems for gas. This Directive requests that the Member States prepare a study of costs and benefits, and put forward a proposal for the implementation of Automated Meter Management (AMM) in the residential sector. This analysis should be finished before September 2012.

Beyond this, some countries like Italy and the UK have already regulated the deployment of Smart Metering systems for residential gas meters. Many other countries are already on their way to following this example.

Nevertheless, there is a lack of standards for Smart Metering systems that is slowing down the roll-out of these systems. The EU is also investing important efforts in this respect through Mandate 441 that

requires the European Standards Organizations (ESOs), CEN, CENELEC and ETSI, to develop a European standard to enable interoperability of utility meters (water, gas, electricity and heat). The development of new meters with open architectures is thus to be promoted and standardized, enabling efficient roll-out. The ME³GAS project will take all of these measures into account.

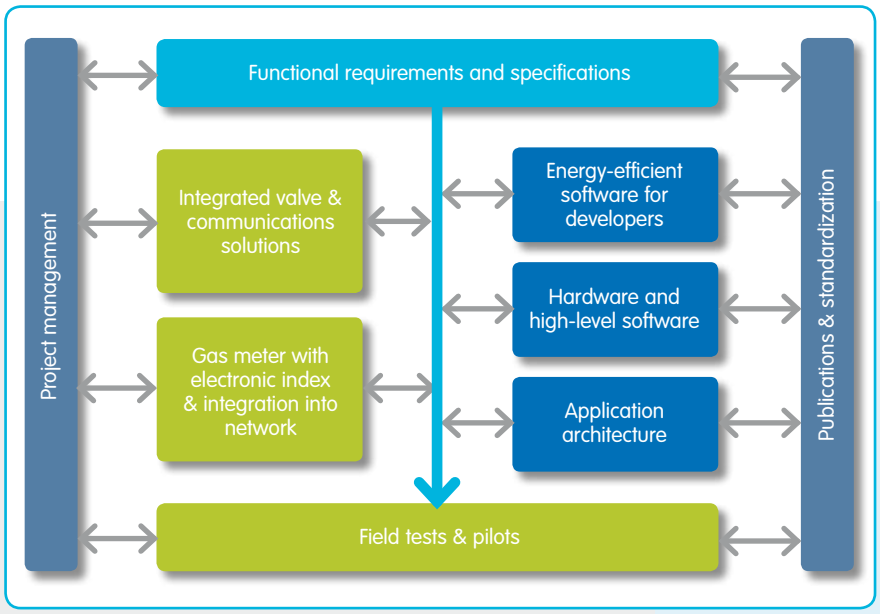

Fig. 2: ME³GAS work packages

The ME³GAS project aims to rationalize and optimize gas consumption in households and commercial buildings without compromising comfort or convenience. The ME³GAS work plan is divided into nine different work packages with a total project duration of three years. In addition to large energy utilities such as Italgas and Gas Natural, the ME³GAS consortium includes partners from technology research companies like the Steinbeis Innovation Centre, software developers e.g. Resource-Kraft, and leading metering technology companies such as Elster and Itron (Fig. 1). The individual work packages (Fig. 2) are headed by different consortium partners. Here, Elster is responsible for the development and integration of gas meters with electronic index and enhanced functions.

The desired results of the ME³GAS project consist in the specification, development, validation and roll-out of a Smart Gas Metering System. This will be responsible for managing and controlling the "smart" meters, allowing for remote meter reading and new functions such as:

- viewing the actual consumption
- remote disconnection of the gas supply
- detecting malfunctions
- alarms
- tariff systems

The system comprises the following components: smart gas meters, data concentrators, in-home displays, a meter data management system and the corporate information system of the utility company (Fig. 3). The aim is to develop a new generation of gas meters for smart gas metering, based on embedded electronics, communications and the remote control of an integrated valve. This includes the specification and development of both hardware and software components as well as of corresponding communications protocols. Timely gas consumption information at every level – from the end customer to the service provider – is to be recorded, forwarded and processed.

ME³GAS is an ambitious project aiming to make energy efficiency possible for private and commercial consumers and is thus the answer to the demands imposed by the existing European regulations since it provides:

- precise and safe gas distribution
- improvement of the overall energy efficiency
- availability of energy-oriented services to customers

In this context, it is important to point out the contribution of the ME³GAS partners to the standardization work currently being carried out in Europe. This standardization process is crucial to facilitating the deployment of Smart Metering systems across Europe as a key tool for improving energy efficiency.

Further information can be found at: www.me3gas.eu

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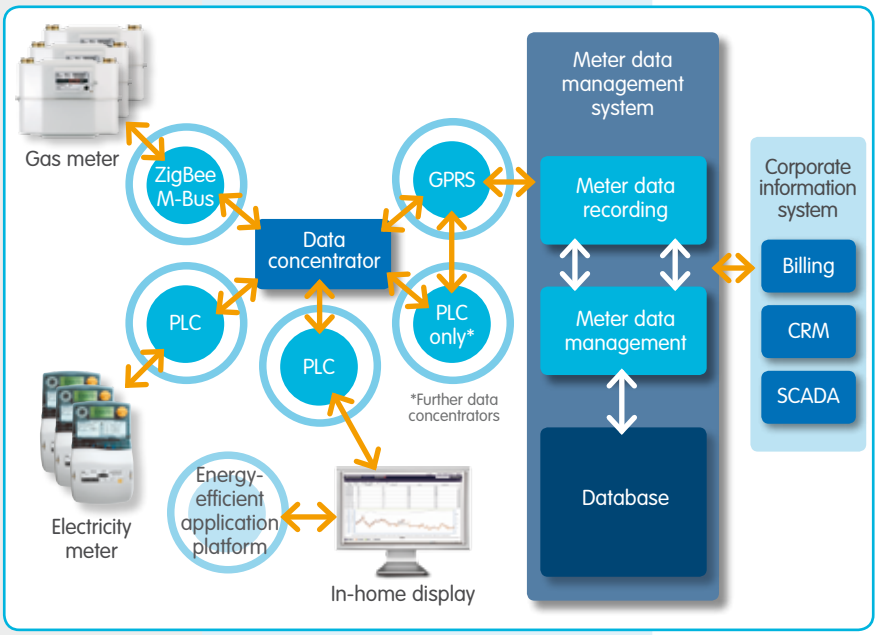

Fig. 3: Smart Metering system architecture