ESMIG

WE MAKE METERING SMART

Smart Metering Infrastructure enabling Demand Response

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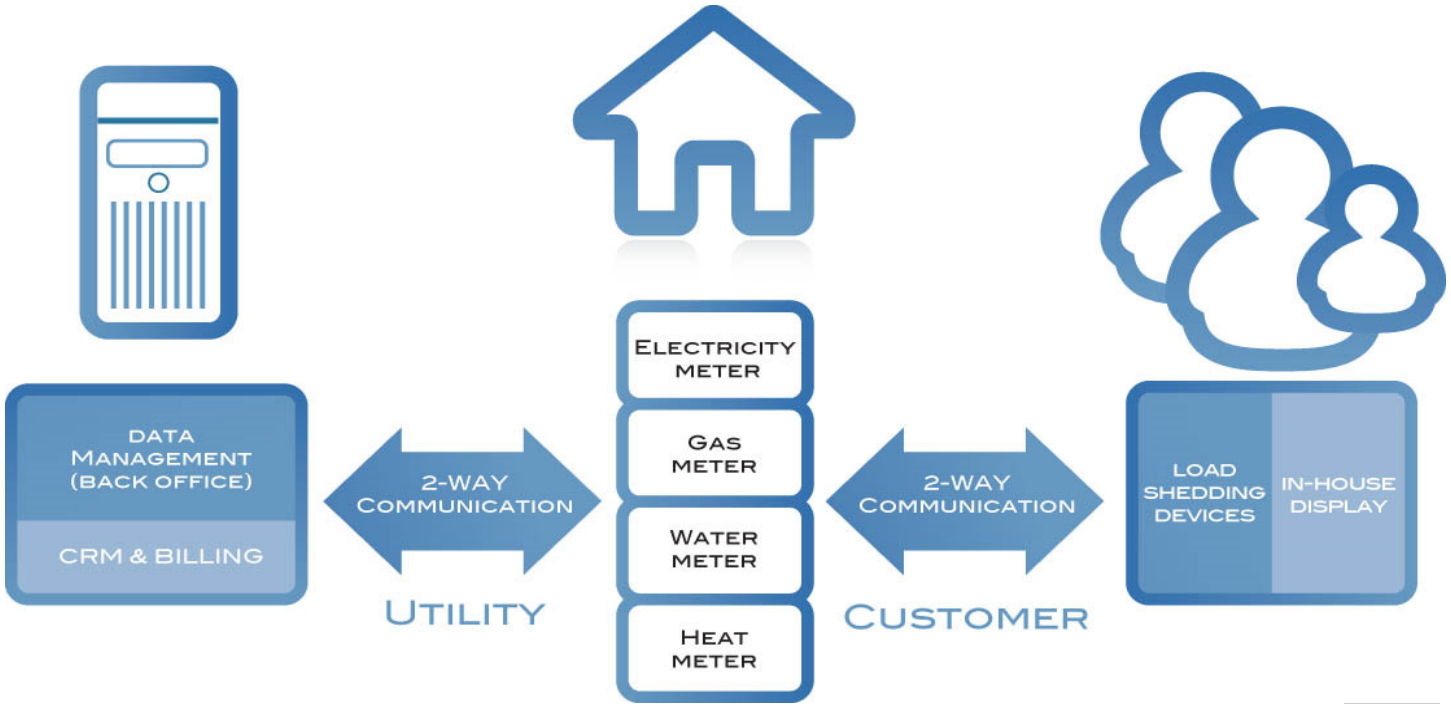
- The European Smart Metering Industry Group (ESMIG) was established in Brussels as an international industry association (aisbl) in June 2008.
- Membership is open to any company supplying utility metering products or services within Europe, including meter manufacturers, modem suppliers, communication companies, energy display manufacturers and system integrators in the fields of electricity, gas, water and heat.
- Currently 34 member companies

ABOUT ESMIG – THE MEMBERS

SMART METERING – AN OVERVIEW

"Smart Metering offers consumers, suppliers, network operators, generators and regulators a wide range of useful tools and services enabling ultimately a smarter energy world."



Smart Metering and Demand Response

Demand Response has played a significant role in EU thinking on Smart Metering

- 2009/72/EC: "Member States shall ensure the implementation of intelligent metering systems that shall assist the active participation of consumers in the electricity supply market."

- Interpretative Note on 2009/72/EC: "A key feature of a smart meter is the ability to provide bi-directional communication between the consumer and supplier/operator. It should also promote services that facilitate energy efficiency within the home."

Standardization Mandate M441: March 2009

Objective:

"The general objective of the mandate is to create European standards that will enable interoperability of utility meters (water, gas, electricity, heat) which can then improve the means by which customers' awareness of actual consumption can be raised in order to allow timely adaption to their demands (commonly referred to as smart metering).

Description of mandated work:

The ESOs are requested to develop

1. "a European Standard comprising software and hardware open architecture for utility meters thas supports secure bi-directional communication upstream and downstream through standardised interfaces and data exchange formats and allows advanced information and management and control systems for consumers and service providers"

M441 (continued)

Description of mandated work

3. "The standards must be performanced-based and permit innovation in the protocols that enable reading of utility meters and advanced information and management services for consumers and suppliers. . ."

Smart Metering Coordination Group (SM-CG) Final Report: Nov. 2009

- F1. Remote reading of metrological register(s) and provision to designated market organization(s)
- F2. Two-way communication between the metering system and designated market organization(s)
- F3. To support advanced tariffing and payment systems
- F4. To allow remote disablement and enablement of supply and flow/power limitation
- F5. Communicating with (and where appropriate directly controlling) individual devices within the home/building
- F6. To provide information via web portal/gateway to an in-home/building display or auxiliary equipment

ERGEG: Final GGP on Smart Metering Regulation

Recommendation E 12. Interface with the home

- Meters should be equipped with or connected to an open gateway. The customer and service provider/s (suppliers, energy service companies, etc.) chosen by the customer should have access to this gateway.

- This approach would not give the DSO a privileged position compared to other service providers.

- The gateway should have a standardised interface which would enable energy management solutions, such as home automation, different schemes on demand response and facilitate delivery of data directly, etc. It also allows the customer to react to price signals and adapt consumption.

Europe is on the right path . . .

- UK: Functionality description (2009)

Load management capability to deliver demand side management – ability to remotely control electricity load for more sophisticated control of devices in the home

- NL: Notification of Smart Meter Requirements (2010)

“A metering device shall be capable of connecting to customer applications and to exchange information with those applications. . .This function means that additional applications such as . . an energy management system (is) optimally supported by the metering device. “

”This ensures that remote-readable metering devices can function as platforms for customer control of supply and demand. . “

And Europe is not alone in this line of thought. . .

California Minimum Functionality Requirements for AMI Systems:

- Capability of interfacing with load control communicatin technology

Texas:

- capability to communicate with devices inside the premises, including, but not limited to, usage monitoring devices, load control devices, and prepayment systems through a home area network (HAN), based on open standards and protocols that comply with nationally recognized non-proprietary standards such as ZigBee, Home-Plug, or the equivalent;

Australia:

- The ability to facilitate direct load control of appliances via the smart metering infrastructure.

US FERC: Assessment of Demand Response and Advanced Metering (February 2011)

- FERC is engaged in smart grid activities that support demand response.
- Direct Load Control programs are most often offered to residential or small commercial customers to control appliances, and help sponsors balance load by remotely controlling appliances during peak periods.
- Direct Load Control is often required in support of a business case for implementing advanced metering.

Conclusions:

- Both the European Union and the Member States have included Demand Response capabilities in their deliberations on Smart Metering - And that is good!

- Using the smart metering infrastructure for Demand Response saves another infrastructure from being implemented and secured. **Crucial are open standards and 3rd party access.**

- Business cases developed by Member States show that they incorporated DSM as giving one of the benefits in the implementation of smart metering.

Conclusions:

- Any analysis or implementation of smart metering infrastructure that excludes demand response capabilities would place an unacceptable cost burden on consumers: They would be paying for a system without having access to all of the benefits a smart metering / smart grids infrastructure can bring.

Conclusions:

- **The Smart Grid does not stop at the Substation or the Smart Meter!**
  - **Currently the "last mile" from the substation to the house is blind.**
  - **Smart Metering will not only bring invaluable information from the point of consumption, but allow for control beyond the meter as well.**
  - **Information and control at the point of consumption will become increasingly important for smart grid functionalities as many of the tasks of the smart grid, e.g. integration of renewables and microgeneration will require congestion management in the distribution grid ⇒ information and control of consumption point.**

… ENABLING A SMARTER ENERGY WOLRD