ESMIG
EUROPEAN SMART METERING
INDUSTRY GROUP

# WE MAKE
# METERING SMART

**European Conference on Smart Grid Standardisation achievements**

**Smart Metering Systems  - Industry perspective**

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# Agenda

- **ESMIG: who we are & what we do**

- Interoperability

- Privacy & security

- Consumer engagement

**ESMIG – the European Smart Metering Industry Group**

- is the European industry association that provides knowledge and expertise on Smart Metering and related communications at a European level.

- ESMIG's members are the leading companies in the European Smart Metering market (meter manufacturing, software, installation, consulting, to communications, data management and system integration).

- member companies cover all aspects of Smart Metering, including electricity, gas, water, and heat measurement;

- by giving support to the European Union and its member states as well as through co-operation and partnerships with relevant stakeholders, the Industry Group aims to assist in the development of national and European-wide introduction, rollout and management of Smart Metering solutions;

- is located in Brussels and registered under Belgian law (aisbl);

- is registered in the European Transparency Register (7132622148-95).

# About ESMIG - the members

# About ESMIG – the partnerships

In the area of European and international standardisation ESMIG has concluded several cooperation agreements with partners, such as CEN, CENELEC, DLMS, ETSI, KNX, OPEN meter, Wavenis and ZigBee Alliance, while further agreements are foreseen.



The ESMIG partnership scheme is open to any Standardisation Organisation that shares ESMIG's core belief in open and interoperable standards.

# About ESMIG – our working groups

## Smart Meter Coordination Group (SM-CG)

ESMIG supports the SM-CG with the definition of a functional reference architecture of the Advanced Metering Infrastructure (AMI), the definition of a glossary of commonly used terms and finally, with the definition of functional requirements by Use Cases. The definition of Use Cases has been the input for the IEC (TC8) and Smart Grid Coordination Group (SG-CG) that will collect and maintain Smart Grid Use Cases.

## Smart Grid Coordination group (SG-CG)

ESMIG is represented in the steering committee and in the various working Groups of the SG-CG:
- Selection of a first set of standards
- Definition of a Reference Architecture
- Design of sustainable standardisation processes
- Smart Grid Security

## Smart Grids Task Force and related Expert Groups (SG-TF)

ESMIG is supporting the four Expert Groups of the European Task Force Smart Grids:
EG1 – Smart Grid functionalities
EG2 - Regulatory recommendations for data safety, data handling and data protection
EG3 - Roles and Responsibilities of actors involved in the Smart Grids Deployment
EG4 – Smart Gas Grid

# About ESMIG – external activities

## Working Group Measuring Instruments (wgMI)

ESMIG is one of the industry associations represented in this group. Proposals for changes in the MID are reviewed by the MUM group of ESMIG while its comments are taken into account and discussed by the wgMI.

## European Electricity Grid Initiative (EEGI)

ESMIG is represented in the EEGI, which is one of the six European Industrial Initiatives (EII) laid down in the Strategic Energy Technology Plan (SET).
ESMIG's RPG group formulates responses to the public consultations of the EEGI.

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# Mandate M441

The general objective of the M/441 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 adaptation** to their demands.

- **Create standards**

- **Achieve interoperability**

- **Utility metering**

- **Improve customer awareness**

- **Timely demand adaptation**

- The M441 and M490 Coordination Groups have fulfilled their assignments

- Standards **are in place and are being implemented**

- The process can however, still be improved:
  - Definition of Privacy and Security requirements
  - Extension of the standards with conformance testing / certification

- ESMIG contributed in the work done, and will stay active in the follow-up

# 1st SM-CG report (2009) Smart Meter Additional Functionalities

1. Remote reading of metrological register(s) and provision to designated market organisation(s)

2. Two-way communication between the metering system and designated market organisation(s)

3. Meter supporting advanced tariffing and payment systems

4. Meter allowing remote disablement and enablement of supply

5. To provide secure communication enabling the smart meter to export metrological data for display and potential analysis to the end consumer or a third party designated by the end consumer

6. Meter providing information via portal / gateway to an in-home / building display or auxiliary equipment

7. Enabling secure communication of AMI components with devices or gateways within the home/building, used in the provision of energy efficiency and demand side management services

**Reference Architecture** – function blocks and interfaces

**Descriptions** - of function blocks and interfaces

**List of standards** – per identified interface for consideration, review, filling the gaps

**Work programme** – planning of the TC work

**Annex A** – Use Cases
**Annex B** – Glossary: list of commonly used terms (Smart Meter, AMI, Gateway, Data Concentrator, PLC, etc.)

Blue = Coordination by ESMIG

# Use Cases by ESMIG (EBSII report)

- ESMIG developed detailed functional descriptions (Use Cases) for:
  - Basic Smart Meter functionalities in the scope of M441
  - Demand Response functionalities in the scope of M490

- This work has lead to the conclusion that the standards for Home Interfaces need additional work

- Together with Use Cases technical requirements are being developed, such as:
  - Performance
  - Data management/protection
  - Security

**Download report here: http://www.esmig.eu/newsstor/EBSII-report**

# Use Cases by ESMIG (EBSII report)

- Integrated Standard Open European Smart metering end-to-end solution in a liberalised European market;
- Standard architecture Interoperability between technical and business systems;
- Compliance to the European liberalised market and the European Energy targets 2020 enabled by Smart Grids;
- Standard Use Cases (business scenarios) providing Value Added Services to end consumers;
- Consumer active participation and empowerment in an open EU market;
- Ideal Business Cases for a fast deployment of Smart Metering business solutions;
- Competitive and sustainable European Energy market;
- EU Business System Integration & Interoperability RD&D agenda 2020, 2030.

**Download report here: http://www.esmig.eu/newsstor/EBSII-report**

# AMI Use Cases for Smart Grid applications (examples)

- Concentrator establishes energy balance for substation and meters supplied by that substation and makes this available to NO

- Provide information on long/short supply interruptions

- Provide information on sags and swells

- Supplier sets / modifies contracted power / flow

- Apply normal / emergency threshold for load limitation per customer (group)

- Supplier connect / disconnects certain loads as agreed by the customer for managing the bill (avoid high price periods). The customer can accept or reject.

- NO connects / disconnects certain loads as agreed by the customer for managing the load on the network. The customer can accept or reject.

- Supplier / NO  provides local generation information

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# Privacy & security

- ESMIG has proposed to develop a set of Privacy and Security requirements for Smart Metering on European level;

- This action is adopted by the SM-CG and is on the agenda for 2013;

- Furthermore, an initiative has been taken to study the possibility for a European approach of certification of products;

- Two countries (UK+NL) have already showed their interest in working on this European approach.

# ESMIG Statement on privacy & security needs (work in progress)

- We intend to reach a <u>multi-stakeholder</u>, <u>European wide</u> approach for identifying (technological and economic) <u>security and privacy risks</u> coming with the deployment and operations of a smart metering system in order to be able to derive <u>appropriate requirements</u> and countermeasures based in <u>smart meter/grid use cases.</u>

- This contributes to ensure <u>interoperability</u> and a commonly implemented, <u>certification scheme for Products and Systems in Smart metering as initial smart Grid deployments.</u>

- A harmonised approach also facilitates lifting economies of scale and shall <u>support any potential market models</u> and <u>facilitates notification of legislation</u> on EU-Level.

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The benefits relating to energy savings through more accurate consumption information or load shifting through demand response require an active involvement of the customer.

The AMI can provide the consumer and the utility with the information to realise the benefits of DR schemes, but the critical response actions must come from the customer.

The findings of the study "Empower Demand II" suggest that there are six key stages through which consumers must progress in order to optimise their responsiveness to and involvement with smart meters.
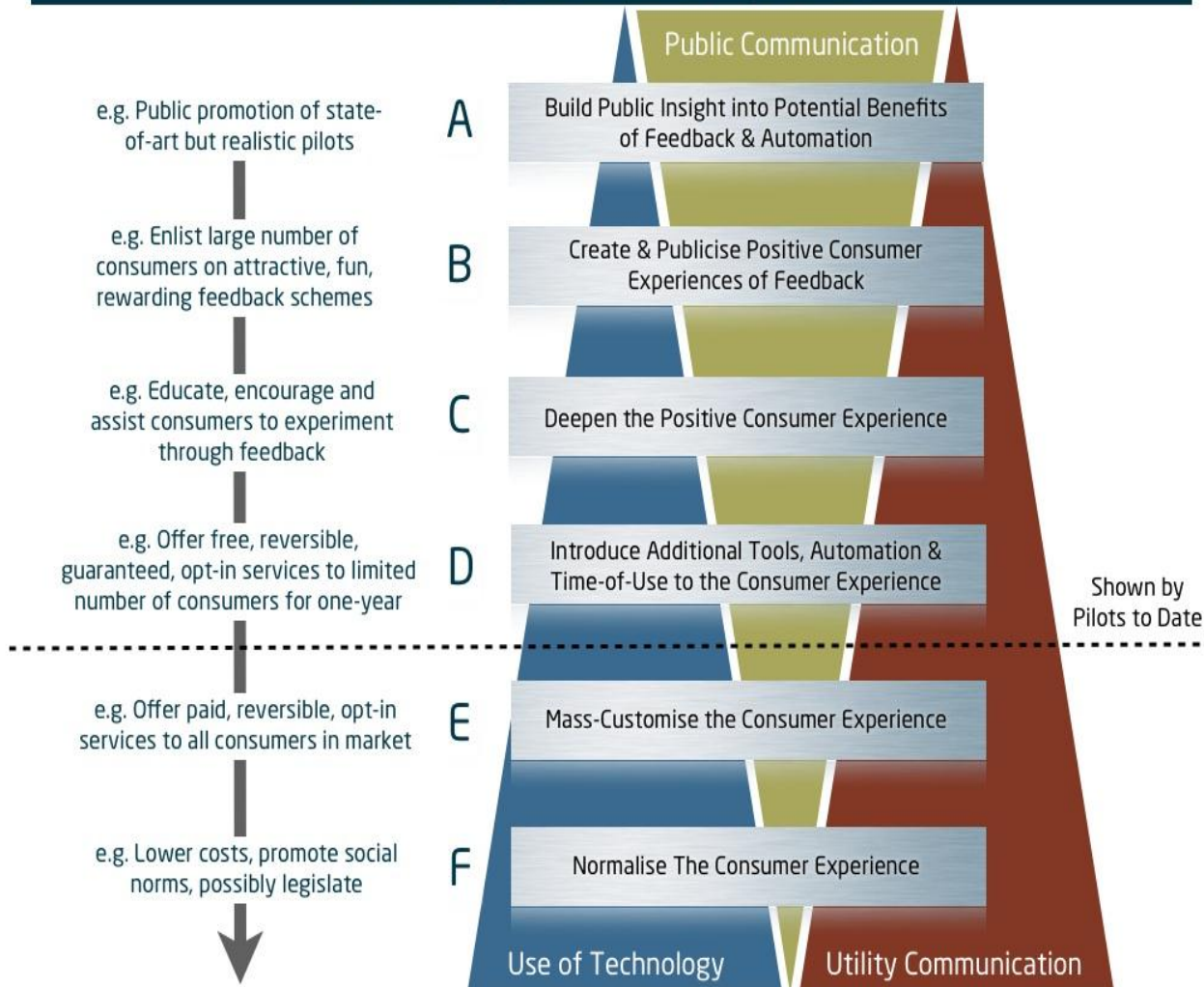
**Phase II**

- 10 pilots analysed in detail

- Focus on communication (also including feedback and education)

- Evaluation of latest technologies and solutions

- Consideration of increased potential if latest technologies and communication knowledge applied

# Empower Demand II



Developing the Consumer Experience

Public Communication

| | | |
|---|---|---|
| e.g. Public promotion of state-of-art but realistic pilots | A | Build Public Insight into Potential Benefits of Feedback & Automation |
| e.g. Enlist large number of consumers on attractive, fun, rewarding feedback schemes | B | Create & Publicise Positive Consumer Experiences of Feedback |
| e.g. Educate, encourage and assist consumers to experiment through feedback | C | Deepen the Positive Consumer Experience |
| e.g. Offer free, reversible, guaranteed, opt-in services to limited number of consumers for one-year | D | Introduce Additional Tools, Automation & Time-of-Use to the Consumer Experience |
| e.g. Offer paid, reversible, opt-in services to all consumers in market | E | Mass-Customise the Consumer Experience |
| e.g. Lower costs, promote social norms, possibly legislate | F | Normalise The Consumer Experience |

Shown by Pilots to Date

Use of Technology        Utility Communication

**Empower Demand II has found that success requires for instance:**

- Outstanding pre-offering, pre technology education, especially from independent sources;

- Real-time consumption related feedback based on smart meters;

- Continuous but evolving and personalised interaction with advice to consumers;

- Consumer experimentation and enlightenment prior to automation;

- More appealing technologies;

- Incorporation into the bigger picture (such as micro generation); and

- Innovative financial and other incentives.

- The industry has, and will continue to, actively support the European standardisation work

- The industry is committed to support open standards and interoperability

- The industry will ensure that standards are implemented across the EU member states

- The industry has been investing, and will continue, to ensure the objectives of the 3rd Energy Package are met

For more information

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