

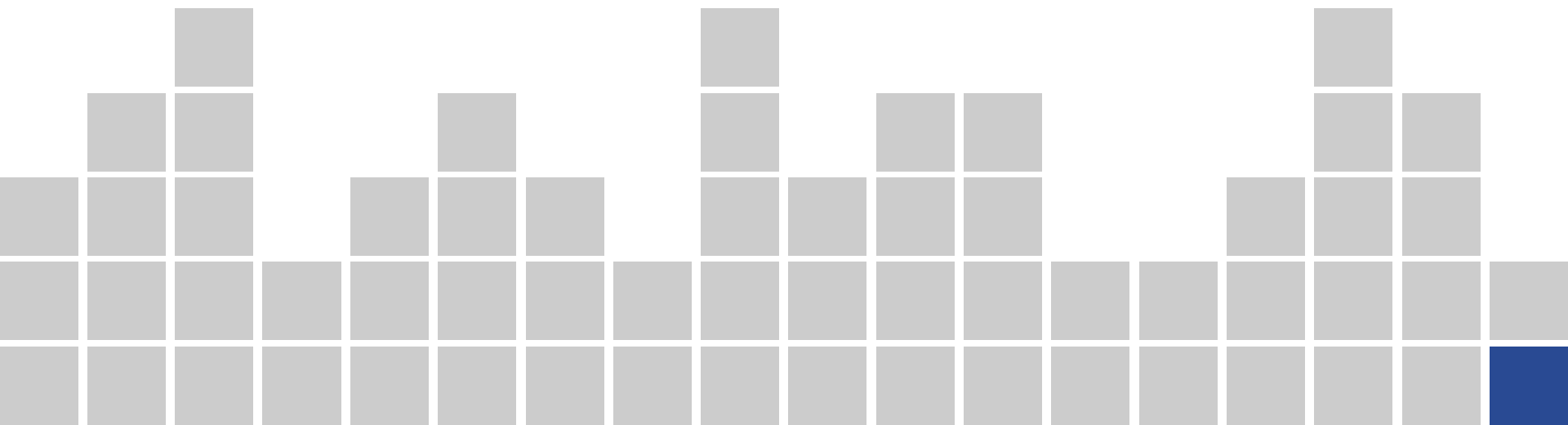


ESMIG

WE MAKE METERING SMART

SMART METERING MARKET and STANDARDS
CEN/CENELEC - Madrid
1st July 2009

Dr Howard Porter MD





SMART METERING DEFINITION

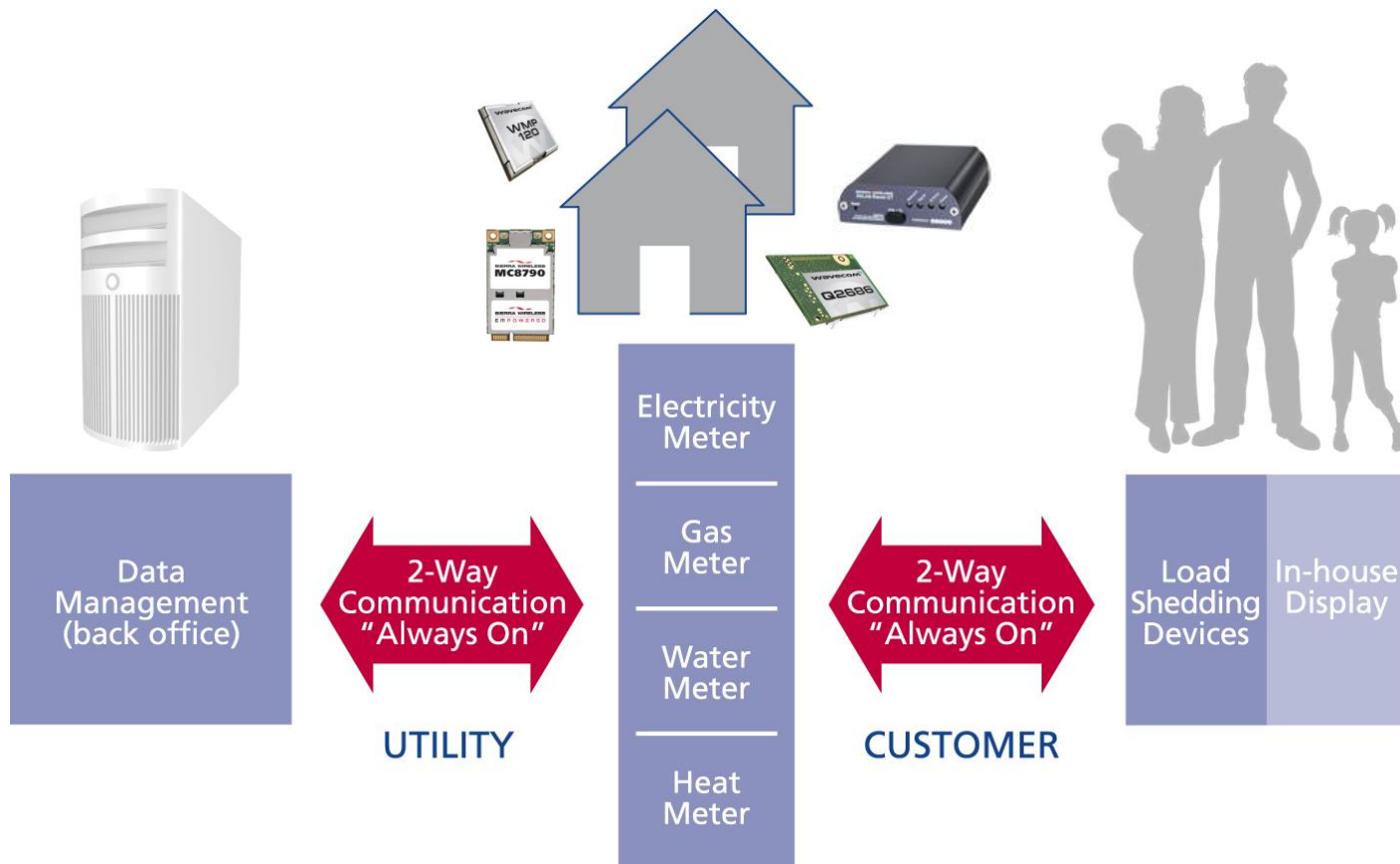
“Smart meters are modern, innovative electronic devices capable of offering consumers, suppliers, distribution network operators, generators and regulators a wide range of useful information, enabling the introduction of new energy services. . .”

Smart metering systems vary in design dependent on the specific market conditions in different member states, and the differing types of utility meters in each building.

The majority include the following functions:

- accurate measurement of electricity, gas, water or heat usage
- a data transmission infrastructure,
- an IT environment suited to the ensuing data volumes
- a consumer-oriented invoice system
- local display of energy usage data

SMART METERING SYSTEMS OVERVIEW





ABOUT ESMIG – THE ORGANISATION

ESMIG - the European Smart Metering Industry Group

- its members are the leading companies in the European Smart Metering market
- provides knowledge on Smart Metering and related communications at a European level
- gives support and advice to European Union institutions and Member State governments, regulators and utilities
- assists in the development of national and European policies for the introduction, roll out and management of Smart Metering systems
- located in Brussels



ABOUT ESMIG – THE MEMBERS





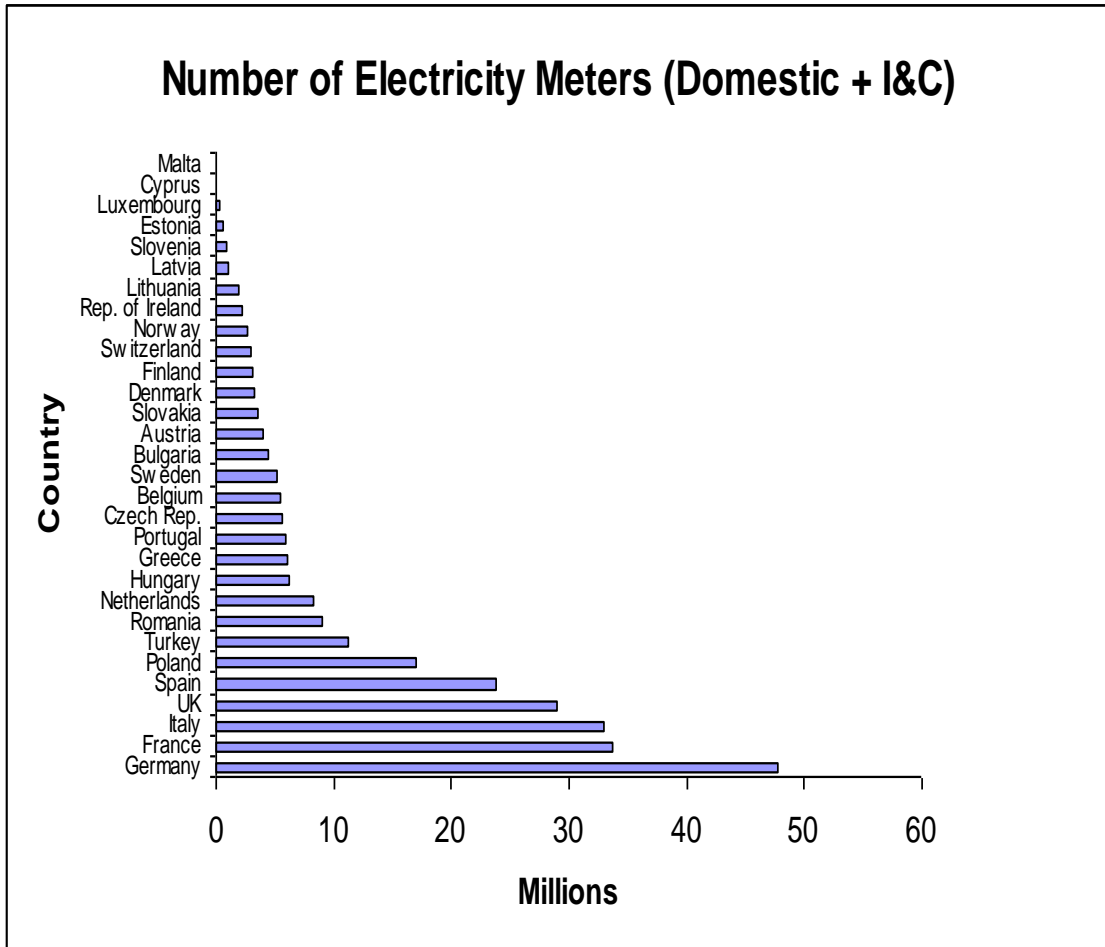
METERING MARKET IN EUROPE

The European Union set itself ambitious targets by the year 2020 :

- to reduce the output of greenhouse gases by 20%, to improve energy efficiency by 20% and to increase the percentage of renewable energy by 20%.
- to achieve these targets the development of fully operational Smart Metering systems across Europe is essential.

Market Potential

Electricity Meter Numbers (by Country)



- For countries shown for domestic and I&C electric meter stock is >275m
- > 60% of total electricity meter stock is in Germany, France, Italy, UK & Spain

Source: Engage Consulting Limited Analysis for ESMIG

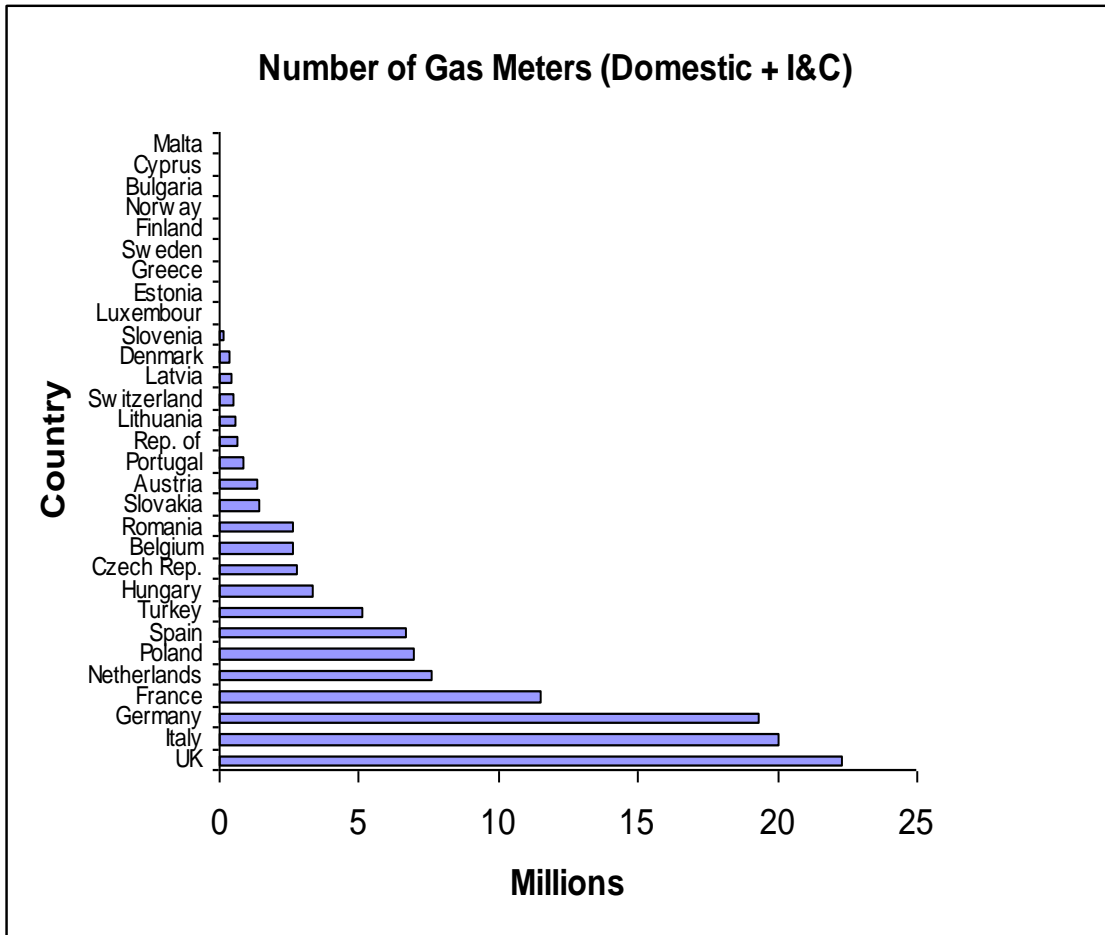


The Electricity Metering Market

- Germany – very few Smart Meters installed as yet
- France – stated they wish to replace c.33m meters by 2012
- Italy – remotely controlled meters for all consumers by 2011- c.36m
 - Already > 30 million meters in place
 - Revisiting spec. of meters
- UK mandated rollout for all electricity & gas meters (> 47m) by end of 2020
 - Linked to Environmental & Efficiency targets
- Spain – replace all meters <15kW by Smart Meters by 2018

Market Potential

Gas Meter Numbers (by Country)



- For countries shown total gas meter stock is >115m
- > 80% of total gas meter stock is with top 7 countries
 - UK, Italy, Germany, France, NL, Poland & Spain

Source: Engage Consulting Limited Analysis for ESMIG



Gas Metering Market

- UK planned roll out covers electricity & gas meters by end 2020
- Italy – published minimum standards for remote reading and management of gas meters late in 2008
 - Large users by 2011
 - Domestic users by 2013
- Germany – Standards for Gas SM functionality expected by 2011
- France – At very early stage
- Netherlands – One of most advanced SM markets in Europe
 - Have a national spec. for multi-utility Smart Metering which uses Electricity meter as hub for communication
 - Five year rollout was planned, but delayed slightly
- Poland – No apparent policies or legislation under discussion for SM
 - Initial focus on pilots is for I&C electricity, gas and heat
- Spain – Meter stock is < 10years old, which may influence any decisions related to roll out of Smart Gas meters
 - Linked with Portugal on implementing SM in Iberia



Recent developments (1)

Rules for the internal market in electricity (repeal. Directive 2003/54/EC)

(ia) Member States shall ensure the implementation of intelligent metering systems that shall assist the active participation of consumers in the electricity supply market. The implementation of those metering systems may be **subject to an economic assessment** of all the long-term costs and benefits to the market and the individual consumer or which form of intelligent metering is economically reasonable and cost-effective and which timeframe is feasible for their distribution.

Such assessment shall take place within **18 months after** the date referred to in Article 49(1).

Subject to this assessment, Member States or any competent authority they designate shall prepare a timetable **with a target of up to 10 years for the implementation of intelligent metering systems.**

Where roll-out of smart meters is assessed positively, at least 80 % of consumers shall be equipped with intelligent metering systems by 2020.

The Member States, or any competent authority they designate, shall ensure the interoperability of those metering systems to be implemented within their territories and shall have due regard to the use of appropriate standards and best practice and the importance of the development of the internal market in electricity.



Recent developments (2)

European Smart Metering mandate (441)

16 March 2009: Publication of a mandate for standardisation to ESOs (European Standardisation Organisations) in the field of measuring instruments for the development of an ***open architecture for utility meters involving communication protocols enabling interoperability.***

Objective:

Creation of 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 ('SMART METERING')

Summer 2009: likely acceptance by the ESOs

↳ + 3 months for the working program

↳ + 9 months presentation of the European standard for communication

↳ + 30 months: the harmonised solutions for additional functions

Co-ordinated by the ESOs and the Smart Metering Co-ordination Group (SM-CG)



Recent developments (2)

European Smart Metering mandate (441)

ESOs are requested to develop a European standard comprising:

- a software and hardware open architecture for utility meters that supports secure bidirectional communication and
- allows advanced information and management and control systems for consumers and service suppliers.

The ESOs shall provide a combined progress report on the mandated work by the end of October 2010.



Current activities

At the first coordination meeting 2 ad hoc working groups established:

- **Communications – Chair Ralf Hoffman, Görlitz, ESMIG**
 - Identifying the options for meter communication protocols
 - Recommending the work required from the existing European technical committees
 - Recommending the extent to which the standardisation process for wide area and home area networks is covered by the mandate
- **Smart Metering functionalities – Chair David Johnson, Centrica & Eurogas**
 - Developing a common set of smart metering functionalities for electricity, gas, water and heat metering.
 - Assessing the existing standards available across Europe to identify whether there are already appropriate standards available, and to identify where new standards are required.

Stage 1 : Definition of functionality – June to Oct 2009

Electricity

1. Active/reactive energy
2. Import/export/generation
3. Load profiling
4.
5.

Gas

1. Load profiling
2. Payment systems
3. Battery life & energy efficiency
4.
5.

Water

1. Tamper and Fraud protection
2. Local area network
3. Real time info for customers
4.

Heat

1. Dynamic multi tariff
2. Local area network
3.
4.
5.

Stage 2 : Mapping with existing standards – June to Oct 2009

Example:

Gas - Load profiling

National Standards exist in: GB, FR, GR, AU
No European standards

Stage 3 : Standards committee work program – Oct 2010 to Jan2012

Example:

Gas - Load profiling

Use existing standards in GB, FR, GR, AU as the basis for the development of European standard



Relevance for other standardisation activities in Europe

- The European mandate from the commission does not allow the development of national standards
 - Unless falling outside of the scope of the mandate
- The co-ordination group is aiming to develop standards based solutions as soon as is possible to:
 - Remove difficulties brought by existing European Directives – The MID!
 - To provide all national Governments and utilities with a set of proven options for the roll out of smart metering
 - Based on an agreed set of European standards
- All involved must ensure that delays are not introduced into the process
 - This will lead to an uncertain future for the smart metering industry across Europe



CONCLUSION

POTENTIALS AND BENEFITS – FOR THE EUROPEAN ENERGY INDUSTRY

Fully operational Smart Metering systems across Europe will act as a catalyst for other technology advances, such as

- Smart utility grids
- Smart housing and home communications
- Household low carbon and renewable technologies
- Appliance management solutions.

Smart Metering solutions will influence related technical developments

- Communications' infrastructures for
 - Wide area networks
 - Local area networks
 - Home area networks
- Communication protocols for household appliances, heating and lighting controls



ESMIG

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