

# Current status of smart metering applications

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## Agenda:

1. Legal Basis
2. European situation
3. Practical Examples
4. Resumee

# 1. Legal Basis



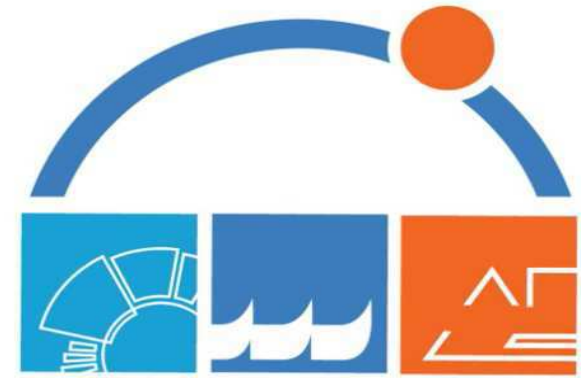
- 2009/72/EG Electricity
- 2009/73/EG Gas
- Rec. 2012/148/EU (consistent with ERGEG rec.)
- 2006/32/EG Energy efficiency
- 2012/27/EU Energy efficiency (and interpretative notes)
- MID 2004/22/EC
- NIS (measures to ensure a high common level of network and information security across the Union)
- Mandate M/441

# 1. Legal Basis



- Implementation of intelligent metering systems for the active participation in the electric supply market (gas supply market)
- Requirements can depend on an economic cost assessment
- Timetable with a target of up to 10 years
- At least 80% of consumers shall be equipped by 2020
- Art.9: technically possible, financially reasonable and proportionate in relation to the potential energy savings (security, privacy, district heating network...)

# 1. Legal Basis



- The M/441 standards apply for functionalities and interfaces of smart metering
- They specify common guidelines and procedures, where individual technical standards apply with
- They do not recommend any specific architecture or technology, in consequence there will be also not a SINGLE standard for smart metering
- They are open to regulatory market models and individual business cases

# 1. Legal Basis

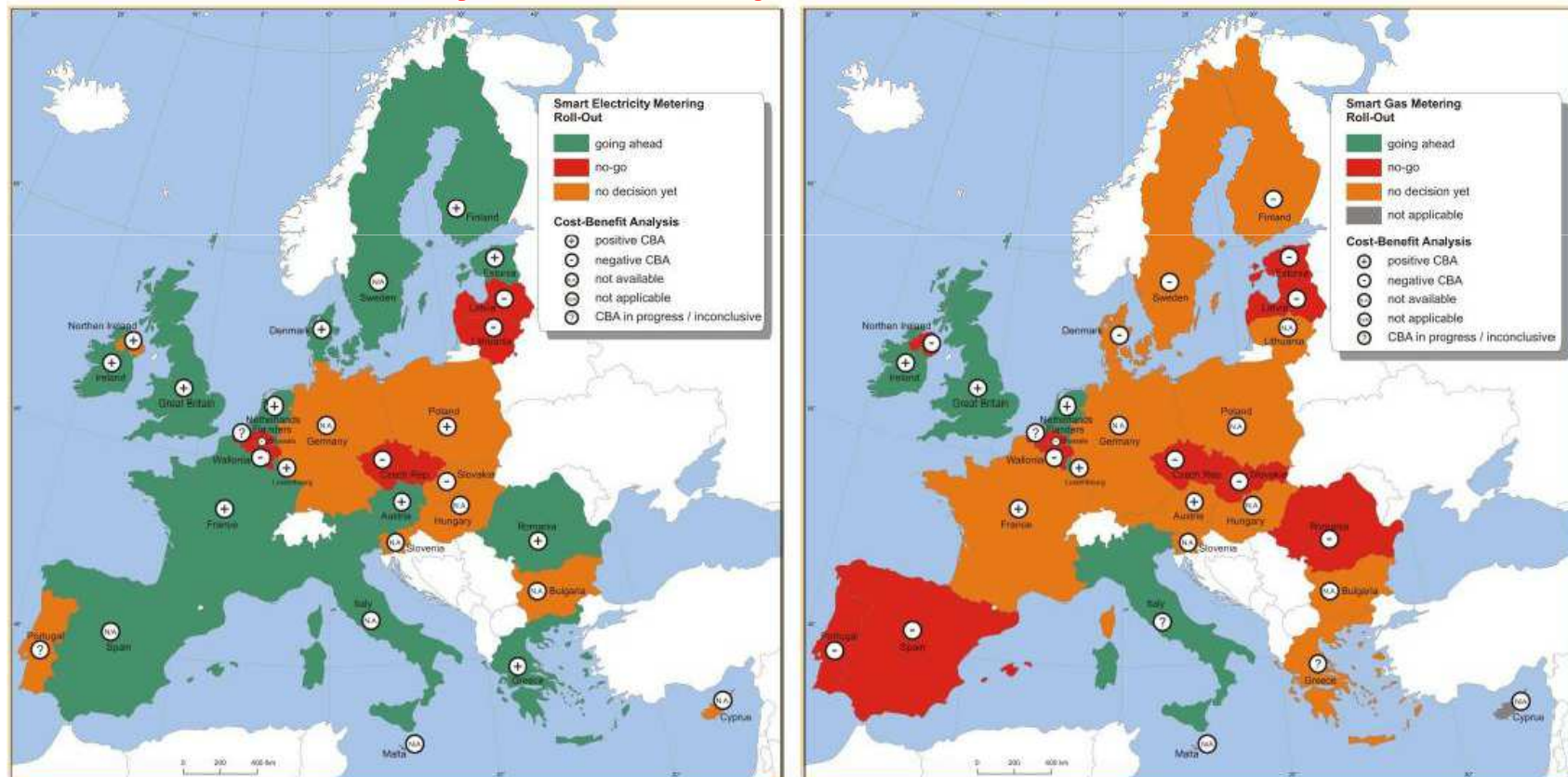


- SMCG worked on a reference architecture of the AMI, linked the standards to this architecture, and evaluated existing standards and defined a working program to extend and improve standards.
- SMCG issued a report containing these elements in 2011.
- SMCG finished the definition of Use Cases for smart metering on generic level
- End-Users can create specific Use Cases fitting their business and architecture based on the generic European Use Cases and reference architecture defined by the SMCG.

# 2. European Situation



## Cost Benefit Analysis for Comprehensive Use of Smart Metering



Quelle: Europäische Kommission

### 3. Practical Examples:



Member State	Scope	Responsibility	Meter	Time frame
UK	Electricity and gas	Provider	E: 27 Mio G: 22 Mio	2014-2019
France	Electricity	Distribution	E: 35 Mio	2013-2018
Italy	Electricity and gas	Distribution	E: 32 Mio G: 21 Mio	E: 2001-2011 G: .. -2016
NL	Electricity and Gas	Distribution	E: 8 Mio	E: 2014-2020
Schweden	Electricity	Distribution	E: 5 Mio	E: 2006-2009



### 3. Practical Examples:



Member State	Customer behaviour/ service	Cost reduction (grid)/ grid development	Increasing competition	supplier
UK	Energy Saving Prepayment	Meter and Reading Costs Basis future E-Grid	Between Suppliers	
France	More accurate billing	monitoring and Stability (RES)		Additional services and new tariffs
Italy	More often and more accurate billing	Reduction of losses	Between Suppliers	Facilitating change of supplier
NL	Energy saving (domestic)	Increasing operating efficiency		
Schweden	Billing on an monthly basis		Increased data exchange	

### 3. Practical Examples:



Member State	Communication	Operation	Billing	Power
UK	Zigbee	Remote Shut off Display „GBP“ prepayment	Complex tariffs	Power limitation
France	Bidirectional CPL G 1 CPL G 3 (2015)	Remote shut off	Load Profile Tariffs	Quality assurance recording
Italy	Bidirectional Echelon PLC	Remote Shut off	Tariffs	Power limitation
NL	PLC (80%) GPRS (20%)	Grid efficiency effects	Optimisation of purchasing energy	
Schweden	PLC GPRS Wireless	Process improvements		

### 3. Practical Examples:



#### Requirements on gas meters in GB, I, F

- 2,4 GHz ZigBee Communication
- complex tariffs
- including valve

- 169 MHz wMBus Communication
- No tariffs
- no valve

- First GPRS, later on 169MHz wMBus Communication (Italgas)
- complex tariffs
- including valve

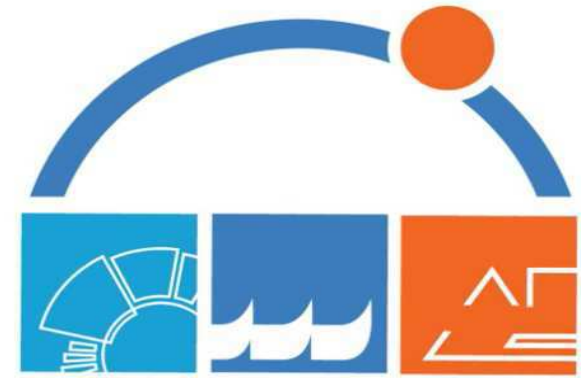


## 4. Resumee



- As the transposition (2012/ 27/EU) into the national law is different in the MS and the third package for an internal EU gas and electricity market allows for a cost/benefit analysis there are many individual solutions.
- A revision of the MID is the essential condition to fulfill the requirement „time depending consumption measurements for billing purposes (interval metering)“ and concerning „data protection by design“ to establish protection profiles that are accredited under MID in order to prevent gaps in protecting the system.

## 4. Resumee



- There should be an obligation for load profile meter readings at mandatory smart metering system installations.
- In addition there should be a legal obligation to provide grid operators with other grid efficiency information.
- MS use individual subsets of smart meter capabilities (with focus on electricity).
- There is a lack of economies of scale and innovation (additional customer services)

**Thank you very much for  
your kind attention!**

