Regulatory challenges for the deployment of smart grids

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Low carbon economy requires significant changes of energy systems

TRENDS
- Centralised → Decentralised
- Conventional → Renewable
- Fixed → Flexible

OBSTACLES
- Grid instability
  - MW
- Grid congestion
- Volatile markets

SOLUTIONS
- Smart grids
- Intelligent markets

KEY
- Flexibility
SG related EU legislation & policy documents

- Electricity and Gas Directives 2009/72/EC and 2009/73/EC
- Energy Infrastructure Regulation (EU) 347/2013
- Electro-mobility Alternative Fuels Directive AFID, 2013/0012(COD)
- Recommendation 2012/148/EU on smart metering roll-out
- Recommendation 2014/724/EU Data Protection Impact Assessment Template
- COM(2011)202 on Smart Grids
- COM (2013)7243 on IEM and public intervention
- SWD(2013)442 on Demand Side Flexibility
European Smart Grids Task Force is working on key challenges:

1. Standards and interoperability
2. Data privacy, security and cyber-security
3. Regulatory issues
4. Industrial policy and infrastructure
Investments in Smart Grids projects – 2013 (excl. SMS)

459 smart grid projects - €3.15 billion
26% R&D and 74% Demo & Deployment
I. Data protection and security considerations
• Data protection impact assessment
• Data protection by design and data protection by default settings
• Data protection measures
• Data security
• Information and transparency on smart metering

II. Methodology for the economic assessment of the long-term cost and benefits for the roll-out of smart metering systems

III. Common minimum functional requirements for smart metering systems for electricity
Benchmarking smart metering deployment in the EU-27
Commission report of 10 October 2014

<table>
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<th>Country</th>
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<td>2014</td>
<td>2020</td>
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Three possible data management models

**Case I: DSO as Market Facilitator**

**Case II: Third Party Market Facilitator (Independent Central Hub)**

**Case III: Data Access Point Manager (DAM)**

one size does not fit all
Commission Recommendation of 10 October 2014 on Data Protection Impact Assessment Template for Smart Grid and Smart Metering Systems

The DPIA Template is an evaluation and decision-making tool which helps entities planning or executing investments in smart grids to identify and anticipate risks to data protection, privacy and security.

The DPIA provides guidance to help ensure the fundamental rights to protection of personal data and to privacy in the deployment of smart grid applications and systems and smart metering roll-out.
Open model for consumption data flow

dynamic data access (kWh/minutes)

ESCO

Supplier

Secure Data Transmission

Historical data access (kWh/period +24 hours)

kWh/period

SMO
Regulatory issues. Possible relations and tasks

Prosumers

- SUPPLY and FLEXIBILITY
- FLEXIBILITY PURCHASE CONTRACT

Supplier

- INFORMATION EXCHANGE

Aggregator

- DISTRIBUTION NETWORK CONSTRAINT MANAGEMENT
- FLEXIBILITY PROCUREMENT
- MUTUAL EXCHANGE OF OPERATIONAL AND CONTRACTUAL DATA

DSO

- GRID ACCESS & GENERATION MANAGEMENT

TSO

- TSO

Generator

- FINANCIAL ADJUSTMENT MECHANISM

BRP

- Commercial domain - Supply
- Power Exchange Market
- Commercial domain - Flexibility
- Regulatory issues. Possible relations and tasks

In addition, there are relationships and tasks involving DSO, TSO, and other entities in the power exchange market and ancillary services.

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