Smart Grids
A view from the Commission

Innovation and Green Economy
14 July 2010

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Policy drivers and challenges

- **20-20-20 targets**

- Increased generation of renewables and need for improved integration of renewables into the grid
- Need to increase grid and consumption efficiency - decrease losses

- **Security and efficiency**

- Increase grid robustness and resilience
- Integration of different generators (large centralised and small distributed)

- **Market development**

- Better management of supply (generation, load) and demand
- New market opportunities and increased efficiency of the market
- Empowerment of consumers

All these challenges require extensive changes to the power grids.

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Addressing challenges through Smart Grids

- Smart Grid solutions embrace the changing **structure of generation, market and the use of electricity**
- Implementation of **more active transmission and distribution systems** in the form of Smart Grids is central to the deployment of the **internal market for energy**
- This evolution is a **complex subject** and requires a coordinated approach addressing **various issues and all the actors**

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Obstacles to SG deployment

- So why has **large-scale deployment** not happened yet?
  - ❖ Limited pilot experiences so far
  - ❖ Limited statistical quantification of benefits achieved in these experiences
  - ❖ Existing uncertainties regarding the level of required global investments, new market models and the technology needed
- **Key challenges** for the Smart Grid deployment are:
  - ❖ Largely of **regulatory nature**
  - ❖ Adequate **demonstration projects**
  - ❖ Coordination and dissemination of **lessons learned**

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Overcoming challenges

- Network owners and operators are in a position to **initiate the transition towards Smart Grids** and will be responsible for most of the **investments**.
- This requires the **support of legislators and regulators** to provide the framework for **incentives, criteria and obligations for "smart" investments.**
- **European-scale Public-private partnerships** could play an important role in taking the first steps.
- The **3rd Energy Package** provides some answers and framework for Smart Grids deployment.

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Legal framework: 2009/72/EC

- **Recital 27:** Member States should encourage the **modernisation of distribution networks**, such as through the **introduction of smart grids**, which should be built in a way that encourages decentralised generation and energy efficiency.

- **Articles 3.1, 3.2 and 3.10:** Define a number of general **tasks and provisions for the organisation of the electricity sector** relevant for the implementation of Smart Grids.

- **Article 12(a)-(e) and 25.1-7:** Define specific tasks for TSOs/DSOs.

- **Annex I**: Obliges MS to carry out by **2012 a cost-benefit assessment** of smart meters roll-out and to ensure **roll-out by 2020.**

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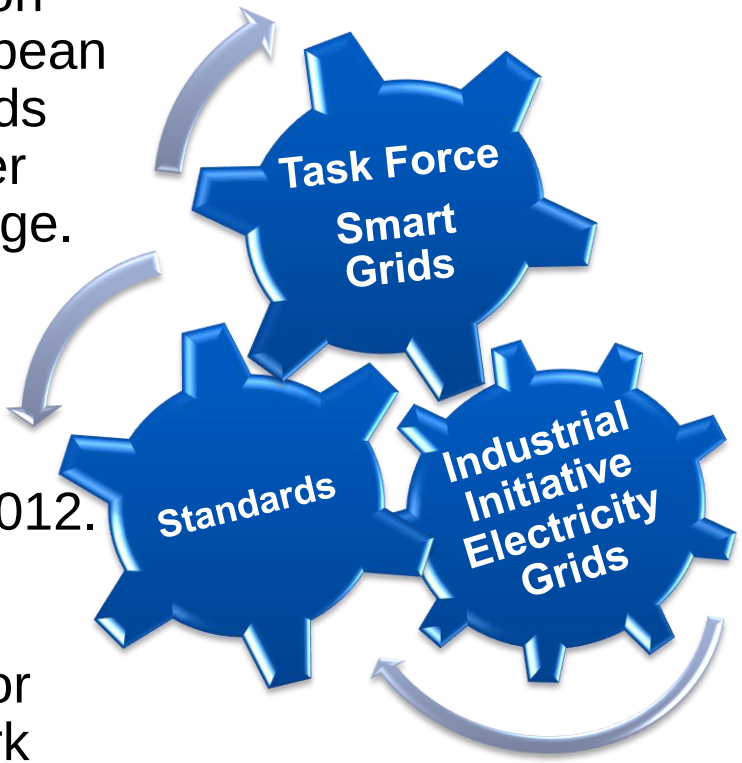
Running EC actions

- **Task Force** to advice the Commission on policy and regulatory directions at European level and to coordinate first steps towards the implementation of Smart Grids under the provision of the Third Energy Package. From end 2009 to middle 2011.
- A mandate for **European Standards** to enabling interoperability of utility smart-meters has been launched for 2009 – 2012.
- **European Industrial Initiative on Electricity Grids** under the SET Plan for the deployment of half of the EU network operating on the 'smart grid' principle by 2020.



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The Mission of the Task Force

Advice the Commission on **policy and regulatory directions** at European level and to **coordinate the first steps** towards the implementation of Smart Grids under the provision of the Third Energy Package.

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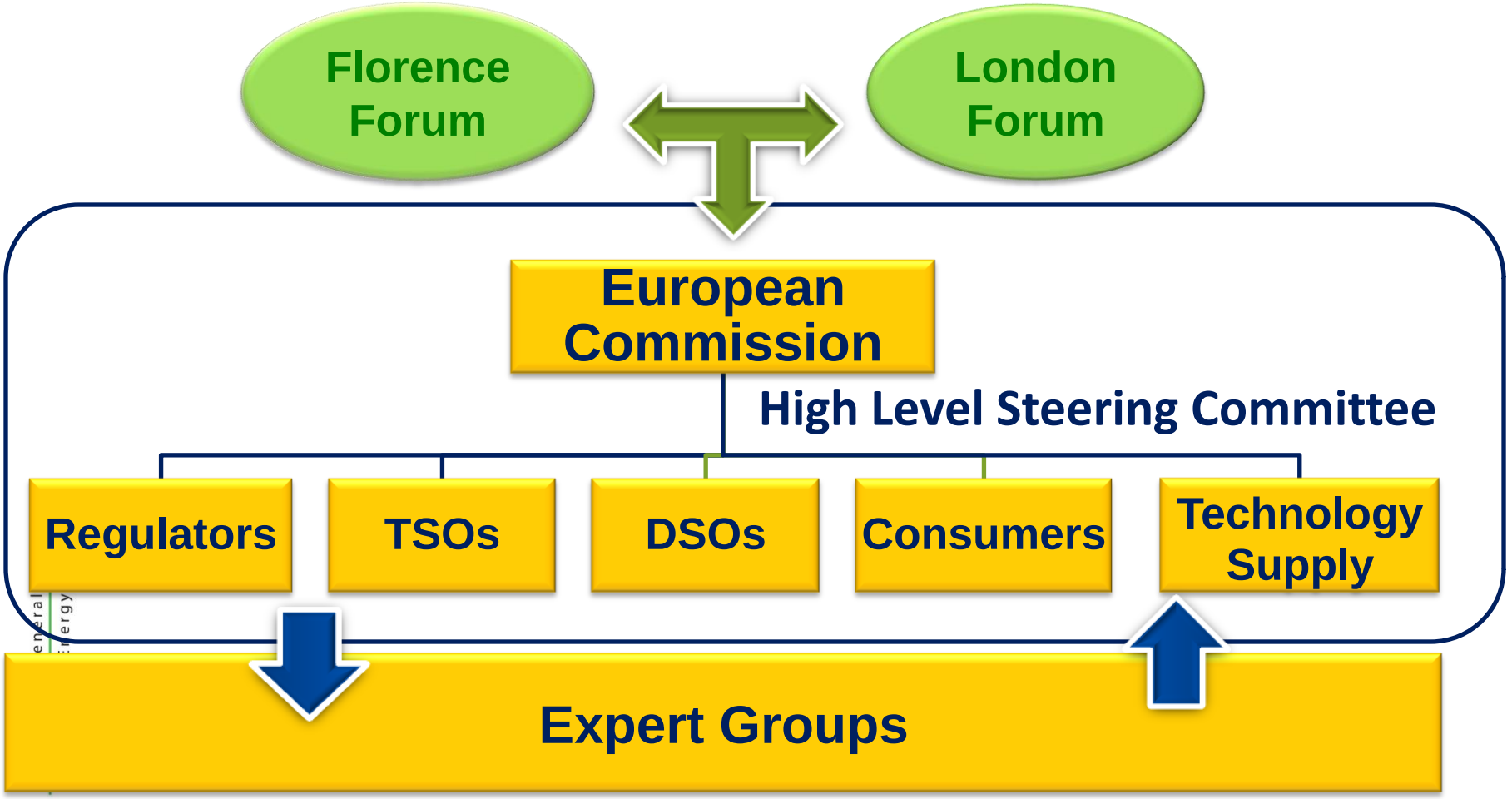
Task Force for Smart Grids



Task Force- Work Programme

Key topics and initial efforts to consider:

- Expected services and functionalities
- Empowering consumers
- Supporting power system security
- Regulated and competitive markets
- Implementation and coordination of first steps

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Specific deliverables

- Produce a **common vision** in conjunction with institutional actors and key stakeholders for the implementation of Smart Grids.
- Identify **strategic decisions and regulatory recommendations** for EU-wide implementation of Smart Grids: **policy, functionalities, scenarios and criteria for funding** Smart Grids deployment though regulatory means.
- Produce a **strategic Roadmap** for the implementation of Smart Grids and Smart Meters into the European internal market.

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Main Milestones

2009

- **Agree and adopt the MISSION statements**
- **Reach consensus on structure and composition of initial three Expert Groups:**
  - *Functionalities of Smart Grids and Smart Meters.*
  - *Regulatory recommendations for data safety, data handling and data protection.*
  - *Roles and responsibilities* of actors involved in the deployment of Smart Grids

2010

- **June 2010 : First Deliverables of the Expert Groups**

2011

- **Jan. 2011: Deliverable 2 "Strategies and Regulatory recommendations"**
- **May 2011: "Roadmap for Implementation"**
- **Continue/stop**

Initial Expert Groups (byJune'10)

1. **Functionalities of Smart Grids and Smart Meters**.
   - Definition of Smart Grids, Expected Services and Functionalities
   - Recommendation for Standards

2. **Regulatory recommendations for data safety, data handling and data protection.**

3. **Roles and responsibilities of actors involved in the deployment of Smart Grids.**
   - Roles and responsibilities for the challenges ahead
   - Benefits, criteria and recommendations for funding Smart Grids deployment
   - Recommendations for regulatory directions

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EG1: Functionalities for Smart Grids

Achievements

- Consensus achieved for a definition of Smart Grids.
- Consensus achieved for the definition of the 6 High Level of Expected Services for Smart Grids and about 5 Functionalities for each service (total 33 functionalities).
- Consensus about the related standards to be revised for each high level service
- From a grid's perspective, a full revision has been carried out of the 6 functionalities defined for smart metering in the running standardisation work under the Mandate to CEN/CENELEC/ETSI.

Next steps:

- Develop a draft for a mandate for the European standardisation bodies on Smart Grids, by the end of the year, in collaboration with the recently launched "*Joint Smart Grids Focus Group*", under the auspices of relevant European standardisation bodies CEN-CENELEC-ETSI.

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High-level services for SG

1. Enabling the grid to **integrate users with new requirements**
2. Improving **market functioning**
3. Enhancing **efficiency in day-to-day grid operation**
4. Ensuring **grid security, system control and quality of supply**
5. Better **planning of future grid investment**
6. Enabling and encouraging stronger and more direct **involvement of consumers in their energy usage and improving customer service**

EG3: Roles and responsibilities of actors involved in the Smart Grids deployment.

Achievements:

- Consensus on key actors, rules and interfaces.
- Consensus on quantification criteria for benefits and key performance indicators.
- Consensus on criteria and recommendations to support pilot projects by regulatory mechanisms.
- Consensus on a template for evaluation of Smart Grids deployment to be used in future cost assessments.
- Consensus that there are no needs for new EU regulatory framework for the implementation of Smart Grids and roll-out of Smart meters.

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EG2: Regulatory recommendations for data safety, data handling and data protection

Achievements:

- Consensus achieved for a definition of technical (anonymous) data and private data.
- Identification of relevant standards for security and privacy.

Next steps:

- Further specifications and recommendations for the split of data (technical and private), security levels and procedures.
- Define a framework for audit on data handling and related standards.

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http://ec.europa.eu/energy/gas_electricity/smartgrids/taskforce_en.htm

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