EU energy policy and the role of smart grids

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DG Energy
European Council on Energy – 4 February
A low carbon 2050 Strategy

- Reducing greenhouse gas emissions by 80-95% by 2050
- A revolution in energy systems which must start now
  → Scenarios for paths to 2050
  → What is the common denominator – what can/should we do now?
Climate change: 20-20-20

-20% for Greenhouse gas levels
-20% for Energy consumption
+20% for Renewables in energy mix
EU variable renewable energy potentials

- Wind energy onshore
- Solar energy
- Wave energy

Simplified Map
Priorities for 2020 and beyond

Priorities for 2020

- North Seas Offshore Grid
- South Western Electricity Interconnections
- North-South Gas Corridor in Western Europe
- Central / South Eastern Electricity Connections
- North-South Gas Interconnections & Oil Supply
- Southern Gas Corridor

Priorities beyond 2020

- Electricity
- Highways
- CO2 transport network

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The EU will fall short of reaching its 20% energy saving target as endorsed in 2007.

Source: DG ENER data
OVERVIEW OF KEY ELEMENTS OF THE NEW EEP

Two step approach:
- **2011**: Stringent binding energy efficiency measures and indicative national targets (set by MS in the context of Europe 2020 and their NRPs)
- **2013**: COM to assess progress. In case of likely non-achievement of EU target by 2020, COM will propose binding national targets

Sectors with important energy efficiency potentials
- Leading role of the public sector
- Buildings and appliances
- Transport
- Industry (incl. energy supply)

Initiatives facilitating energy efficiency:
- Leveraging private investments through EU financing
- Incentives
- Smart grids incl. smart meters
Smart Cities and Communities
Concerto initiative since 2005

- Energy
- Transport
- ICT
- learning from experience: Concerto initiative since 2005

Concerto project Lyon Renaissance
Policy drivers

- **20-20-20 targets**
  - Integration of renewables into the grid
  - Need to increase grid and consumption efficiency

- **Security of supply**
  - Increase grid robustness and resilience
  - Integration of large centralised and small distributed generation

- **Market development**
  - Empowerment of consumers
  - Better management of supply (generation, load) and demand
  - New market opportunities

These drivers call for the restructuring of the grids, e.g. the structure of generation, market and the use of electricity
Smart Grids

Central & dispersed sources

Smart materials and power electronics

Seamless integration of new applications

End user real time information & participation

Central & dispersed intelligence

Multi-directional ‘flows’
European Technology Platform and Smart Grid Working Groups since 2004

http://www.smartgrids.eu

http://ec.europa.eu/ictforsg
What the European Commission is doing?

- **Task Force** to 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. 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.
Legal framework

- **Energy Efficiency Directive (2006/32/EC, Annex3)** has identified smart meters as one of the main measures, contributing to the overall energy efficiency improvement.

- **Renewables Directive (2009/28/EC, Art16)** views Smart Grids as an enabler for integration of increasing renewable energy into the grid and obliges the Member States to develop transmission and grid infrastructure towards this aim.

- **3rd package for the internal energy market** (Directive 2009/72/EC and Directive 2009/73/EC)
Challenges

- Consumer engagement at all levels
- Protection, handling and security of data
- Standardisation and interoperability
- Regulatory framework and incentives
- Infrastructure investments and roll out
- Demonstration projects to validate solutions
## COM (2011)202 - Proposed actions

<table>
<thead>
<tr>
<th>Actions</th>
</tr>
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<tbody>
<tr>
<td>1. Developing Smart Grid standards</td>
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<td>2. Addressing data privacy and security issues</td>
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<td>3. Developing regulatory incentives for Smart Grids deployment</td>
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<td>4. Guaranteeing competitive Smart Grids services to customers</td>
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<td>5. Continuing support for innovation and its rapid application</td>
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Smart Grid projects in Europe

Projects/category

Total 277 implementation sites

Investments/category

Total 3848.7 M€

Mark van Stiphout- e-Harbours Project Launch – 14 April 2011
Smart Grid deployment
http://ec.europa.eu/energy/gas_electricity/smartgrids/smartgrids_en.htm
Possible future of Smart Cities

- Public procurement
- Labelling
- Standardisation
- Financing
- Education, training
- New business models
- Smart Cities Industrial Initiative technology focus
**SET-Plan Governance & Industrial Initiatives**

**Steering Group**
- Member States & Commission
- Strategic orientation, coordination of MS contributions

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**Operational level**

**Technology platforms**
- Organisation of the stakeholders elaborates implementation plans

**European Industrial Initiatives**
- (wind, solar, bioenergy, CCS, grids, nuclear, FCH, Smart Cities)

**European Energy Research Alliance (EERA)**
- Energy research institutes
- Pooling & coordinating research

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**SETIS Information System**

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**Political level**

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