



Reliable Sustainable Connected

## Smart grids, regulation, and the ENTSO-E consolidated R&D Plan

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ERGEG Workshop on Smart Grids, Brussels, 17 March 2010



## The ENTSO-E Research and Development Plan

- Required by the 3<sup>rd</sup> Energy Package: Directive 72/09 (art 8.5) and Regulation 714/09 (art 8.3.a) as part of deliverable listed in ENTSO-E annual Work Program
- Drafted by ENTSO-E's WG R&D, largely on the basis of the European Electricity Grid Initiative (EEGI) proposal made by 7 TSOs and 7 DSOs

### Objective:

- Develop knowledge and tools to support further development of pan-European transmission grid
- Four clusters
  - Reflect the cycles of activities of any TSO
- 14 base workstreams
  - contributing each to different clusters
- Ongoing R&D projects integrated into workstreams

## Research and innovation clusters: Smart grids and cooperation with DSOs play a major part in the R&D Plan

Cluster	Topics	Scope of the innovation cluster
1	Pan-European grid architecture	Novel approaches to develop a pan-European grid and new technologies for pan-European off-shore grids
2	Power technologies	Affordable technologies to make the transmission system more clever and flexible. Utilization of Smart Grids applications in the subgrid for services and balancing the Transmission grid.
3	Network management and control	Critical building blocks to operate the interconnected transmission system in real-time and reliably
4	Market rules	Market simulation techniques to develop a single European electricity market

Year									
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
		Tool box for new network architecture assessment							
Tools to analyze the pan European expansion options									
Almacena Project									
REALISEGR.									
Demonstrations on power technologies for a more network flexibility									
220 kV SSSC for power flow control									
Demonstrations on power technologies for a novel network architectures									
COBRA									
Demonstrations for renewable integration									
TWENTIES Project									
KriegersFlak									
SAFEWIND									
SUSPLAN									
ANEMOS.PLUS									
IS-P.									
Innovative tools for a pan European network observability									
Sub-station 61850									
PEGASE									
Innovative tools for coordinated operations with stability margin evaluation									
Training tools for improved coordination									
Tools for pan European network reliability assessment									
Advanced tools for pan European balancing markets									
Advanced tools for congestion management									
Tools for renewable market integration									
OPTIMATE Project									
Tools for market integration of active demand									
EcoGrid Europe									
ADDRESS									
Environmental impact and social acceptance of transmission facilities									
Social acceptance of overhead lines									
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019

Base workstream
Already identified sub-projects
Other relevant on-going projects

14 Base Workstreams which address TSOs issues over the period 2010-2018





## Grid R&D and regulation

- The TSOs' remuneration in many EU countries does not foresee any component dedicated to recover costs for developing innovative activities. This point is crucial to have effective deployment of “Smart Grid” solutions.
- In addition, an adequate regulatory scheme should be defined for “Smart Grids” solutions, with a relevant sharing of costs and benefits between stakeholders.
- Harmonisation of regulatory rules (incl. support of RD&D) at European level is an essential condition for optimal design/operation of the future pan-European grid.
- Equally important is going to be the capacity of the regulators for reacting to changes in the environment in a timely and uniform manner.
- Regulatory Authorities should support the new developments needed by giving the TSOs the funds for RD&D and for realising pilot projects to test the new technologies that might be part of the transmission backbone in the future.
- **A fair compensation for the services provided to the system is needed. Innovation/RD&D is part of needed services and needs to be compensated.**

## Next steps

- ENTSO-E and all its members are eager to face the challenge of innovative solutions to the energy policy challenges ahead.
- Smart grids are an important part of the ENTSO-E R&D Plan.
- ENTSO-E intends to play a crucial role in management of the R&D Plan, including
  - facilitating the process of bringing together partners,
  - Monitoring, and
  - facilitating the dissemination, packaging and exploitation of results,
- and cooperates with EC, regulators, Member States and stakeholders to make the selection and management process as efficient and effective as possible, for the future benefit of the electricity customers.