



Webinar
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Smart Grids: EU Policy Framework and Demonstration Projects

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•Generation



➤ Net Generation
Capacity +650 GW

➤ Peak Demand
~450 GW

➤ RES and DER

•Transmission



➤ 30-40 TSOs

➤ HV lines 230
000 km

•Distribution

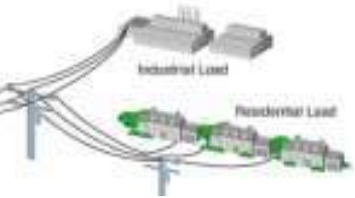


➤ More than 3500 DSOs

➤ MV/LV lines 1 500 000 km

➤ Network losses ~7 %

•Customers



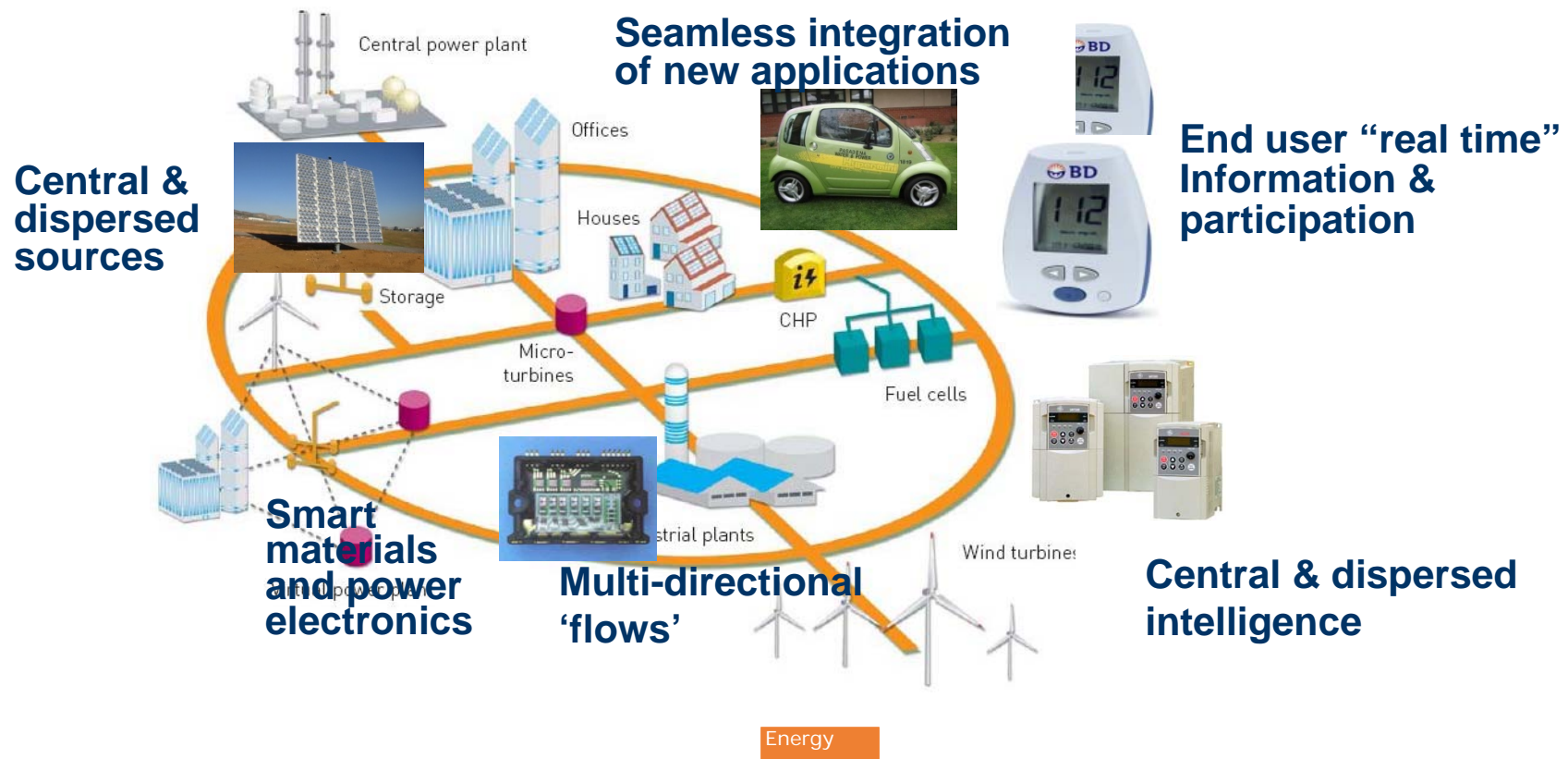
➤ Citizens served +500
millions

➤ Consumption +3000
TWh/year

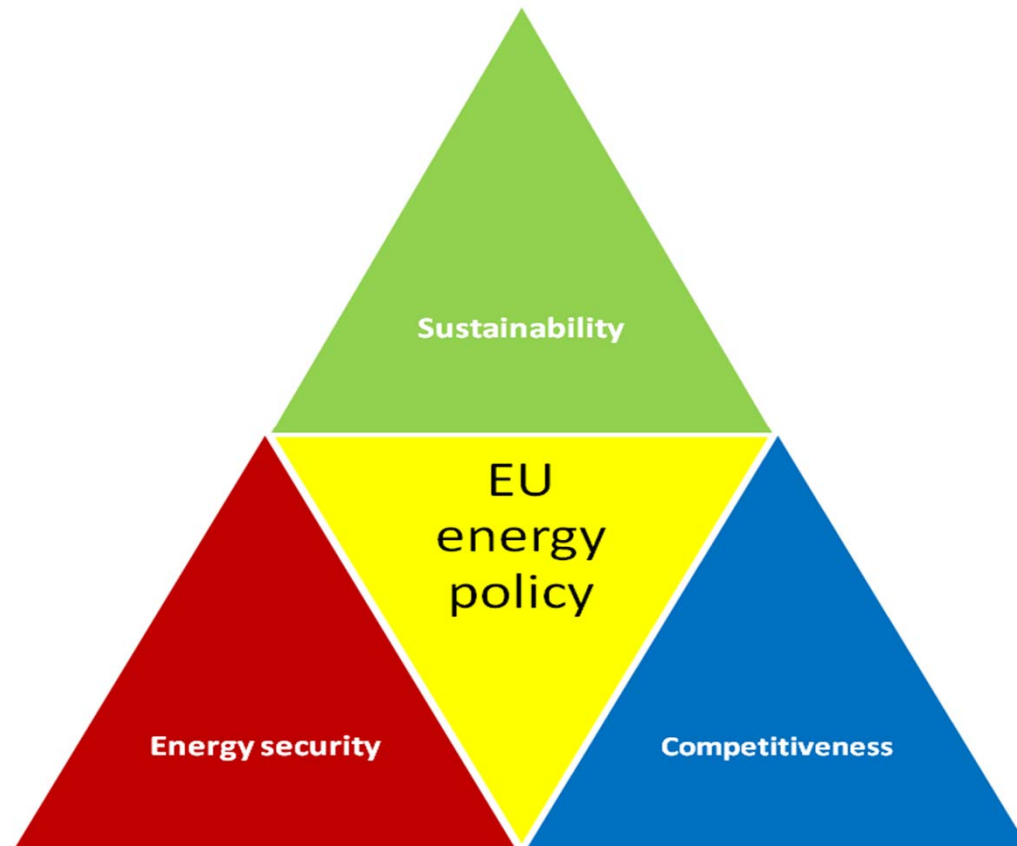
The EU electricity grid

EU definition

A Smart Grid is an energy network that can cost efficiently integrate the behaviour and actions of **all users** connected to it - generators, consumers and those that do both – in order to ensure efficient, sustainable power system with low losses and high levels of quality and security of supply and safety.



Broad policy framework : Integrated EU energy and climate policy



EU Policy drivers for Smart Grids

- Transition towards the low-carbon economy : 20-20-20 targets
- Guaranteeing high security, quality and economic efficiency of supply in **a market environment**
- **Consumer empowerment**
 - informed and engaged, i.e. interested and equipped to play an active role in the market
 - provided with choice (of suppliers, sources) and the possibility to exercise the choice
 - integrated in energy system so that they can not only consume but also supply energy



EU Policy framework and initiatives

Legal : Directives

- Energy Efficiency Directive
- Renewables Directive
- 3rd package for the internal energy market
- Electricity Infrastructure Regulation

Supporting roll out

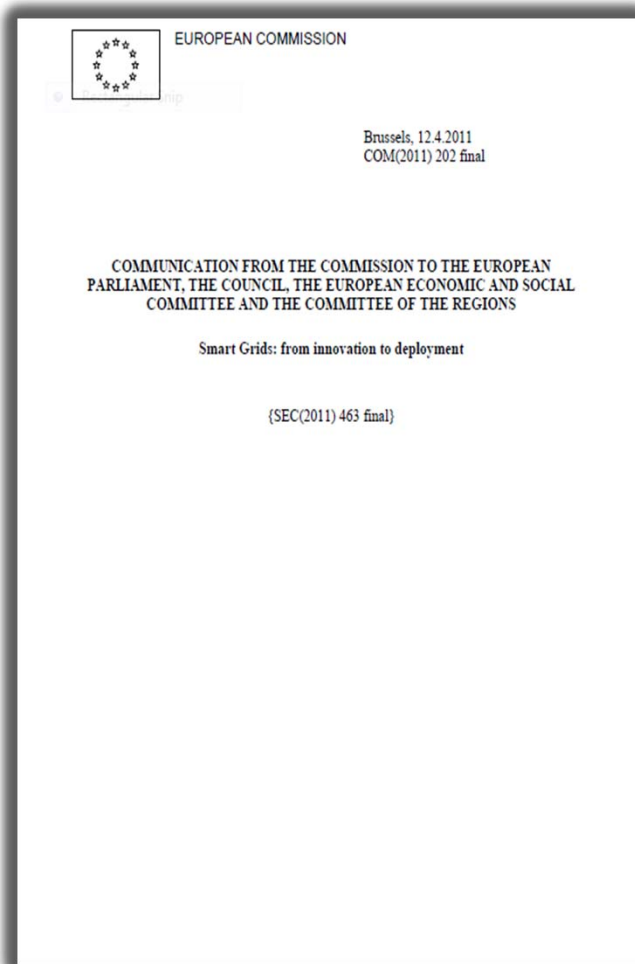
- Recommendations on cost benefit analysis and on smart meter functionalities
- Standardisation mandates

Funding instruments

- Connecting Europe Facility: infrastructure
- Horizon 2020: research and demonstration

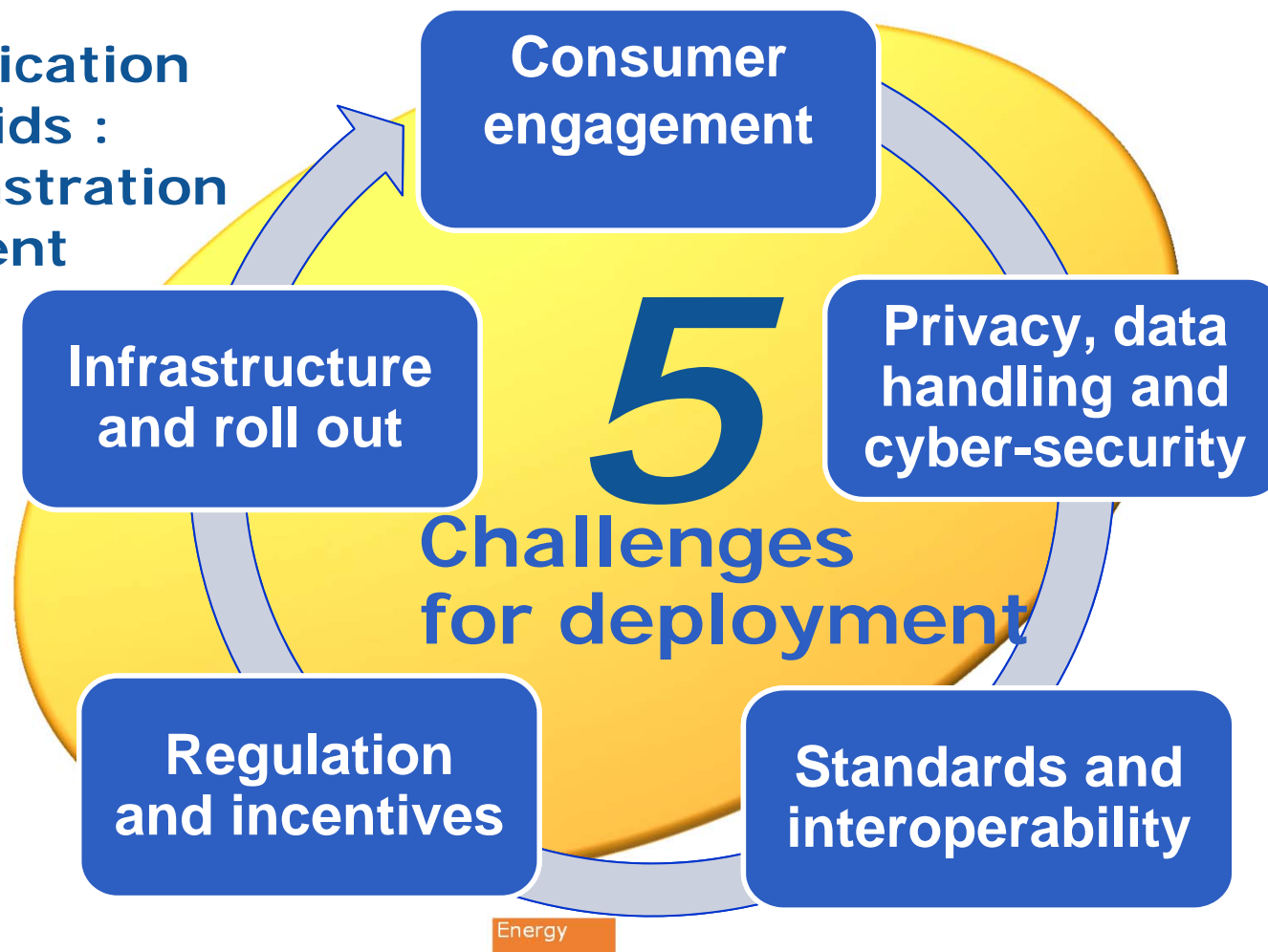
6 High level services

- Enabling the network to integrate users with new requirements
- Enhancing efficiency in day-to day grid operation
- Ensuring network security, system control and quality of supply
- Enabling better planning and future network investments
- Improving market functioning and customer service
- Enabling and encouraging stronger and more direct involvement of consumers in their energy usage and management



EU Smart grids task force

↓
EC Communication
on smart grids :
from demonstration
to deployment



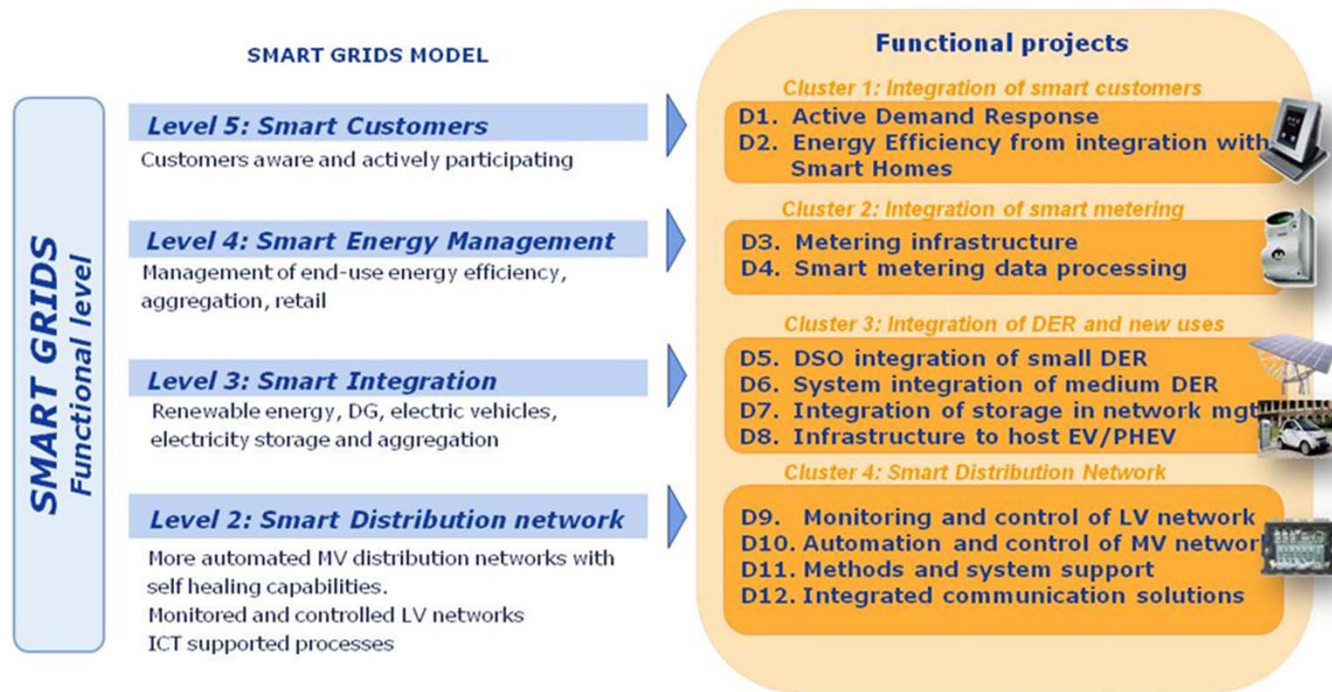


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European Electricity Grid Initiative

A common Research, Development and Demonstration (RD&D) program to accelerate innovation and address the most critical electricity system issues to reach the targets on energy and climate for 2020 and beyond.



Inventory of Smart Grid projects in Europe : update 2012 is available:

- Growing number: deployment, demonstration/pilots, R&D
- Participants: Grid operators, service providers, etc.
- Wide scope: smart meters (deployment, roll out), integration of DER, demand response,...etc.
- Increasing number of projects deal with consumer engagement
- The goal is to monitor the developments on the field
- Sharing of project experiences and lessons needs to be promoted
- Main barriers: policy related, social , regulatory



<http://ses.jrc.ec.europa.eu>

EU support to large scale demonstration projects

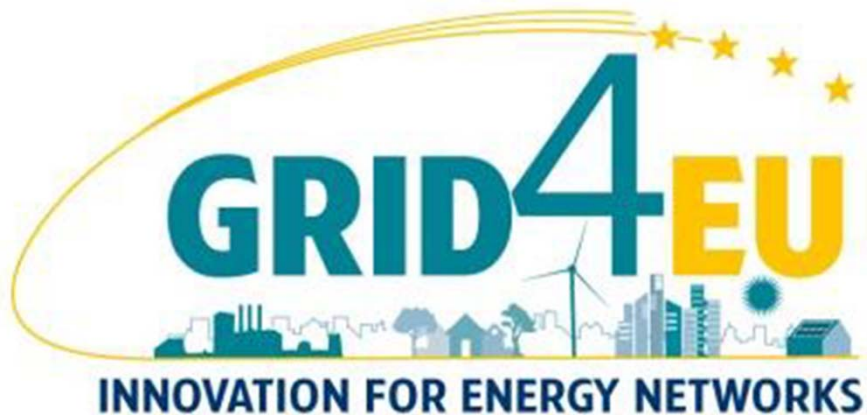
- Large impact envisaged in sector (lighthouse projects)
- Important budget per project (15 – 30 million EUR)
- Industry in the lead role
- New technologies implemented and validated on identified industrial, 'real life' scale demonstration sites
- Including strategies for replication and exploitation

EU support to large scale demonstration projects : examples from previous funding programme FP7

EcoGrid EU

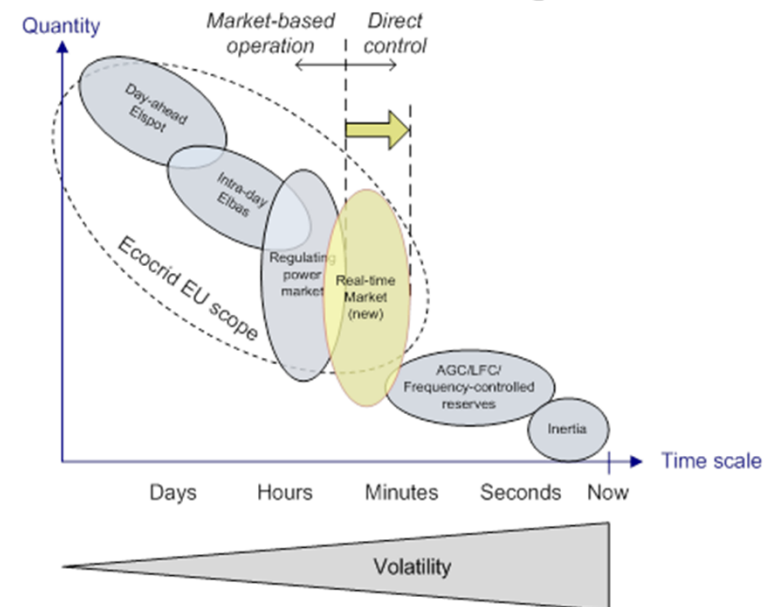
A Prototype for European Smart Grids

www.eu-ecogrid.net



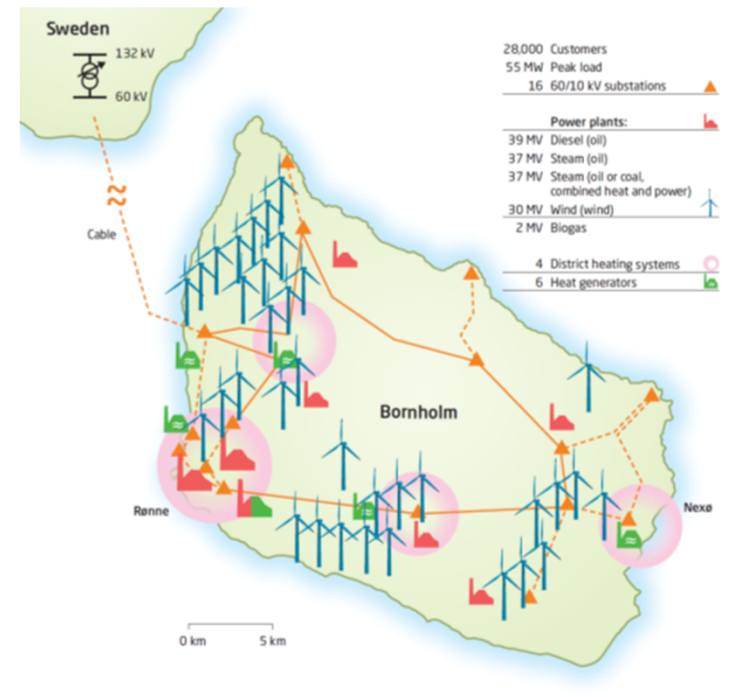
Ecogrid EU

- will develop and demonstrate in large-scale a generally applicable real-time market concept for smart electricity distribution networks with high penetration of renewable energy sources and active user participation.
- based on small and medium-size distributed energy resources (DER) and flexible demand response to real-time price signals.



Ecogrid EU

In the Danish island of Bornholm in the Baltic Sea : comprises ~28.000 electricity customers (55 MW peak load) and has very high penetration of a variety of low-carbon energy resources and technologies, including wind power, CHP, active demand, PV and electric vehicles





Funding opportunity: Horizon 2020 programme

CALL H2020-LCE-2014-2015

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html>

Grid and Storage : *SUBCALLS*

H2020-LCE-2014-3* and *H2020-LCE-2015-3



Funding opportunity: Horizon 2020 programme

Distribution grid topic: 60 million EUR available in call 2014

Impact sought:

- Demonstrate active demand in real world
- Deliver innovative ICT-based services
- Substantially increase local share of DER & RES
- Opening markets for grid & system technologies
- Active participation of prosumers & new players
- Mitigating capital & operational costs of grids
- Maximizing up-scaling and replication
- Accelerating implementation of new policies
- Lowering the cost of smart metering
- Enabling open market for services deployment



Funding opportunity: Horizon 2020 programme

- All demonstration projects shall integrate
 - Innovative Technology development
 - Innovative Business models
 - Develop plans for market uptake (including scaling-up and replication)
 - Check existing market barriers and work out proposals for solutions (policy, legislation, regulation, etc.)
 - Knowledge sharing

EC contribution to ISGAN International Smart Grid Action Network

- Annex I : inventory (based on the EC's Joint Research Centre's (JRC) inventory activities)
- Annex II : case studies (based on EC supported smart grid demonstration projects ; global **casebook on Active Demand Management**)
- Annex III : cost benefit methodologies (based on JRC activities)
- Annex V : Smart Grids International Research Facilities Network; European network of smart grid labs, DERLab, is the operating agent
- Annex VI: to be initiated



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**Thank you for
your attention !**