

JRC mapping of Smart Grid projects in Europe

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European Commission - Joint Research Centre (JRC)

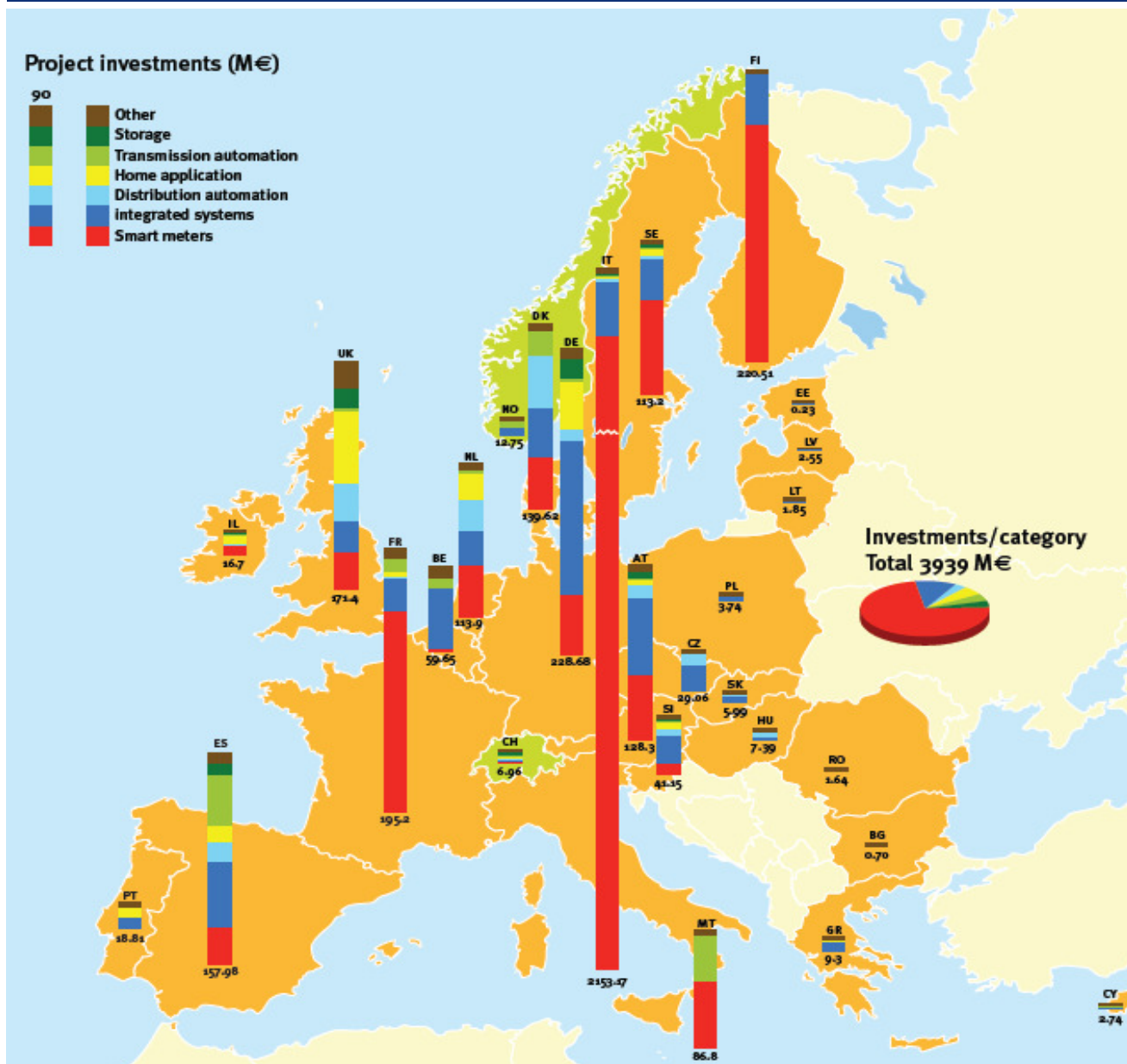
IET - Institute for Energy and Transport

Petten - The Netherlands

- Questionnaire sent in November 2010 to hundreds of stakeholders
- Over 300 replies (on a voluntary basis) by April 2011
- Screening of the projects to take out those which did not fall into the scope of our study or that did not provide enough information for the analysis
- 219 projects in the final catalogue.

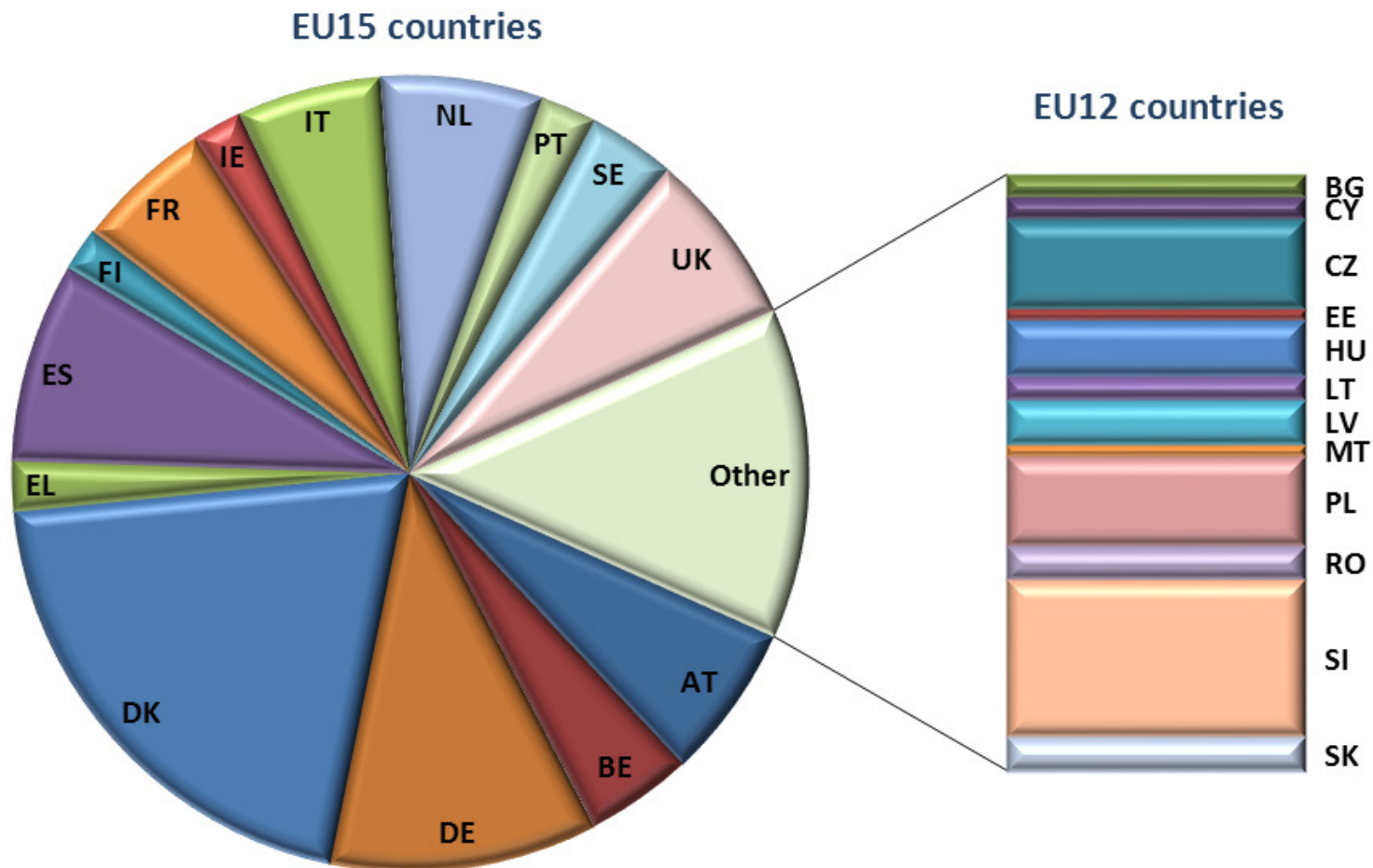
- The catalogue includes projects focusing on grid integration of new energy technologies and resources (e.g. new storage devices, electric vehicles).
- Includes projects aiming at making the grid smarter (through new technologies and new ICT capabilities).
- Does not include projects aiming at making the grid stronger (e.g. through new lines, substations and power plants).

- Description, objectives, location and timeframe
- Deployed assets
- Organizations' names and categories (e.g. DSO, service provider)
- Budget and shares of participating organizations
- Funding source
- Project category
- Prevailing stage of development (R&D, Demonstration, Deployment)
- Consumer engagement: e.g. motivational factors used to engage consumers, consumers' response etc.

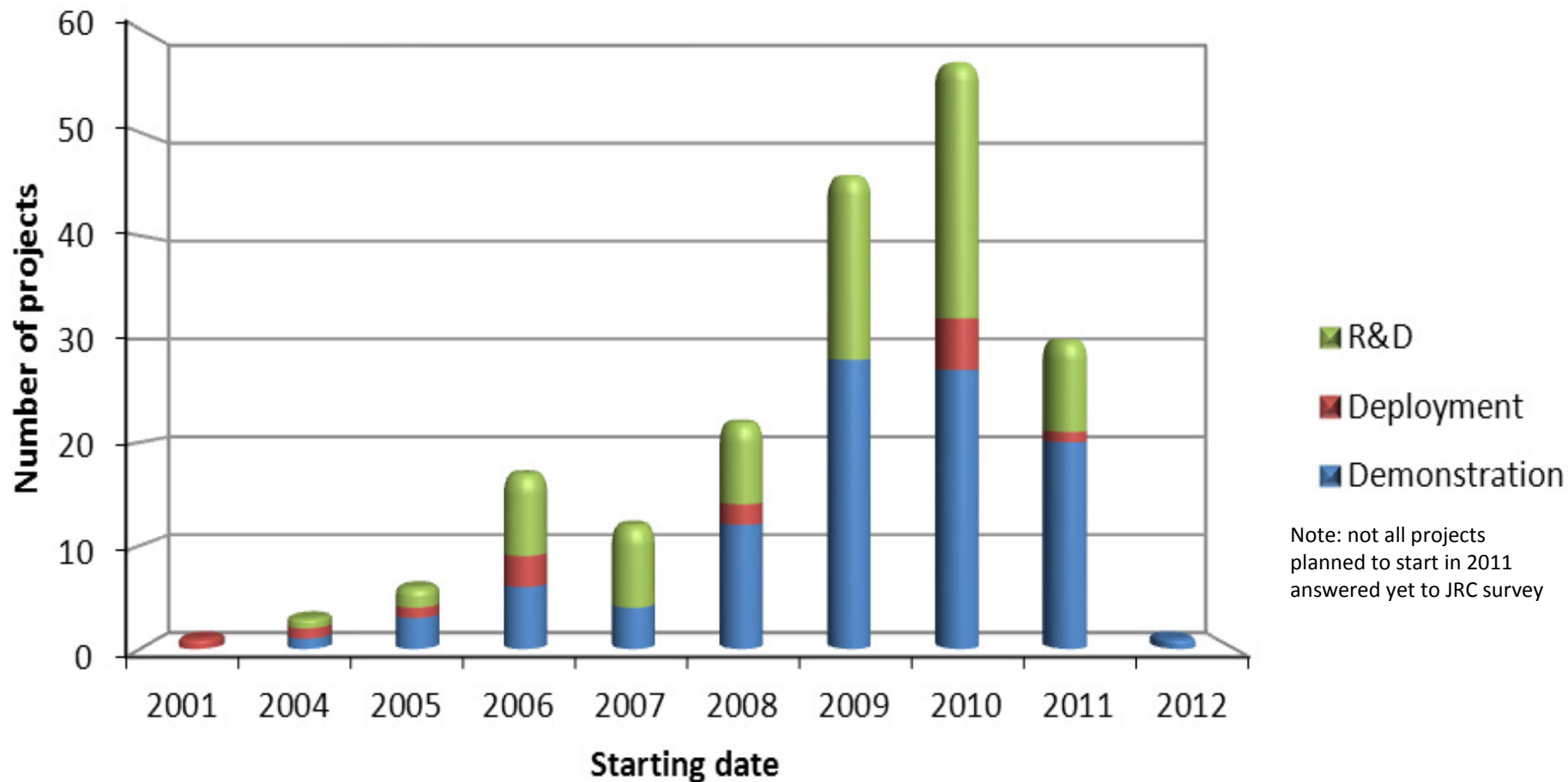


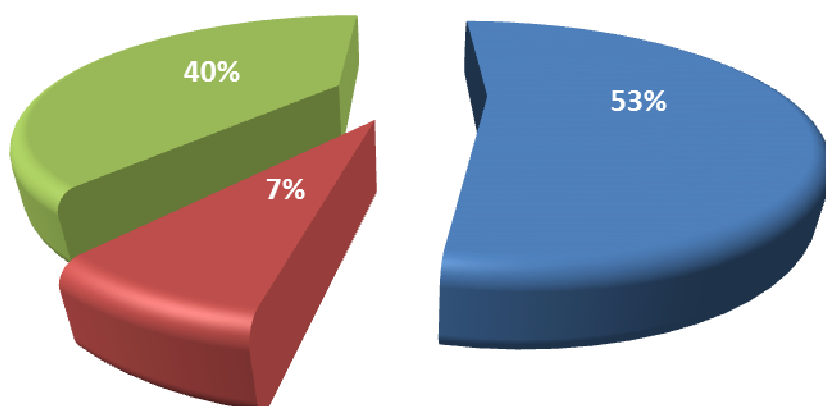
- ✓ Uneven distribution of investments across Europe. Most of investments in EU-15 Countries
- ✓ Over 5 billions of investments, but still at the beginning of the Smart Grid transition

The picture does not include the Smart Meter Roll-out in Sweden, spanning approx. 150 projects and amounting to approx.1500 M€, as a detailed description of the projects was not received.



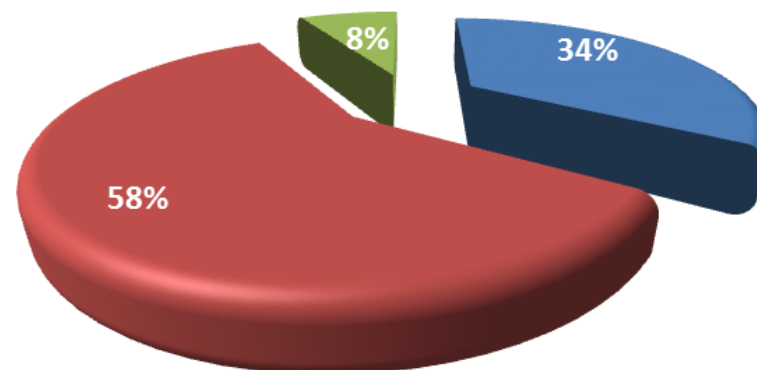
	European Union (JRC mapping)	USA (ARRA Smart Grid program)
Smart Grid project categories	Smart Meter and Advanced Metering Infrastructure	Advanced Metering Infrastructure
	Grid Automation Transmission	Electric Transmission Systems
	Grid Automation Distribution	Electric Distribution Systems
	Integrated System	Integrated and crosscutting Systems
	Home application Customer Behaviour	Customer Systems
	Specific Storage Technology Demonstration	Storage Demonstration
	Other	Equipment Manufacturing Regional Demonstration





■ Demonstration ■ Deployment ■ R&D

Number of projects

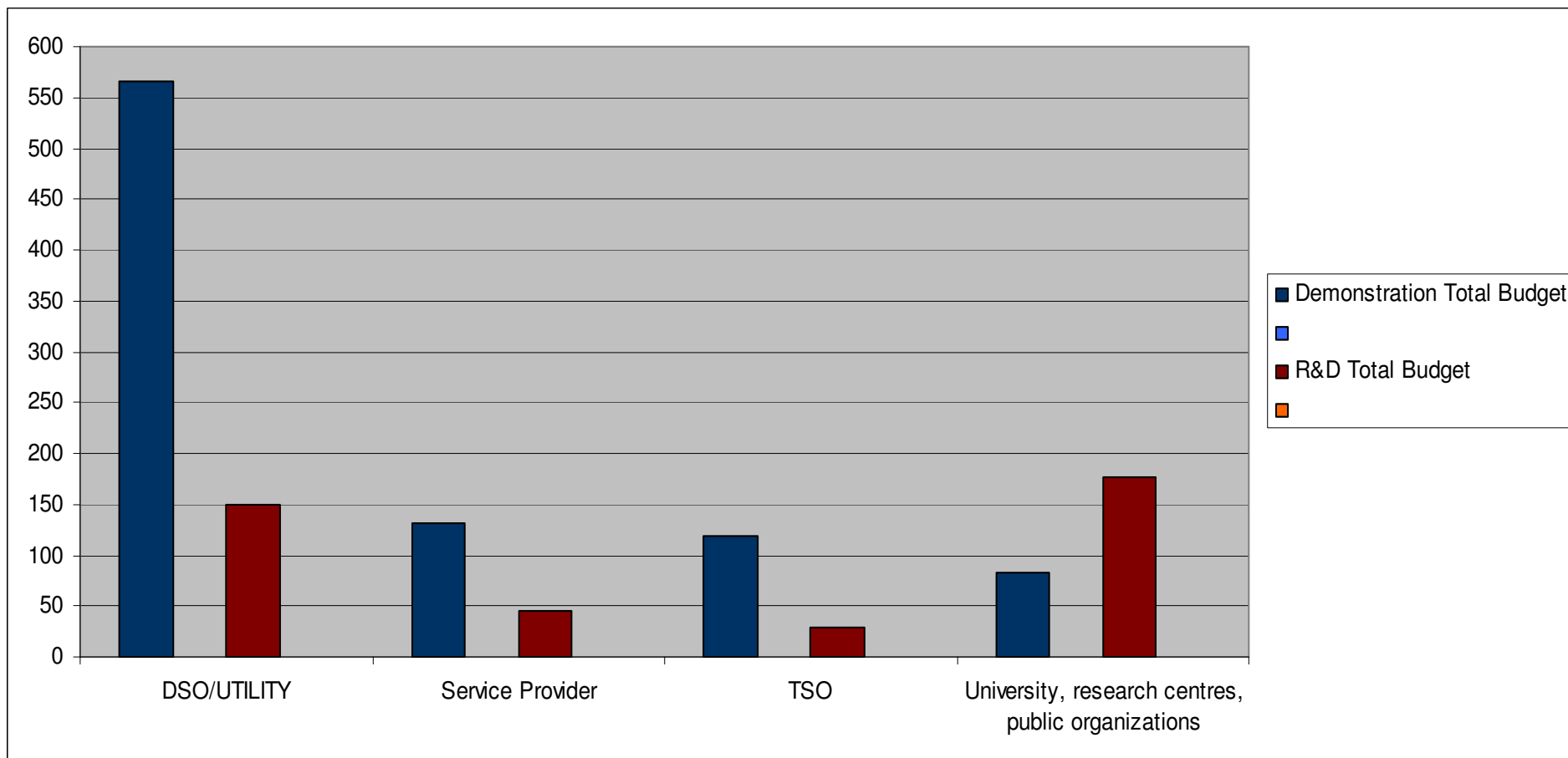


■ Demonstration ■ Deployment ■ R&D

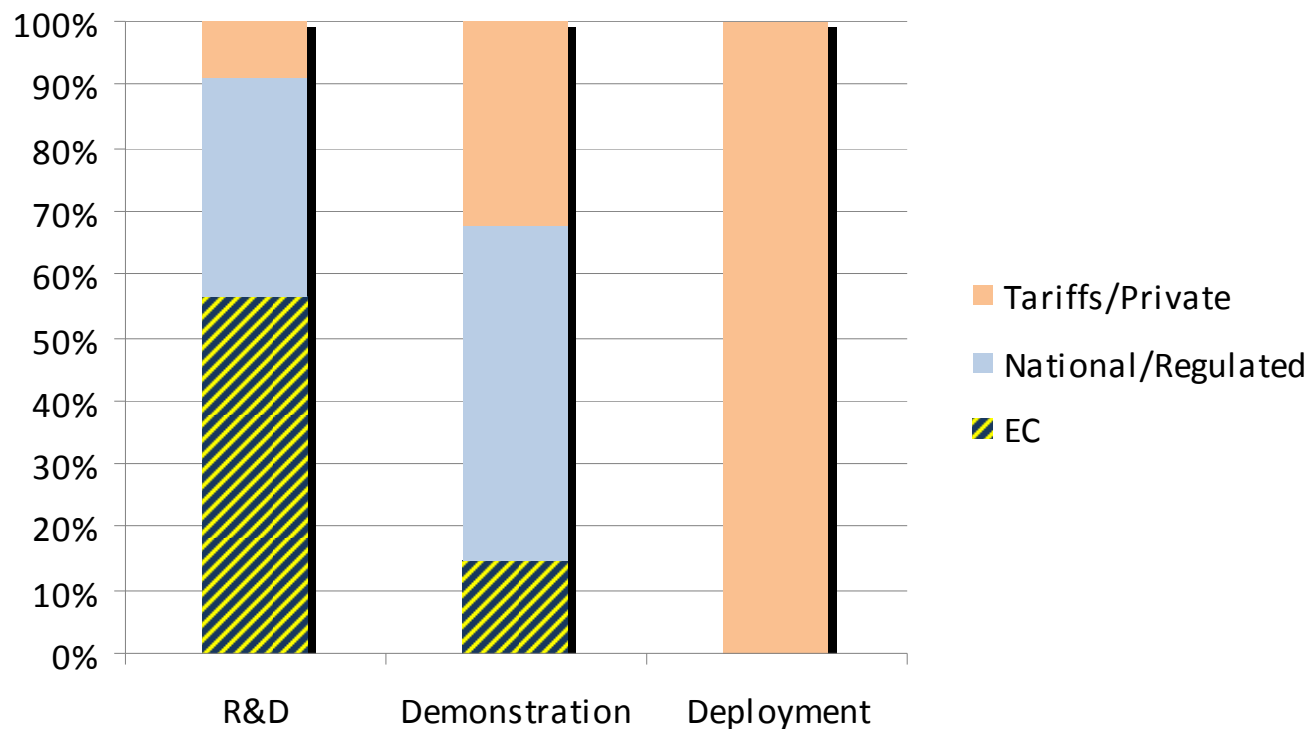
Budget (M€)

Deployment projects: greatest part of investment, main focus: **Smart Meters** roll-outs

R&D and Demonstration projects: mostly small-medium scale (4.5 and 12 million € of average budget respectively), wider portfolio of technologies and applications

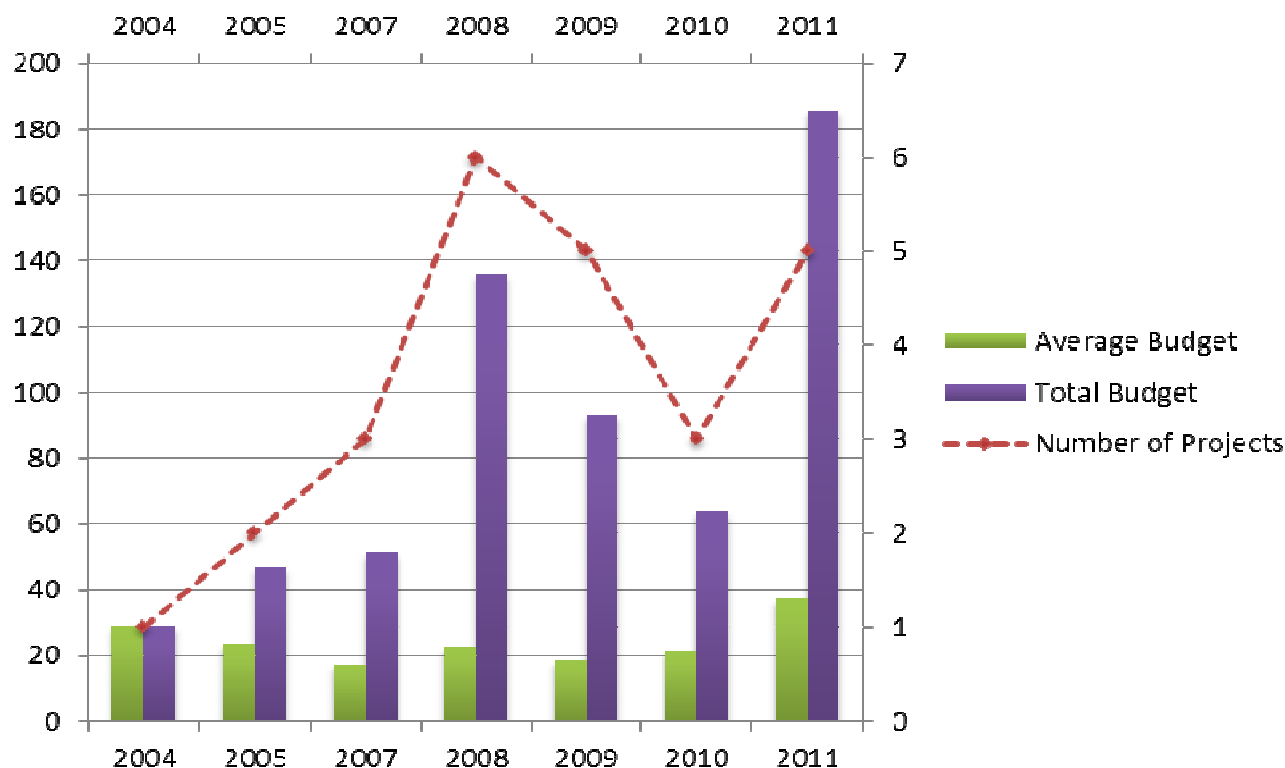


- ✓ Several new players with diverse business interests and competencies
- ✓ Leading role of DSOs/utilities

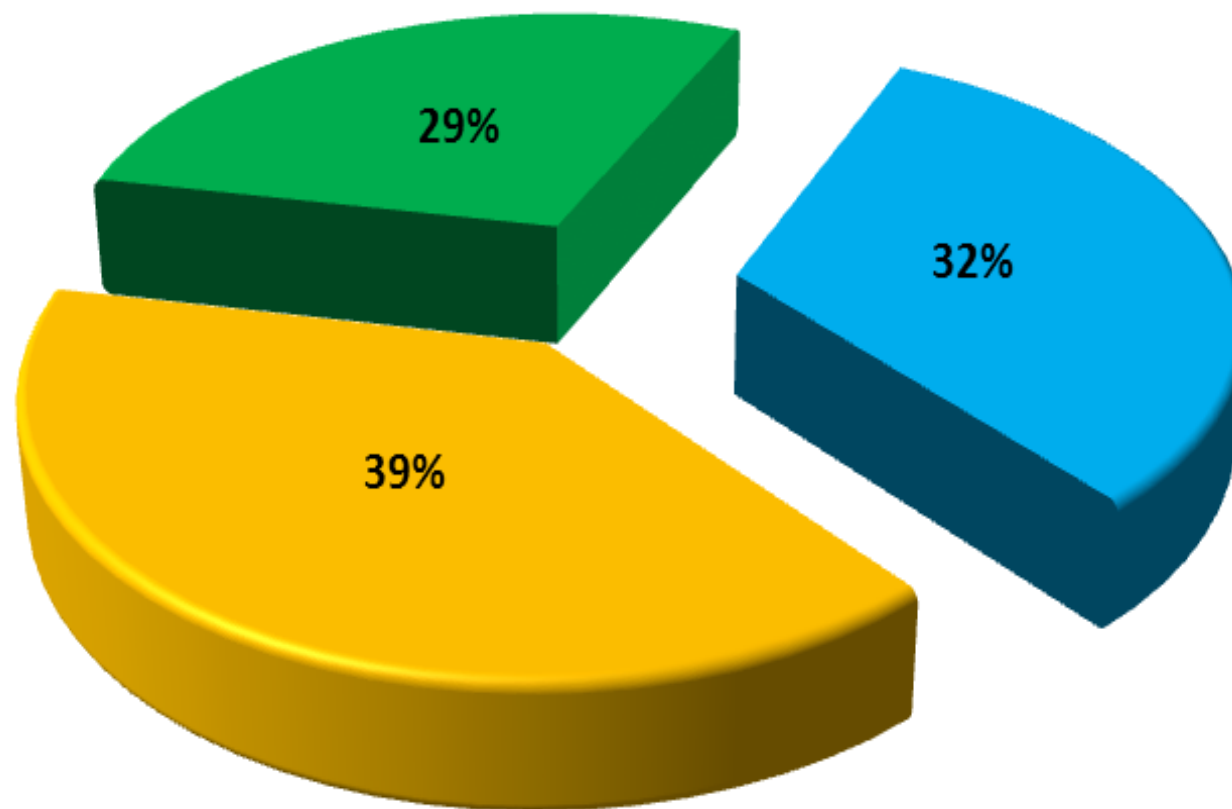


- ✓ R&D&D projects largely dependent on funding
- ✓ Room for extra funding (new tariff schemes cannot be immediately operational)

Size and focus of large-scale demonstration projects (DSO/utility-led)



- ✓ Main focus on DER and DR integration or on preparations of smart metering roll-outs
- ✓ Number/average size of large-scale demonstrators have not significantly increased compared to the early years of the Smart Grid transition. Persisting uncertainty.

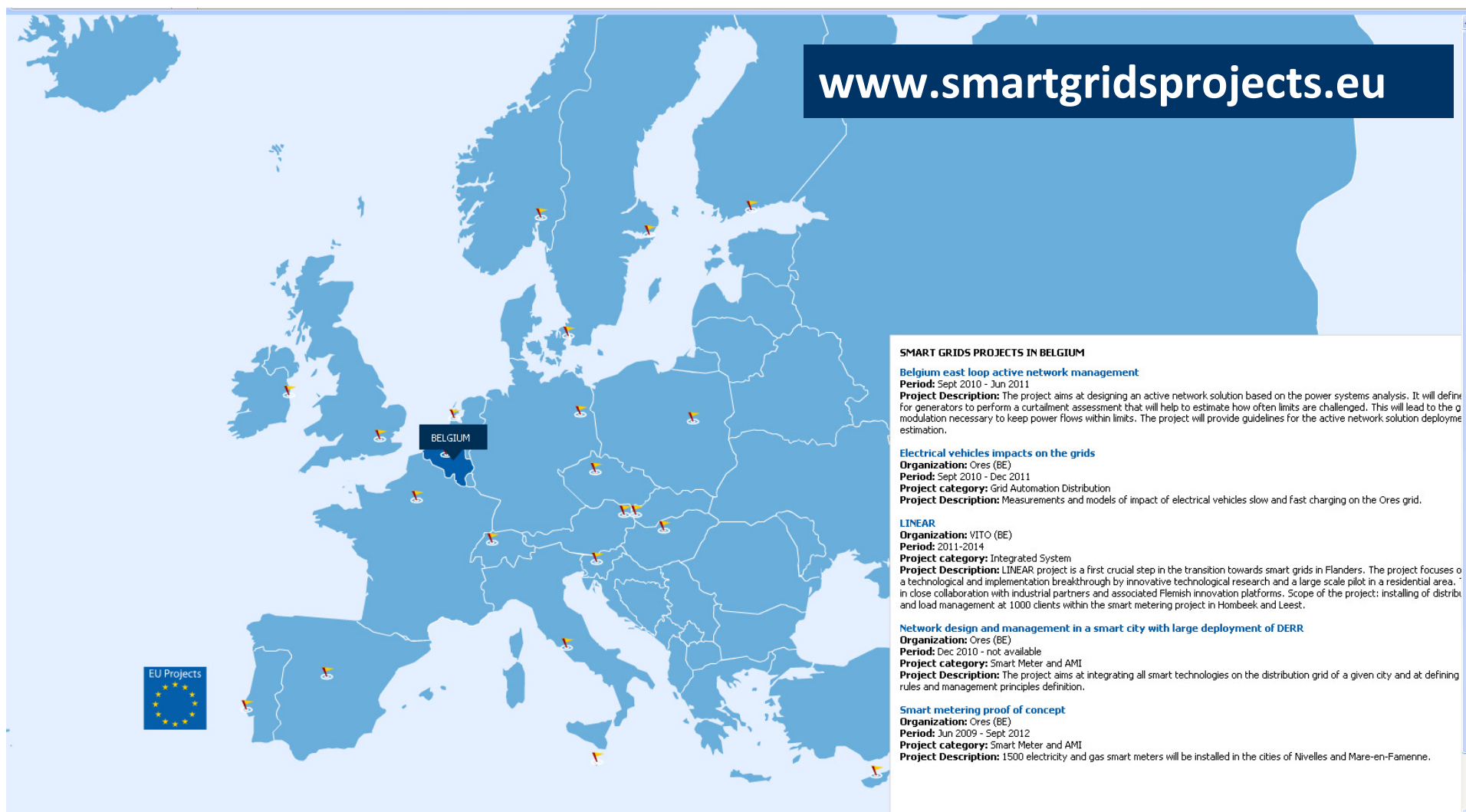


■ Control over electricity bills ■ Better comfort ■ Environmental concerns

Other themes:

- Appeal for new technology (pioneering)
- Transparency
- Economic gains (for providing flexibility to the network operator_industry sector)

- The need for mapping Smart Grid projects and knowledge sharing is widespread. Very collaborative response from stakeholders
- Need to strengthen national repositories
- How to further motivate project coordinators to provide data on a voluntary basis?
- Which data is important? How to organize the data?
- How to structure the reporting formats to smoothly collect and share information (e.g. among national mapping, European mapping, ISGAN mapping)?



www.smartgridsprojects.eu

SMART GRIDS PROJECTS IN BELGIUM

Belgium east loop active network management
Period: Sept 2010 - Jun 2011
Project Description: The project aims at designing an active network solution based on the power systems analysis. It will define for generators to perform a curtailment assessment that will help to estimate how often limits are challenged. This will lead to the modulation necessary to keep power flows within limits. The project will provide guidelines for the active network solution deployment estimation.

Electrical vehicles impacts on the grids
Organization: Ores (BE)
Period: Sept 2010 - Dec 2011
Project category: Grid Automation Distribution
Project Description: Measurements and models of impact of electrical vehicles slow and fast charging on the Ores grid.

LINEAR
Organization: VITO (BE)
Period: 2011-2014
Project category: Integrated System
Project Description: LINEAR project is a first crucial step in the transition towards smart grids in Flanders. The project focuses on a technological and implementation breakthrough by innovative technological research and a large scale pilot in a residential area, in close collaboration with industrial partners and associated Flemish innovation platforms. Scope of the project: installing of distribution and load management at 1000 clients within the smart metering project in Hombek and Leest.

Network design and management in a smart city with large deployment of DERR
Organization: Ores (BE)
Period: Dec 2010 - not available
Project category: Smart Meter and AMI
Project Description: The project aims at integrating all smart technologies on the distribution grid of a given city and at defining rules and management principles definition.

Smart metering proof of concept
Organization: Ores (BE)
Period: Jun 2009 - Sept 2012
Project category: Smart Meter and AMI
Project Description: 1500 electricity and gas smart meters will be installed in the cities of Nivelles and Mare-en-Famenne.

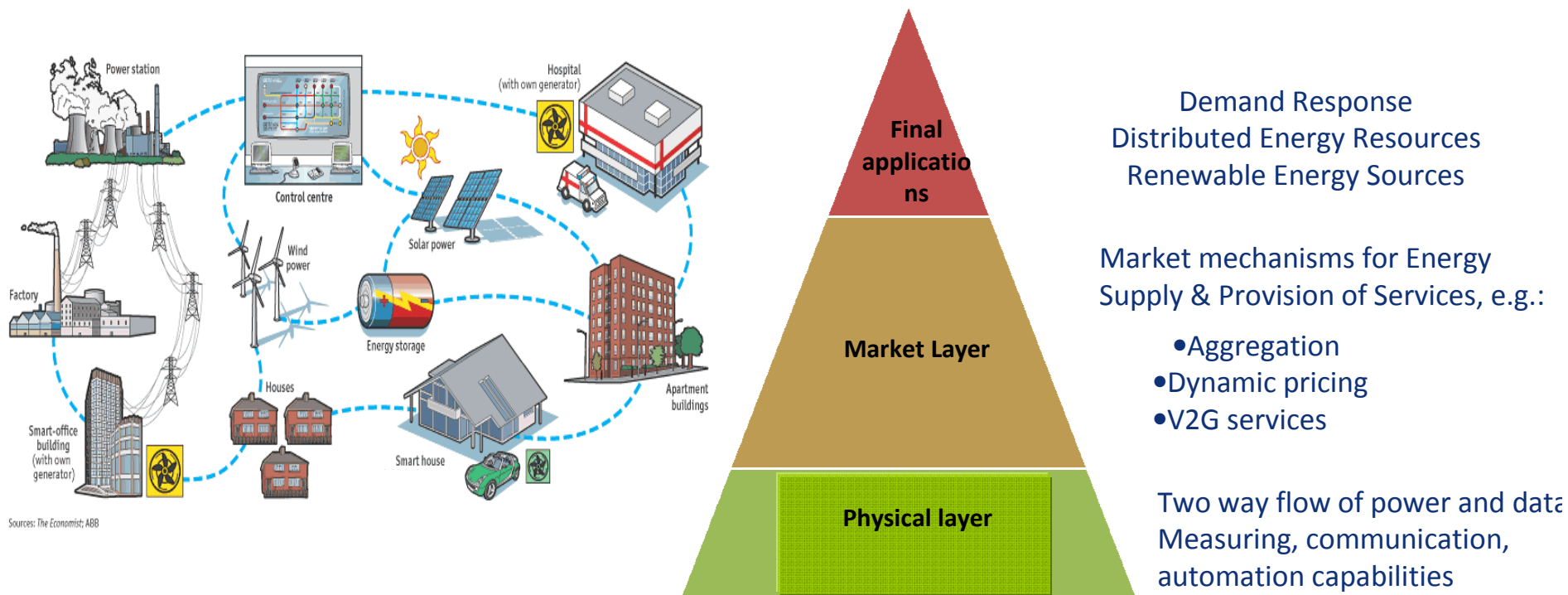
**Thank you for
your attention**

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Smart Electricity Systems
<http://ses.jrc.ec.europa.eu/>



Back up slides



“A smart grid is a market platform connecting producers and consumers who contract and negotiate their mutual exchange of value (product, service) for value (payment). *A smart grid is a transactive grid*” [Lynne Kiesling]