Smart grids: New study highlights key challenges and trends in the EU

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Intelligent electricity networks – smart grids – are a key component in the EU energy strategy, but substantial investments are needed to make them a reality. A new study from the European Commission's in-house science service, the Joint Research Centre (JRC), presents a review of 219 smart grid projects Europe-wide. The vast majority of investments, amounting to about €5.5 billion, were made in old Member States ("EU15"), while new Member States ("EU12") tend to lag behind.

By providing a complete catalogue of the projects to date, the report showcases how smart grids can help integrate more renewables, accommodate electric vehicles, give more control to consumers over their energy consumption, avoid blackouts and restore power quickly when outages occur.

European Commissioner for Research, Innovation and Science, Máire Geoghegan-Quinn, says: The implementation of smart grids is a significant opportunity for European industry to research, to market and to export new technologies, to create new jobs and maintain global technological leadership. We are only at the beginning of the transition to smart grids, and at this stage, sharing the results of research projects can help increase the stock of knowledge and add impetus to innovation in this field.

The report shows that Distribution System Operators (DSOs) play a leading role in coordinating smart grid deployment across Europe. DSO-led projects represent about 27% of all projects and about 67% of

investments. However, the study underlines that current regulation in EU Member States tends to promote cost efficiency by reducing operation costs rather than by upgrading to a smarter system. It warns that the investment potential on smart grids will have difficulty accelerating without revising the current regulatory models. Regulation should ensure a fair sharing of costs and benefits in the set up of services platforms, as power system owners and operators are expected to sustain the majority of investments whereas several players might get benefits from smart grids.

Smart grids enable a two-way exchange of information and power between producers and consumers, and this leads to increased transparency, promoting responsible energy saving measures on the consumers' side. Success stories in the EU15 Member States confirm that consumer engagement is crucial to the effectiveness of smart electricity systems and needs to be won through trust, understanding and clear tangible benefits. For example, real-time information on electricity consumption and prices allowed consumers to save up to 10% of electricity.

The survey indicates that in almost all countries a significant amount of investment addresses the integration of different smart grid technologies. Most technologies are known, but their integration - i.e. how well they work together - is the key challenge for the success of these projects and the overall smart grid concept.

Background

This inventory compiled by the Joint Research Centre results from a request from the Directorate-General for Energy (DG ENER) to start a data collection effort to develop a catalogue of Smart Grids projects in Europe and to carry out a qualitative analysis of their results. The analysis contributed to the drafting of the Commission Communication

"Smart Grids: from innovation to deployment", adopted in April 2011 [COM (2011) 202].

More information: "Smart Grid projects in Europe: lessons learned and current developments" report: JRC Smart Electricity Systems website: ses.jrc.ec.europa.eu/index.php … cle&id=93&Itemid=137

EC Communication on Smart Grids – Smart grids: from innovation to deployment - COM(2011) 202, 12/04/2011 eur-lex.europa.eu/LexUriServ/L … 11DC0202:EN:HTML:NOT

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