

**European Distribution System Operators for Smart Grids  
- view on European Investment Bank perspective  
on the energy sector and key developments (section 3)**

EDSO for Smart Grids (EDSO) agrees with the EIB that the electricity networks will play an increasingly important role towards the future, realizing a low carbon economy. The shift to electricity as an energy carrier for heat and transport is an important development. To accommodate new and increasing demands and to facilitate sustainable distributed energy production, the grids will need to be expanded and reinforced. Total investments in the EU distribution grids are estimated to 400 billion EUR<sup>1</sup> for the ten years to come. EDSO believes that with the evolution of Smart Grids this can be done most efficiently, thus decreasing the needed total social capital investments.

The introduction of Smart Grids and Smart Meters will empower electricity customers and open up for customers to take a more active role in the electricity market, managing their own demand and production. It is of fundamental importance to fully embrace and internalise the dynamics of energy market liberalisation, relying on market based price signals. Here the DSO will play a market facilitator role and really favour innovative development and offers from suppliers open to competition.

EDSO welcomes the acknowledgement of the EIB in the essential need of more and better research, development and innovation. EDSO and its member companies are heavily involved in many important EU research, development and innovation projects..

Below the EDSO views are summarised in direct connection to the relevant questions stated in the consultation paper.

**4.1. General energy and economic context**

*Particularly in the current economic climate, is there a trade-off between promoting a competitive and secure energy supply and one which is environmentally sustainable? Where should the balance lie and what implications does this have for energy sector investments?*

The trade-off between the competitiveness/affordability and secure/reliability against sustainability, environmental friendly is *not* a single balance between two goals. These three objectives have to be in balance, but making policy choices upholding *all* three objectives

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<sup>1</sup> See also: EC communication on Energy Infrastructure priorities for 2020 and beyond, 17.11.2011 based on PRIMES calculations

In order to reach a low carbon economy by 2050 and bearing in mind that the needed investments for infrastructure are substantial and have a considerable timespan (30-50 years), EDSO strongly supports the investment politically, socially, economically and financially in a long term low carbon, sustainable energy system.

EDSO strongly supports the EU energy policy goals, where the development of Smart Grids will give a very strong contribution to 2020 and beyond – decreasing greenhouse gas emissions and increasing energy efficiency and the share of renewable energy. The Distribution System Operators will here play a key role ensuring the possibility to accommodate new distributed renewable energy sources, active customers with smart metering systems, the charging infrastructure for electric vehicles and the possibility to store electricity locally, at the same time as network stability is guaranteed.

*How does investment in the energy sector contribute to growth and employment? Are investments in all energy sub-sectors equally valuable? And how does investment in the energy sector rank relative to other investments in the economy which support growth and employment?*

In order to incorporate the massive investments in renewable energy resources foreseen towards 2020 and beyond into the existing infrastructure, there is an immediate need for investment in all Smart Grid areas. This will directly create jobs and at the same time enable the creation of various new products and value added services to be offered to energy consumers and producers, thus realising new markets, more growth and economic development.

#### **4.2. renewable energy**

*The Bank's economic justification for supporting emerging renewable energy technologies, whose cost is significantly above that of conventional and mature renewable energy technologies, is that continued investments in these technologies will eventually lead to cost reductions and will ultimately be the least-cost approach to meeting the EU's renewable energy targets. Do you agree with this approach? Is there an alternative approach to the economic justification of these technologies which you consider more appropriate?*

EDSO supports the European Union energy targets and the development of renewable energy generation. Most of the new renewable energy resources are small scale and distributed, needed to be integrated into the distribution networks. The distribution system operators are facing huge investments to connect the generation and to reinforce the grids.

Smart grids will make the integration of renewable energy resources more cost efficient but it is still of utmost importance to take the network integration and system impacts into account when investing in and planning for new renewable energy resources.

*What level of investment in RE do you expect in the short and medium term?*

The European Commission has forecasted Investments in Renewable Energy Generation amounting to some 370 billion EUR<sup>2</sup> towards 2020.

#### **4.3. Energy efficiency**

*What do you think are the main barriers to energy efficiency investments? What might be done to overcome these?*

EDSO believes that energy efficiency offers very interesting opportunities and is one of the key ingredients for a sustainable cost efficient energy future. Earlier, focus has been on development of individual technologies, whilst now significant opportunities lie in the development of system enabling technologies, catalysing synergies by facilitating information flows and remote controlling. EDSO strongly believe that the development of Smart Grids will play a key role in this important development, such as:

- Owning and operating advanced metering infrastructure
- Increasing customers' awareness of their consumption profile, enabling display and use of data, offering an open interface for the metering data to the market (energy service companies, aggregators, retailers etc.)
- Enabling Active Demand development
- Owning and operating storage facilities aimed at improving grid operation
- Electric Vehicle smart charging infrastructure development and management (where the regulation allows this) to limit negative effects on the network, to limit additional infrastructure investments and to offer a multivendor platform for Energy traders and Value added services

In order to bring this to reality, regulatory frameworks will need to be changed and roles and responsibilities will have to be clarified to provide a stable climate for investors. The on-going development of Smart Grid standards and inter-operability is also very important here.

#### **4.4. Security of supply**

*Is the traditional model for electricity transmission and distribution changing? What implications does this have for future investments in electricity networks?*

We are facing a *paradigm shift*, changing the in the traditional model of electricity distribution. From the centrally build systems with a more passive role for the distribution grids – distributing electricity in radial networks, the distribution systems will evolve towards actively managed meshed distribution grids with distributed generation and active consumers. In order to incorporate large amounts of distributed energy generation, the energy system of tomorrow will have to increase its flexibility and the principle “generation follows demand” will not be the leading dogma. The active distribution grids will be

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<sup>2</sup> See also: EC communication on Energy Infrastructure priorities for 2020 and beyond, 17.11.2011 based on PRIMES calculations

augmented with data, information and communication systems in order to monitor and facilitate new services and coordinate energy flows throughout the network to match supply and demand more efficiently.

*What is the future role of smart grids, offshore grids and energy storage solutions?*

The active distribution grids are called 'Smart Grids' and will facilitate the incorporation of distributed energy generation, support and facilitate the envisioned internal market on energy and use the capacity of the system as efficiently as possible. There will be a need for local system balancing of supply and demand including local energy storage facilities.

The regulatory frameworks will need to be changed and roles and responsibilities will have to be clarified to provide a stable climate for investors.

#### **4.7. RDI**

*Which are the key innovative energy technologies under development? The development of which key innovative low-carbon energy technologies should receive most financial support?*

The most important area for further research and development in the short term is integration of different technologies in the new and actively managed local grids; including incorporating renewable energy sources, active demand, electrical vehicles smart recharging and distributed energy storage. Here it is important to focus on technology integration rather than technology innovation, making different technologies cooperate with each other.

*Which barrier(s) are hindering the deployment of innovative, low-carbon energy technologies most significantly?*

There is a great need for developed regulatory frameworks, taking into account the massive investment needs as well as RD&D and innovation. There is also a great need for public funding to test new technologies and system solutions. Standards and inter-operability is also of great importance in order to accelerate an efficient roll-out of smart grids.

*Should financial support be spread across a large number of small research projects or be selective and concentrated on a few promising large research projects?*

There is a great need for public financing of research development and demonstration projects. The financial support should be spread across the different areas but it is of great importance to focus on large scale demonstration projects in real life situations.

There is a need to coordinate funding schemes on European and national levels and there is a great need to incorporate also the long term view including RD&D into the national regulatory frameworks.