

## ROADMAP

Title of the initiative: **Legislative proposal for a regulatory framework on Smart Grids**  
Type of initiative (CWP/Catalogue/Comitology): CWP  
Lead DG/contact person/details: ENER/B2.  
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### Initial IA screening & planning of further work

#### **A. Context and problem definition**

Smart Grids could be described as an upgraded electricity network to which digital communication and intelligent metering, sensors and control and monitoring systems have been added. This technology enables a two-way communication between the supplier and the consumer and makes possible to improve the control over the electricity flowing in the system.

Smart Grids have a significant potential to contribute to the Commission's internal market and competitiveness, security of supply and climate change objectives while increasing consumer and social welfare and creating new "green jobs".

The benefits of the Smart Grids include energy saving, reduction of costs, consumer empowerment and increasing reliability, security and robustness of the electricity grid. In particular:

- Smart Grids will contribute to providing Europe's industry and European citizens with a highly secure electricity supply on a most cost-effective basis with minimum damage to the environment, in line with European related policies on climate change, security of supply and competition.
- Smart Grids will enable new technologies, including hybrid electric vehicles, distributed generation, renewable energies, smart metering, lighting management systems and energy management and energy efficiency applications.
- Implementation of Smart Grids will stimulate innovation in new network and associated electrical products and Information and Communication Technologies (ICTs). The benefits of new technologies and infrastructures have the potential to deliver a positive effect for Europe's citizens and for international business. Job opportunities will be broadened as the networks require workers with new skills and integration across new technology areas. Moreover, it provides a considerably opportunity to boost future competitiveness of the European technology providers and its worldwide technological leadership.
- At the same time, the implementation of Smart Grids and Smart Meters should not overall lead to increased costs for consumers, given the potential benefits in terms of energy and costs savings through the application of the system. Mechanisms need to be put in place to ensure that this is the case and that financial benefits are passed on to consumers.
- Smart Grids will help to achieve sustainable development, linking different but complementary renewable resources, Combined Heat and Power (CHP) and other cleaner and more efficient distributed generation technologies. Smart Grids networks

will, in addition to electricity flows, establish a two-way flow of information between supplier and user, increasing energy saving and reduction of CO2 emissions.

Use Smart Grids for future high-tech infrastructures in Europe, such as integration of renewable and energy infrastructure for electric cars, needs to be addressed at European level from a very beginning in order to find a harmonised and cost-efficient direction, avoid duplication of work, create synergies and assure interoperability.

EU does not have yet in force any legislation that would directly oblige the Member States to invest and deploy Smart Grid technologies. Initial steps towards related legislation at European level are:

- The Directive on energy efficiency (2006/32/EC) encourages the Member States to take into account efficiency gains obtained through the widespread use of cost-effective technological innovations, for instance electronic metering.
- The 2001/7 directive (now 2009/28/EC) on the promotion of the use of energy from the renewable supports the development of Smart Grids indirectly.
- The 3rd Energy Package's provisions (to be transposed by March 2011) encourage the long term modernisation of the European grids across Europe, subject to individual Member State's transposition. In addition, the Annex 1 of the new Electricity Directive (2009/72/EC) explicitly encourages the Member States to assess the conditions for roll-out of the smart meters as a first step towards the implementation of Smart Grids.

Beyond the above first legislative steps, the development of an EU-regulatory framework for Smart Grids is of crucial importance in order to guarantee that existing barriers to the Smart Grid roll-out (such as data protection rules, lack of standardisation, lack of minimum requirements on functionality and uncertainties in who does what) are addressed at European level as well as that no new barriers to the Smart Grid deployment are created by unilateral actions of the Member States. Furthermore, the implementation of EU-wide rules framework for Smart Grids will guarantee interoperability of the European grids and related infrastructure, create transparency and greater confidence among future Smart Grid investors. In order to maximise running efforts around Europe and capitalise on the results of R&D projects and pilot experiments that have been achieved until now, a Task Force Smart Grids has been set up in November 2009 by DG ENER in collaboration with five DGs (ENTR, INFSO, JLS, RTD and SANCO), regulators and other competent authorities including national data protection supervisory authorities, consumers, suppliers, traders, power exchanges, transmission companies, distribution companies, power equipment manufactures and ICT providers. The objective of the Task Force is to advice the Commission on policy and regulatory directions at European level and to coordinate the first steps towards the implementation of Smart Grids. It will also regularly report on its activities and deliverables to Members States at the London and Florence regulatory fora.

Till June 2011, the Task Force will identify strategic decisions and regulatory recommendations for the EU-wide implementation of Smart Grids and produce a strategic roadmap for the implementation of Smart Grids into the European internal market. The first intermediate results are expected by June 2010 on the following topics:

- Functionalities of Smart Grid and needs for standards.

- Regulatory recommendations for data safety, data handling and data protection
- Regulatory recommendations and roles/responsibilities of actors involved in the Smart Grids deployment

## **B. Objectives of EU initiative**

The need for specific legislative framework for Smart Grids is under consultation under the Task Force for Smart Grids. Based on the intermediate reports of the Task Force, expected by June 2010, the final decision to launch this initiative will be taken.

The objective of this EU initiative would be to develop the specific regulatory framework on Smart Grids to harmonise the implementation of Smart Grids in the EU under the provision of the 3rd Energy Package.

The initiative should take into account accumulated experiences worldwide and the technological challenges to be faced mainly during next decade/s. It will comprise the coordination and guarantee consistency with other EU policies and initiatives, such as the Energy Infrastructure Package, the Communication on Offshore grid blueprint, the Communication on Financing Renewable Energy, and the Energy Action Plan and Roadmap for 2050.

## **C. Options**

Policy options and strategic action are still under definition and need to be decided based on the recommendations of the deliverables of the Task Force planned for June 2010. Initial possible options are:

- i. do nothing;
- ii. issue a Commission Communication with roles and recommendations to the actors involved in Smart Grids deployment, including the mechanisms to monitoring the Smart Grids deployment at European and Member State level;
- iii. lay down a set of guidelines and specific recommendations to Member States for the implementation of Smart Grids under the framework of the 3rd Energy Package; and
- iv. develop a new Annex under the 3rd Energy Package's Directives for the European legislative framework and time horizon obligations for the deployment of Smart Grids, e.g. as a new Annex 2 and with similar detail of provisions as in the present Annex 1 for consumer protection.

## **D. Initial assessment of impacts**

Based on the Task Force inputs in June, the potential impacts of the possible options should be developed during the third quarter of 2010.

## **E. Planning of further impact assessment work**

Pending on conclusions and recommendations of the running consultation under the Task Force Smart Grids, planned by June 2010, the Impact Assessment for this initiative should start in no later than September 2010 and be completed by June 2011.

Information on Smart Grids is spread among studies which mainly provide qualification of the benefits of Smart Grids, but there are very limited figures on the quantification of expected impact. The main reasons for that are: there are a limited number of pilot experiences so far; limited statistical significance of the quantification of benefits achieved in these experiences; and existing uncertainties regarding the global investments needed, the new market models and the technology needed.

Further analysis of present pilot projects and recent studies on Smart Grids in the EU and the US should be gathered by an external contractor. Economic impacts, social cost/benefit analysis and contribution to the 20/20/20 targets would be the main issues to assess during three quarters of a year (i.e. from September 2010 to June 2011). The issues related to data privacy and security of data protection would also be assessed.