

## Position Paper on Smart Grids

### ERGEG Public Consultation

February 2010

On 17 December 2009 the European Regulators' Group for Electricity and Gas (ERGEG) launched a public consultation on its Position Paper on Smart Grids, E09-EQS-30-04.

FUTURED, as the Spanish Electrical Grid Platform, would like to participate in this consultation and thanks the ERGEG for the opportunity given of expressing our opinion about the proposals regarding the regulatory aspects of electricity networks, the development of electricity grids and of their regulation in the future.

### **INTRODUCTION**

#### **The Spanish Electrical Grid Platform: FUTURED**

FUTURED is considered a meeting point for all national agents involved in electrical networks to foster the technological evolution of Spanish electricity transmission and distribution systems, in order to promote technological leadership, sustainable development and increased competitiveness. This initiative promoted by the Spanish Ministry of Science and Education with the basis of "open participation" has created a group that represents the national electricity sector.

As a result FUTURED has 75 members including: utilities, industry, universities, associations, government and research centres.

This particular basis will make possible:

- A better knowledge of the electrical sector
- The development of a multiparty approach and collaboration opportunities
- Where appropriate, a common position regarding society and national/European institutions and initiatives

The specific objectives of FUTURED are:

- To collaborate with companies involved on the development of new products and services based on technology and innovation for the new energy supply scenario.
- To cooperate with the public authorities on the development of a regulatory framework for the Spanish electrical sector capable of facilitating and promoting the harmonious development of the electric system.
- Reinforcing cooperation in R+D among Electric Companies, their Suppliers, particularly SMEs, Research Centers and Universities.
- To collaborate with institutions and social agents on training programs and the dissemination of good practices for the rational and sustainable use of electricity.

## **QUESTIONS FOR PUBLIC CONSULTATION**

### **Section 1 – Introduction**

- 1. Do you consider that networks, transmission and distribution, are facing new challenges that will require significant innovation in the near future?***

FUTURED agrees with ERGEG's vision on the challenges that transmission and distribution networks will face in the coming years.

- 2. Do you agree with the ERGEG's understanding of smart grid? If not, please specify why not.***

FUTURED agrees with ERGEG'S understanding of smart grid. However FUTURED would stress the importance of the IC technologies involved in the development of any smart grid. Only with a solid ICT foundation the grids may progress towards smart grids (distributed, reliable, self-healing etc.).

- 3. Do you agree that objectives of reducing energy consumption impose the need for decoupling regulated companies' profit from the volume of energy supplied? How can this be implemented?***

The objective of reducing the energy consumption of 20% for the year 2020, which must not be against the welfare society, does not necessarily mean a reduction of electrical energy consumption. In other words, FUTURED thinks that globally speaking energy reduction requires the integration in the grid of increasing of renewable energy supply, the increase of PHEV, the smarter energy consumption at non-peak time (mainly, moving a significant load demand at night), a smarter energy consumption at home (more efficient refrigerator-washing machines- ovens, microwaves, more efficient lights, smarter devices to turn on/off at non-peak period or depending of electric rates, HAN and home display devices) and so on.

Therefore, network operators are called to play a more active role in optimizing energy consumption, and on this scenario their remuneration should certainly be decoupled from the volume of energy supplied.

### **Section 2 – Drivers for smart grids**

- 4. Do you agree with the drivers that have been identified in the consultation document? If not, please offer your comments on the drivers including additional ones.***

In general terms FUTURED agrees with the drivers identified.

The most important factors that influence the implementation of a smart grid are:

- Regulation: regulatory agencies apply great pressure and influence on the operational areas, limiting and controlling their implementation strategies.

- Growing demand: consumers increase their energy needs by incorporating more technological equipment at home. The cost and the enlargement of the environmental impact are difficult to bear.
- New technology: advances in communications and information technology increase possibilities of monitoring and problems solution.
- Isolated IT systems: long experiences in monolithic applications that solve specific problems allow a natural flow of information with other existing within the system. There are business factors that push to integrate these applications to obtain the necessary synergies.
- Industry: electric supply companies try to define new standards and solutions.
- Efficiency and reliability: this is a very important fact and target.
- Assets and aging workforce: the network approaches its life cycle, workers who have a better knowledge of the system are approaching retirement and replacement costs are quite high.
- Climate change: distributors, agents, regulators and consumers have the same interests and responsibilities on the safety, sustainability and environmental impact. Society wants to reduce greenhouse emissions and fossil-fuel dependence. At the same time there is a social demand of energy produced from renewable sources.

To achieve these requirements the grid needs a change, in order to increment safety and reduce delivery losses, making transmission and distribution more efficient and flexible.

### **Section 3 – Smart grid opportunities and regulatory challenges**

#### ***5. Do you agree that a user-centric approach should be adopted when considering the deployment of smart grids?***

This is maybe the main difference from the traditional grid. FUTURED agrees this is the necessary approach to cover every aspect of smart grids.

#### ***6. How should energy suppliers and energy service companies act in the process of deploying smart grids solution?***

FUTURED thinks that energy suppliers and energy service companies are called to be the promoters of the deployment of the smart grids. Therefore they must be both involved in Smart Grid initiatives to define all necessary processes satisfying every need and they have to work together to obtain the expected objectives.

On the other hand, one of their main target is the economic profit (sometimes short-term profit), and for this reason regulatory measures will be necessary to maximize medium/long-term global benefit.

#### ***7. Do you think that the current and future needs of network users have been properly identified in Section 3.3?***

FUTURED agrees with the list of needs in Section 3.3.

FUTURED would like to stress the importance of system security as an additional need, mainly from the TSO perspective.

Finally FUTURED would also like to introduce the idea of an appropriate remuneration for ancillary services which should be the base for a business model that maximizes all the stakeholders benefit. This remuneration would help to make the scenario come a reality and the active profitable participation of small producers.

**8. Do you think that the main future network challenges and possible solutions have been identified in Section 3.4 and 3.5 respectively? If not, please provide details of additional challenges/solutions.**

FUTURED agrees that the most important topics have been identified.

Dealing with cost-benefit analysis and the real long term costs should have to be systematically assessed and considered.

**9. Do you expect smarter grid solutions to be essential and/or lower cost than conventional solutions in the next few years? Do you have any evidence that they already are? If so, please provide details.**

Sure. Find below some evidences provided by FUTURED members about Distribution Automation and the optimization of Network Analysis and Operation based of Distribution Management Systems:

- Distribution Automation can increase the profit of the Company every year in the range of 3 - 7 % of the value of annually injected energy,
- Total investment in Distribution Automation is approximately 12,5 % of the value of annually injected energy,
- Investment in DMS Software is approximately 1 - 2 % of the value of annually injected energy.
- Profitability of investment is 2 – 3 times in the period of 10 years,
- Payback period is 3 - 5 years.

To add up, the support from the regulation side is fundamental. For example, wind deployment was unforeseeable some years ago and it was possible because it had the necessary initial support (also and mainly from regulation and incentives). These measures have helped in the technology deployment until it achieved a competitive price.

**10. Would you add to or change the regulatory challenges set out in Section 3.6?**

Section 3.6 indicates the main lines and the general challenges. When any new specific challenge arises the adequate regulatory actions have to be studied and implemented in an - as much as possible - worldwide scenario.

We would also like to add a specific remark about encouraging smart rates (TOU, CPP, RTP etc.) to “smart costumers”, who can access to their consumption on a near real time basis.

## **Section 4 – Priorities for Regulation**

***11. Do you agree that regulators should focus on outputs (i.e. the benefits of smart grids) rather than inputs (i.e. the technical details)?***

Yes, except when a specific technique is required to attain some of the outputs.

***12. Which effects and benefits of smartness could be added to the list (1) - (7) presented in Section 4.1, Table 1? Which effects in this list are more significant to achieving EU targets? How can medium and long-term benefits (e.g. generation diversification and sustainability) be taken into account and measured in a future regulation?***

FUTURED feels comfortable with the seven benefits and indicators.

Benefits (1) to (5) are the most significant for an adequate exploitation of the grid, and (6) for competitiveness.

***13. Which output measures should be in place to incentivise the performance of network companies? Which performance indicators can easily be assessed and cleansed of grid external effects? Which are suitable for European-level benchmarking and which others could suffer significant differences due to peculiar features of national/regional networks?***

FUTURED thinks that some indicators easy to asses are:

- Virtual generation
- Critical reserve load
- Energy non supplied
- Amount of incidents, number of customers ordered by priority, timing to solve them (localisation, isolation and restoration), telecontroled and non-telecontroled equipment affected
- Active and Reactive energy losses
- Investments
- Level of under/over loading for equipments

***14. Do you think that network companies need to be incentivised to pursue innovative solutions? How and what output measures could be set to ensure that the network companies pursue innovative solutions/technologies?***

FUTURED agrees with this statement and supports that both regulation and financial incentivisation are necessary.

The output measures could be the ones considered in previous sections.

***15. Do you consider that existing standards or lack of standards represent a barrier to the deployment of smart grids?***

FUTURED fully agrees with this point. Standards are a must. Concepts such as integration, interoperability, plug&play etc. must be the real world for the Smart Grids. All the actors are moving in that direction but not as quick as needed.

***16. Do you think that other barriers to deployment than those mentioned in this paper can be already identified?***

No, we think they are a fairly complete exposition.

***17. Do you believe new smart grid technologies could create cross subsidies between DSO and TSO network activities and other non-network activities?***

FUTURED agrees with this statement, though this risk depends on the regulatory scheme. As long as propriety unbundling is achieved this risk will be reduced.

***18. What do you consider to be the regulatory priorities for electricity networks in relation to meeting the 2020 targets?***

FUTURED considers the following as priorities:

- Reduction of CO2 emissions
- Reduction of losses
- Increasing of automation level
- Increasing of virtual generation
- Increasing of enhanced reliability