

European Regulators' Group for Electricity and Gas  
EREG / CEER  
28 rue le Titien,  
1000 Brussels  
Belgium

**DONG Energy A/S**  
Nesa Allé 1  
2820 Gentofte  
Denmark

Tel +45 99 55 11 11  
Fax +45 99 55 00 01

[www.dongenergy.com](http://www.dongenergy.com)  
Company No. 36 21 37 28

1 March 2010

## **Response to public consultation on ERGEG position paper on Smart Grids**

Dear Sirs,

Our ref. ulstr  
Doc. responsible ulstr

[ulstr@dongenergy.dk](mailto:ulstr@dongenergy.dk)  
Tel +45 99 55 81 53

DONG Energy welcomes ERGEG engagement in the Smart Grid issue, and finds the position paper timely and thoughtful. The paper maps out the main elements of the issue in a way that sets a good reference for the ongoing discussion. DONG Energy also welcomes the invitation to present views and comments to the paper.

This response gives structured input to the specific questions asked in the paper in the paragraphs at the end, but first are some general reflections on the main regulatory challenges in Smart Grid development.

ERGEG focus on the role of network companies, thereby also indicating that they have a leading role in developing the Smart Grid. Network companies are essential players, but they are mainly enablers of most of the aspects of the Smart Grid. Much of the innovation and investments will have to be made in the interface with the customer. DONG Energy believes that competitive commercial entities must take a leading role in engaging with the final customer. Today there are many barriers for developing the solutions and contracts that can unleash all the potential values of demand response, to the benefit of the customer and all involved parties along the value chain. Removing such barriers should be a main focus for regulators. The direct economic regulation of network companies only relates to a fraction of these barriers so this calls for a broader, more value oriented focus from regulators.

From the perspective of DONG Energy the main regulatory challenges and barriers today can be grouped in the following categories:

### **Market design**

A Smart Grid adds value to the electricity system if it can bring forward flexibility more cost effectively than alternative conventional flexible resources. Incentives

to invest in the Smart Grid will therefore rely on a market design that allows for fair competition between alternative flexible resources in a level playing field. It is a prerequisite that the use of flexibility by the TSO, including acquirement of reserves and other ancillary services, is fully transparent and market based.

Our ref. ulstr

#### *Regulatory challenge*

Regulators and TSOs will need to adjust market designs so that they are no longer only accommodating conventional generation and trade, but also new types of distributed resources. The main shortcomings are to be found in the design and management of markets for short term balancing, reserves and other ancillary services.

#### **Monetizing constraints in the grid**

Many of the values that Smart Grids can create come from optimised investment and operation of distribution grids. Some benefits may arise from DSO investment in technology in the grid, so investment incentives will rely on appropriate regulation of DSOs. Arguably the bulk of the value creation will, however, come from intelligent use of the grid, e.g. demand response. It can only be ensured that those values are harvested if DSOs pass on the true costs of the distribution grid through intelligent incentives to grid users. Tariffs are more important instruments for DSOs in developing Smart Grids than screwdrivers. The expected rapid expansion of electric vehicles and heat pumps will accentuate these relations. EVs will only bring minor increases in transported and consumed energy, but may increase peak load substantially, unless the charging is smart. EV owners will need incentives to be smart.

#### *Regulatory challenge*

It is critically important that regulation of DSOs shift focus from cost cutting to a focus on intelligent investment in grids. This is to accommodate the expected radical transformation of the use of distribution grids, with more distributed generation, more variable wind power, and not least a possible rapid expansion of electric vehicles and heat pumps. Intelligent investment in distribution grids will imply intelligent use of tariffs by DSOs that pass on cost reflective incentives to the grid users.

#### **Defining roles and responsibilities**

The value of Smart Grids and demand response can potentially come from many sources, including optimised use of the distribution grid, optimisation of power generation, optimised trade across borders, energy conservation, and new services to final customers. Remotely read interval metering may be one element in creating the value, but it is at best only an enabling piece of infrastructure, and will not by itself foster demand response. Investment in meters that are likely never to be used is in any case an unnecessary waste. The critical driver for demand response is going to be the development of innovative contracting between all the relevant parties, and perhaps also newcomers such

as insurance companies, security companies and suppliers of appliances. Such advanced contracting can only evolve if all roles and responsibilities are clear.

Our ref. ulstr

#### *Regulatory challenge*

Commercial entities working in the competitive domain will need insurances that they are not faced with "competition" from entities in the regulated monopoly domain. Regulators should map out roles and responsibilities according to the general principles of the structure of the electricity sector, where only the functions that need to be regulated are regulated. Regulated network monopolies should in principle only engage in the activities that are strictly monopolistic by nature. Metering infrastructure and EV charging posts may belong to this category, but automation does not. Direct TSO and DSO investment in demand response is likely to undermine all independent commercial activity. Such investments are also undertaken without the inherent test of cost effectiveness that competitive markets bring.

#### **Restricted use of standards**

Decarbonising our energy system will lead to more complex and demanding solutions, valuing smartness ever higher. More variable renewable energy, more CHP, larger nuclear units, expansion of electric vehicles and more distributed energy will require more flexibility and will be a crucial driver for the Smart Grid. TSOs have explored the possibility to create the needed flexibility through standards that "force" equipment (e.g. wind turbines, electric vehicles, and other power plants) to supply the flexibility automatically (e.g. primary regulation and reactive power). Such standards, instituting a smart grid by decree, will reduce the need - and incentives for equipment owners - for a "voluntary" smart grid. Standards will only be smart if they are costs of enforcing the investment on all entities in an equipment category are considered in careful balance with the alternative costs of voluntary market driven investments. Such standards will add to the costs of the affected technologies potentially deferring investment.

#### *Regulatory challenge*

Standards are developing in a range of equipment, but mainly with a technical point of view. Regulators have a role of ensuring that such requirements are also tested on a socioeconomic scale.

### **Responses to questions asked**

1. The pace of transforming the energy system will have to be measured in decades, considering the long lead and life times of investment in energy infrastructure. But the ambitious targets set by EU members, the development of a number of sustainable solutions during the past decades and the advancement of commercialising the sector has brought us to a pivotal point. DONG Energy do believe that developments that will require new levels of smartness will accelerate, so a sense of ur-

gency in preparing and acting on the development of the smart grid is well justified. But TSOs and DSOs are mainly enablers. The bulk of innovation will have to take place in the commercial competitive domain.

Our ref. ulstr

2. ERGEG presents a useful description of the elements of the electricity system that will grow smarter in the future, and rightly points out that the concept of the Smart Grid is far reaching and the term should therefore be used with caution.
3. Supply of energy is open to competition in the EU, according to the requirements in the market directives. The intention is to limit regulation of supply. This is fundamentally different from the context within which decoupling has been considered in countries outside Europe. Competitive commercial entities are forced to develop products and offerings that meet the needs and demands of customers. Regulatory instruments may have to be put to use to harvest the benefits of energy conservation, and to meet EU policy goals. But finding scope for commercialisation is a more important factor than to try to unwind presumed disincentives through so called decoupling.
4. The smart grid offers opportunities to improve energy supply cost effectively as supply systems become significantly more complex. Two factors adding to the complexity which are not in focus in the ERGEG paper is the likely transformation of the transport sector with the introduction of EVs, and the transformation of the heating sector. Likely increase in use of CHP and heat pumps will create new types of interaction with the electricity supply system that put new demands on intelligent and dynamic optimisation.
5. We agree that the customer must be in the centre.
6. Effective competition and commercialisation will force energy suppliers and energy service companies to be innovative and create the solutions that can unleash the potential values of smart grids. The regulatory challenge is to remove barriers for such innovative solutions.
7. Needs are well identified - see also the introductory remarks.
8. Challenges are well identified - see also the introductory remarks. Under paragraph 3.5.4 focusing on solutions for customers it seems to be implicit that smart metering infrastructure is "rolled out" at large scale, perhaps determined by a political/regulatory decision. This approach may undermine the role of commercially driven solutions and it is likely to lead to poor investment decisions - overinvestment if full roll out is decided and underinvestment in the opposite case. Metering infrastruc-

ture installed within the regulated domain should only be performing obligations that naturally belong in the regulated domain - meter electricity flow for economic settlement. Equipment for automated solutions should be separate and should belong to the commercial domain.

There are so many options for automated solutions today, and development must be expected to be significant in this area, so putting it in the regulated domain risks picking the wrong solutions and obstructing the opportunities of development. Unless a specific DSO has a clear positive business case for full roll out of metering equipment in the regulated domain, demand driven investment (installation-on-demand) is likely to lead to more optimal investment. Some scale may be lost, but on the other hand installing expensive equipment with customers that are not going to use it is avoided.

9. DONG Energy collaborates with e-mobility provider Better Place on developing a solution for smart charging of EVs with the aim of offering commercial solutions to customers from 2011. DONG Energy also invests in developing a platform for aggregation and management of distributed resources, including demand response. A pilot is now operational and an upgraded platform will be operational at demonstration scale from 2011. Both these projects belong purely to the commercial competitive domain. DONG Energy has numerous Smart Grid projects focusing on grid management, most notably a project in collaboration with IBM and other companies. All these activities are based on the assumption that they will lead to cost effective solutions and offerings also in the short run.
10. The paragraph on regulatory challenges gives network companies a leading role in developing the smart grid and driving innovation. However, the role of commercial entities will be equally important. Removing commercial barriers and encouraging commercial solutions should be a priority for regulators, as discussed in the introductory remarks.
11. Regulators should focus on barriers to smart decisions. Without these barriers and with competition to discipline decisions, actors will be able to apply input options in the best possible way to create optimal outputs.
12. The list of benefits presents a fair picture. The priorities in the short and medium run to foster smart solutions, in support of EU targets, should be to monetize the values that have so far not been monetized, and remove the barriers in accessing the market for flexibility. This is discussed in the introductory remarks. Removing such barriers and monetizing constraints through tariffs and open markets will lead to better utilisation of T & D grids, and more optimal dispatch of resources particularly for short term balancing.

13. Incentives for balanced investments are the main element. Measures must be an integrated part of network regulation, which defers between European jurisdictions.
14. Economic regulation needs to evolve beyond a strict focus on cost cutting, to accommodate future requirements. Investment incentives are key, and additional measures may also be useful.
15. Standards for communication and other parts of the underlying infrastructure may be necessary, but at the current state other barriers are more important. Pursuit of standards also has the risk of undermining the scope for innovation, business development and commercialisation.
16. See the introductory remarks.
17. Yes.
18. See the introductory remarks.

Yours sincerely  
DONG Energy

Ulrik Stridbaek  
Chief economist, Regulatory Affairs  
Group R&D