

## Bruegel Smart Grids Brainstorming

6 July 2010

On July the 6<sup>th</sup>, Bruegel organised a Braindump and invited experts to exchange their views on **smart grids**. The summarised contributions cannot be attributed to individual speakers as they contain statements from presentations and the discussion.

### **Definition of smart grids:**

There was a general understanding that the definition of smart grids is an issue. However, there was agreement on key elements. The primarily discussed benefit of smart grids was the possibility of demand response, while other benefits (self healing grids, cheaper metering and billing, reduced network maintenance cost, ...) were also mentioned. It was stated that smart grids consist of upstream and downstream components.

### **Justifications for political intervention:**

There are various reasons to call for public intervention to enable the deployment of smart grids: eg, the fact that the low-carbon conversion is a societal objective, the risk of non-coordinated investment, the risk of underexploited information if smart grids are left to networks and the low incentives and slow implementation offered by an unbundled sector.

### **Should smart grids be dealt with at European level?**

Yes. The reason is that the EU is the natural agent for structuring cross-border cooperation to solve various externality issues. In particular, (1) defining network codes, (2) deciding on network extension, (3) setting standards and (4) research should be coordinated at the European level. In addition the functioning of the internal market requires a somewhat harmonised framework.

However, national regulation, national market design, national renewables support schemes as well as the lack of coordination of DGs internally is obstructing the necessary European coordination.

### **Which political interventions:**

With all its incentivising tools, the EU has to coordinate when it undertakes different actions, otherwise the whole picture will be blurred and investments will not follow. It has to find a subtle balance and subsidise investment initiatives, but not too much. Intervention can mean direct regulation of standards, tasks and services, subsidies for specific investments (pilot plants), subsidies for specific tasks and services (market facilitation), changes in regulated returns, or regulated ownership of information or assets. One proposal was, for example, to set up one metering agent (eg, via a tendering procedure) that is responsible for installing and maintaining meters and that provides the collected information to all parties.

### **Business model:**

The roles and responsibilities of the different stakeholders for enabling smart grids are yet to be defined. This includes the question of who will pay the bill for appliances. Thus, regulation and market design is important for determining the future business model. The question was raised whether unbundled utilities have the right investment incentives. Indeed, entrepreneurs will be reluctant to invest unless they expect a return on investment with reasonable or no risks. Time is an issue here, and the very heavy smart grid

stimulus undertaken elsewhere, especially in the USA and in China, is telling us that the smart grid business model is currently being defined, and the EU should be involved in this process.

**Standards:**

Open and interoperable standards are needed to make a business case. Full standardisation is, however, unnecessary and might even hamper the development of smart grids. The infrastructure (Transmission System Operators, Distribution System Operators and Distributed Energy Resources) needs coordination on standards to be optimal. The heterogeneity of priorities among European Union Member States and the lack of cooperation between the different Directorate Generals involved in the European Commission have a potentially negative impact on standard settings. The association between California and China and their attempt to cooperate in defining global standards is an indication that the EU should move fast. However, Europe might need different meter standards than the US or China as European retail market competition requires more complex information sharing between customer, retailer and DSO.

**Risk:**

The increasing role of Information and Communication Technologies poses a question of data privacy protection and **data security**, which was a shared concern amidst the audience. It has to be ensured that demand response, which is seen by some participants as a fashion, does not crowd out investment in networks, storage, transmission and particularly peak generation ("missing money").

**Preliminary Conclusions:**

- Smart grids are a subject worth inquiring into
- Smart grids imply a complex interaction of stakeholders that still needs to be shaped
- Smart grid regulation strongly interacts with the existing regulatory framework
- No single action (eg, "putting money on the table") alone is sufficient
- The EU needs a strategy
- No consensus on the strategy

**Open issues:**

- Numbers: cost and benefits, market size, size of smart grid investments
- Market design

**Follow up:**

- BRUEGEL plans to organize a larger seminar on smart grids with academics and policy makers by the end of this year.