Alstom vision of the Smart Grid

Interview with Laurent Schmitt, Vice-President Smart Grid Solutions

What are the main drivers of the global smart grid market?
Transmission and distribution grids worldwide are today facing some new, major challenges:

- Improve the grid **energy efficiency**, to better respond to a increasing global energy demand (an increase of 80% is expected by 2030 according to the IEA) support expanding industrial markets and a growing electricity consumption from individual consumers;
- Reduce environmental impact, in particular CO2 emissions, while optimising the **integration of renewable energy sources** – renewable energies and biofuels are expected to account at least for 23% of greenhouse gas reduction by 2030;
- Ensure grid **reliability and stability**, to prevent blackouts in the context of increasing grid interconnections. The European blackout of November 2006, for example, would have been easier to manage had we been able to integrate the wind power electricity from Northern Europe.

What exactly is a Smart Grid?

Smart Grids are the new generation of grids, and evolution of the traditional transmission and distribution infrastructures and systems transforming with the arrival of Information and Communication.

More precisely, the smart grid is an energy transmission and distribution grid with embedded control, IT, and telecommunications capabilities. It provides a real-time, two-way flow of energy and information to all stakeholders in the electricity chain, from the power plant to the end user.

We at Alstom rely on 3 different types of technologies in our smart grid offering and expertise:

- A utility installs a **smart control room** for his grid, capable of monitoring in real-time the operational signals sent by his network.
- progressively complements this smart “brain” with hardware and software across the network: **power electronics**, or **digital substation solutions**,

How does Smart Grid fit into our strategy?

Smart Grid represents the **main segment of growth** in the grid management industry for at least the next ten years. By 2020, it will represent a global market of up €50 billion.

Alstom is naturally positioned to be a major player, with its expertise ranging from power generation to the solutions for the grid management. We have also extended this presence on the key smart grid technologies to the levels of the end-consumer or the eco-city, through partnerships with companies like Bouygues or Renault-Nissan. This strategy allows us to be positioned across the **entire energy value chain**, from the generation to the end-consumer.

Internally the Smart Grid strategy is reflected in 15 strategic offerings, across all our activities.

What are Alstom working on right now?

Our smart grid actions fall in several categories.

- Develop our existing **smart grid-ready solutions** and new ones, for example DC grids or Wide Area Measurement Systems
- **Partnerships** with other important industrial players with an expertise complementary to our technology,
such as Bouygues (smart buildings), IBM (IT integration), Microsoft (user interface) or Renault-Nissan, (electric vehicles).

- **External reinforcement** through the acquisition of companies specializing in critical smart grid technologies, such as recently Psymetrix in the UK and UISOL in the US.
- **Demonstration projects** to prove that smart grid works. Over 15 projects in the US and Europe, with partners from the public and private sectors – on a large scale (ex: PNW in the US), or very local scale (ex: NiceGrid in France), integrating **smart buildings, energy storage or electrical vehicles**

**Where do we want to go in the future?**

Alstom is currently supporting the deployment of smart grid projects at large scale, though ambitious **government initiatives** such as the Obama Energy policy or the Twenties European Programme, aimed at transforming the national grid infrastructures.

At the same time, we also actively participate in a high number of smaller-scale initiatives, to create **ecocities** for the end-consumer.

Our **Alstom roadmap** for Smart Grid makes us plan for operational, commercially available smart grids by 2015, and an actual effective deployment in the main smart grid markets, Europe, Asia and the United States, around 2020.

Beyond this point, a new step: smart grids will start interconnecting to each other to form smart “**supergrids**”.

Accueil   Le Smart Grid   Interview