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Alstom and Saft provide EDF with an innovative system of energy storage batteries

Alstom-Saft consortium contributes to the first demonstration launched by EDF on a megawatt scale for frequency regulation using a lithium-ion battery storage system.

The Alstom-Saft consortium¹ has signed a frame contract with the EDF group to supply an initial energy storage system using a container of Lithium-ion (Li-ion) batteries, demonstrating the system's ability to regulate the frequency of the grid. Alstom's MaxSine™ eStorage solution, connected to Saft's Intensium® Max 20M storage system, will be installed on EDF R&D's experimental "Concept Grid", dedicated to the development of grids and smart electrical systems. Located on the EDF site of Les Renardières south of Paris (Seine-et-Marne region), this is the first installation of its kind in France. The storage system and the power converter will be delivered in late 2014.

Frequency is an indicator of the grid stability; it represents the balance between energy produced and energy consumed. To maintain this balance (and therefore the frequency), the operator uses the energy available through the primary reserve,² mainly ensured by thermal or nuclear power plant operators, by blocking part of their production capacity.

Battery storage systems provide producers and grid operators with more flexibility over the energy supply immediately available. In the event of an imbalance between production and consumption, the storage system can either release energy into the grid, or store it in a few hundred milliseconds, thus controlling the frequency of the network. The experiments by EDF R&D will evaluate the ability of such a system to regulate the frequency, and particularly the adjustment potential of the primary reserve.

¹ Alstom and Saft came together in 2013 to reply to a call for tender from EDF for the battery storage system.

² This energy comes from power generation plants. According to the Energy Regulatory Commission (ERC), the primary reserve in France is estimated at 650 MW.

As part of this contract, Alstom and Saft provide the complete 1 MW/30min energy storage and conversion system. Saft will supply its Intensium® Max 20 foot lithium-ion battery container, while Alstom will install its MaxSine™ eStorage solution. Alstom's MaxSine™ eStorage includes a power converter that connects the Direct Current (DC) battery to the Alternating Current (AC) grid, and converts the electricity between DC and AC to be stored or released into the grid. It also includes real-time energy storage management software to optimise the production of electricity according to the needs of the grid.

"The battery energy storage system is part of the 'Nouvelle France Industrielle' project, a scheme launched by the French government in 2013," says Patrick Plas, Senior Vice-President, Smart Grid & HVDC at Alstom Grid. "At the cutting edge of smart grid and power transportation infrastructure optimization technologies, Alstom Grid is contributing its technological expertise to the excellence of the French and European energy industry."

"Saft is delighted today to be providing the first battery for primary frequency control installed in France," said François Bouchon, Director of the energy storage activity at Saft. "With our international experience in the integration of renewable energies especially for networks in the Paris area, this innovative experiment will demonstrate the added value of a battery storage system and the performance of Li-ion technology in this promising sector."

Alstom and Saft have already collaborated on the smart grid demonstration project Nice Grid (in Nice, France), installing in late 2013, a 1 MW battery energy storage system to address the risk of grid instability in the event of a massive influx of intermittent solar energy.

About Saft

Saft (Euronext: Saft) is a world leading designer and manufacturer of advanced technology batteries for industry. The Group is the world's leading manufacturer of nickel batteries and primary lithium batteries for the industrial infrastructure and processes, transportation, civil and military electronics' markets. Saft is the world leader in space and defence batteries with its Li-ion technologies which are also deployed in the energy storage, transportation and telecommunication network markets. More than 3,800 employees in 18 countries, 14 manufacturing sites and an extensive sales network all contribute to accelerating the Group's growth for the future.

Saft batteries. Designed for industry.

About Alstom

Alstom is a global leader in the world of power generation, power transmission and rail infrastructure and sets the benchmark for innovative and environmentally friendly technologies. Alstom builds the fastest train and the highest capacity automated metro in the world, provides turnkey integrated power plant solutions and associated services for a wide variety of energy sources, including hydro, nuclear, gas, coal and wind, and it offers a wide range of solutions for power transmission, with a focus on smart grids. The Group employs 93,000 people in around 100 countries. It had sales of over €20 billion and booked €21.5 billion in orders in 2013/14.

Alstom Grid has one clear vision: to develop innovative solutions for a flexible, reliable, affordable and sustainable electrical grid, everywhere. We design, manufacture, install and service the power transmission and distribution products and systems that empower the planet's low carbon economy... for now and for the future.

Alstom Grid has over 130 years' experience and ranks among the top three in the electrical transmission sector with an annual sales turnover of more than €3.5 billion. Alstom Grid's 17,000 employees are spread across 87 manufacturing and engineering sites worldwide and have one common mission: be our customers' trusted partner, from the source to the city.

We are energising a smarter world... with Alstom.

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