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## **Saft and ABB develop new high voltage Li-ion battery system to enhance the stability of power distribution grids**

*Li-ion battery system will provide dynamic energy storage to help respond to disruptions in the grid due to increasing penetration of renewables.*

**Paris, 25 November, 2008** – Saft and ABB have developed the world's first high voltage Li-ion (lithium-ion) battery system designed to improve the stability of power distribution grids. The new system combines dynamic energy storage provided by Saft's 5.2 kV battery, which will help respond to disruptions in the grid, with ABB's SVC (Static Var Compensation) Light technology for dynamic voltage control. Potential applications include industries with high short term power demands as well as utility grids fed by a high percentage of variable renewable energy sources, especially wind power.

The new SVC Light with dynamic energy storage will further extend ABB's FACTS (Flexible AC Transmission Systems) portfolio covering a number of technologies that enhance the security, capacity and flexibility of power transmission and distribution systems, as well as improving productivity and power quality in industrial applications. While current FACTS technology is focused primarily on stabilizing grid voltage, the addition of energy storage now broadens its scope to covering short term load or supply variations.

*"The key aim of this project is to demonstrate the feasibility and added value of incorporating Li-ion energy storage within a FACTS system" said Per Eckermark, Head of ABB's FACTS System Group. "It could play a vital role in ensuring the stability of utility grids as the penetration of wind power increases".*

### **Li-ion battery system**

Li-ion battery technology offers a number of important features in this application, such as: excellent cycling capability; long calendar life; high energy density; very short response time; high power capability both in charge and discharge; maintenance-free design. Furthermore, Saft's Li-ion technology provides the system with precise information on the state of charge (SOC) which is a vital function in a dynamically operating energy storage system. The battery system comprises eight individual units based on Saft's Intensium Flex modular, rack-mounted Li-ion modules. The units, rated at 646 V and 41 Ah, are connected in series to achieve a nominal voltage of 5.2 kV and the system can deliver 200 kW for an hour and 600 kW for over 15 minutes.

Saft is also supplying the control and management devices for the battery, as well as a CAN-based optical communication interface with ABB's MACH-2 controller that will monitor the battery continuously and optimize its operation.

### **SVC Light**

ABB's SVC Light is a unique power semiconductor technology based on a high power IGBT (Insulated Gate Bipolar Transistor), a compact switching device which allows high frequency switching. In combination with dynamic energy storage it will enable simultaneous voltage control and control of active power flow in the grid. The 11 kV pilot system can deliver 600 kVAR reactive power and 600 kW active power.

**Field testing**

In addition to the development and supply of the battery system, Saft is partnering with ABB in qualification and field testing of the complete system. The battery system has already completed commissioning and bench testing at ABB's facilities in Sweden, where its performance to specification was confirmed.

The next stage, in 2009, is for an SVC Light with dynamic energy storage to be installed in a field application in order to demonstrate its capability under a variety of network conditions, including operation with nearby wind generation.

**About ABB**

*ABB ([www.abb.com](http://www.abb.com)) is a leader in power and automation technologies that enable utility and industry customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs around 120,000 people*

**About Saft**

*Saft (Euronext: Saft) is a world specialist in the design and manufacture of high-tech batteries for industry. Saft batteries are used in high performance applications such as industrial infrastructure and processes, transportation, space and defence. Saft is the world's leading manufacturer of nickel-cadmium batteries for industrial applications and of primary lithium batteries for a wide range of end markets. The group is also the European leader for specialised advanced technologies for the defence and space industries. With approximately 4,000 employees worldwide, Saft is present in 18 countries. Its 15 manufacturing sites and extensive sales network enable the group to serve its customers worldwide. For more information, visit Saft at [www.saftbatteries.com](http://www.saftbatteries.com)*

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