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Saft energy storage system to support Caribbean island of Bonaire power grid in switch to eco-friendly generation

The world's largest hybrid wind/diesel project on the island of Bonaire will rely on Saft's 3 MW energy storage system for backup power to ensure grid stability and continuity of supply

Paris, February 19, 2010 – Saft, the world specialist in the design and manufacture of high-tech batteries for industry and defence, is currently delivering a major contract for a 3 MW energy storage system that will ensure a continuous supply of grid electricity from the world's largest hybrid wind/diesel power project to date, on the Caribbean island of Bonaire. The Saft energy storage system, based on advanced nickel-based battery technology, will store energy from the island's isolated grid and then deliver it as required to provide backup power to maintain a totally reliable and stable power grid serving a local population of 14,500 people and around 100,000 holiday visitors a year.

Bonaire is a small island of around 250 km² located 80 km north of the coast of Venezuela. The island's main power plant burnt down in 2004, so until recently its annual power consumption of 75,000 MWh was met by a set of rented container (light-fuel) diesel generator systems. The new sophisticated sustainable power scheme, developed by the Dutch-German consortium EcoPower Bonaire BV on behalf of Water en Energie Bedrijf Bonaire (WEB), the state-run energy provider in the Dutch Antilles, will enable the entire island to switch to eco-friendly energy, with 12 wind turbines providing a total of 11 MW and a 14 MW biodiesel power plant.

Saft was called in by consortium member Enercon, the wind turbine and system supplier, to develop and supply the battery energy storage system that will form a vital element of a safe, stable island grid. Its main role is to maintain power quality and continuity of supply in critical situations, such as a sudden increase in demand or failure of a wind turbine or diesel generator, preventing the possibility of a power black-out. The battery is capable of delivering just over 3 MW for well over two minutes, allowing sufficient time for an additional diesel generator to be started and brought on line.

"The Bonaire project is a further example of the steadily increasing recognition that energy storage technology will play a key role in the successful delivery of renewable energy schemes", said Xavier Delacroix, the General Manager of Saft's IBG division. "Saft's advanced battery technology and growing experience in renewable energy applications mean that we are well positioned to support this type of project with reliable, efficient and cost-effective energy storage systems."

The battery system has already been built by Saft and is currently undergoing customer acceptance tests in preparation for delivery to the site in Bonaire in the first quarter of 2010.

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 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 and world leader in lithium-ion satellite batteries. Saft is also delivering its lithium-ion technology to the emerging applications of clean vehicles and renewable energy storage. 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. Saft is listed in the SBF 120 index on the Paris Stock Market.

For more information, visit Saft at www.saftbatteries.com

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Technical note on energy storage system for the Caribbean island of Bonaire

Project background

Bonaire is a small island of around 250 km² located 80 km north of the coast of Venezuela. The island's main power plant burnt down in 2004, so until recently its annual power consumption of 75,000 MWh was met by a set of rented container (light-fuel) diesel generator systems. The new sophisticated sustainable power scheme, developed by Dutch-German consortium EcoPower Bonaire BV on behalf of Water en Energie Bedrijf Bonaire (WEB), the state-run energy provider in the Dutch Antilles, will enable the entire island to switch to eco-friendly energy, with 12 wind turbines providing a total of 11 MW, a 14 MW biodiesel power plant and a 3 MW energy storage system. The scheme will reduce CO₂ emissions by an estimated 35,000 tonnes per year; this figure will rise to 70,000 tonnes once the biodiesel generator switches to biofuel.

Backup power maintains grid stability

The essential role of the Saft energy storage system is to provide backup power to ensure that the main frequency of the Bonaire grid remains under constant control at the steady 50 Hz required for grid stability. So if the frequency should start to drop – which might happen due either to a sudden increase in load or a loss of generation – the battery will supply just over 3 MW for well over two minutes. This will allow sufficient time for an additional diesel generator to be started and brought on line.

Artificial load

The energy storage system is also designed to handle the alternate case where a sudden decrease in load, such as when a line fault causes a large number of consumers to be disconnected simultaneously, results in an increase in grid frequency. Normally, the battery will be held at a 90 percent SOC (state-of-charge), so it can be brought on line as an artificial load. The Saft battery will also help to maintain power quality by providing instant response to smooth out small peak loads.

New design SMRX battery

The Bonaire project is the first to use Saft's new nickel-based SMRX block battery design that combines the high power capability of its well proven SRX cells with the compact, lightweight construction pioneered with its MRX batteries. The use of the SMRX batteries has enabled Saft to design a high performance 640 V battery with a nominal capacity of 1320 AH that can fit into three standard transportation containers for ease of installation and commissioning.

Project participants

Eneco: Project developers for the Bonaire project and the majority shareholder (90%); responsible for project development, contracting, financing and operation

Enercon: A German wind turbine and system supplier that is responsible for the wind-diesel load balancing system and is supplying wind turbines (5% shareholder)

MAN: A German truck and engine manufacturer that is supplying diesel generators (5% shareholder)

Saft: The high-tech battery specialist is supplying the 3 MW energy storage system.