## Press Release

28 October 2009

# Expanding Switzerland's renewable energy production capacity by 1000 MW, Alstom signs €178 million variable speed pumped-storage hydro contract

Alstom Hydro\* has been awarded a €178 million contract to provide four 250 MW variable speed pump turbine and motor generator units for a new pumped storage installation in Switzerland. The plant's 1000 MW generation capacity will supply enough electricity to power around 1 million homes, mainly cover the peak power demand and help to further develop Switzerland's low-carbon power generation peak demand.

The contract with the Kraftwerke Linth-Limmern AG (KLL), a partner of the Axpo AG, the largest producer of hydropower and electricity in Switzerland, and the canton of Glarus, has been booked on the 2<sup>nd</sup> quarter of the 2009/2010 fiscal year. This contract covers design, engineering, manufacturing, installation, testing, commissioning and training services. The equipment to be delivered by 2015 will be installed in the new Limmern facility being built in the canton of Glarus, in eastern Switzerland.

This is the second variable speed pumped storage power plant contract Alstom has signed in Switzerland this year. In May 2009, the company was awarded a €125 million contract to equip the 628 MW Nant de Drance power station four 157 MW vertical Francis reversible turbines, four 170 MVA vertical asynchronous motor/generator units and other equipment, as well as to handle site delivery, erection, supervision and commissioning aspects.

Philippe Joubert, President of Alstom Power, said: "Pumped storage can help Europe meet its target of producing 20% of its electricity from renewable sources by 2020. This technology allows utilities to store excess energy produced by intermittent renewable energy sources such as wind and solar power making it a powerful tool for balancing resources across the grid".

To date, there are over 127 GW of pumped storage in operation around the world. Alstom is the world's pumped storage market leader having captured in average 47% of the pumped storage market share per year since 2004. Pumped storage technology is the most efficient and flexible large-scale power storage technology available and enables utilities to respond quickly to fluctuating power demand and to manage demand peaks in a financially and environmentally attractive way.

When demand for electricity is low, excess power is used to pump water into a higher reservoir. When demand for power is high, the water in the higher reservoir is released through a hydroelectric turbine, generating electricity that can be sold at premium prices.

A variable speed pump turbine regulates the level of energy the pump turbine consumes, thus giving utilities an even better control over their resources to more easily and efficiently match energy supply to demand. Variable speed also helps reduce the number of starts and stops and helps to regulate the network frequency or voltage in pumping mode. These benefits result in improved profitability for pumped storage plant owners,



and allow network operators to improve the reliability of the grid as well as the quality of the power supplied to end consumers.

#### **Editor's Notes**

\*Alstom Hydro, a joint venture between Alstom and Bouygues, has over 400 GW of turbines and generators installed worldwide, which represent more than 25% of the total global hydropower installed capacity. As the world leader in supply of hydropower equipment & services, Alstom Hydro offers products and turnkey solutions that cover all hydropower schemes, from large to small, from run-of-river to pumped storage. With more than 6000 employees in 19 countries Alstom Hydro offers the broadest range of products and services for new installations, refurbishment, upgrading and services.

\*\*Conventional pump turbines can only operate on a fixed quantity of energy whereas variable-speed pump-turbines can regulate the level of energy they consume. As a result they continue to function even at lower energy levels. Consequently they assure a steady refilling of the reservoir while contributing to the stabilization of the network.

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