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RENOVATION OF THE FIONNAY AND NENDAZ POWER PLANTS

The Grande Dixence complex: increased availability and flexibility

In order to ensure the long-term availability and ensuing flexibility of the Grande Dixence complex, the company is renovating the 12 power generating units at the Fionnay and Nendaz plants. While the power output of the Fionnay (290 MW) and Nendaz (390 MW) power plants remains unchanged, certain modifications will make them more flexible. As a result, the power plants will be better able to meet current electricity market requirements. Grande Dixence SA is investing a total amount of CHF 103 million in these renovations.

The work, which started in 2007 at Fionnay, consisted of replacing or servicing a great many of the generator components but without changing their mode of operation nor their basic specifications. In addition, generator output was increased and thermal losses were reduced. Despite the power output of the two power plants remaining unchanged, both of them thus benefit from increased efficiency. This is already the case for the six generating units at the renovation which completed April Fionnay plant, of was in 2014. Similar work was started at Nendaz in 2011. This should be completed in 2017. This difference in timing has enabled the project to benefit from experience gained in renovating Fionnay and make better use of resources.

Ensuring availability in order to increase flexibility

Following this renovation work, Grande Dixence can guarantee maximum availability of its Fionnay and Nendaz power plants, thereby ensuring that the installation is highly flexible. While extremely low electricity-market prices are currently posing a real challenge for hydroelectric power plants in terms of profitability, flexibility is a major strength for storage power plants such as Grande Dixence. Compared with the uneven, irregular output from renewable energy sources – such as photovoltaic and wind power – storage power plants ensure the proper functioning of the very high-voltage network. Their great flexibility thus contributes significantly to the stability of the electricity network at a European level and to a secure power supply for Switzerland.

The Fionnay and Nendaz power plants are both part of the Grande Dixence complex. The key element of this complex, the Grande Dixence dam, stores 400 million m³ of water from 35 glaciers in the Valais region. First the water passes through the turbines of the Fionnay plant, located at an altitude of 1490m, then it is directed through the turbines of the Nendaz plant, 1000m lower, before being discharged into the Rhône. The Fionnay and Nendaz power plants both possess six power generating units with two Pelton turbines, commissioned in stages between 1957 and 1964.

Further information on Grande Dixence is available on <u>www.grande-dixence.ch</u>

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Overview of Grande Dixence SA

Founded in 1950, Grande Dixence SA is the leading supplier of electrical power in Switzerland and Europe. The company is based in Sion and owns the Grande Dixence complex, which collects water from 35 glaciers in the Valais, from the Mattertal (around Zermatt) to Val d'Hérens. The jewel in the crown of this complex is Grande Dixence dam, which collects and stores the water from these glaciers in the reservoir. The output of Grande Dixence SA represents a fifth of Switzerland's storable energy. The company delivers all the energy generated by the complex to the owners of the share capital (CHF 300 million). The four shareholders are Alpiq Suisse SA (60%), Axpo Power AG (13 1/3%), BKW Energie AG (13 1/3%) and IWB Industrielle Werke Basel (13 1/3%).