

## Media Release

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### Out with the old, in with the new: Voith makes Swiss pumped storage power plant Ritom fit for the future

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- New plant replaces existing facility: Voith technology improves capacity and network flexibility of the new power plant
- Swiss Rail (SBB) and the power utility of the canton of Ticino (AET) will be the joint users of the power plant.
- Most important energy project of the last 50 years in the Swiss canton of Ticino and one of the most significant investments by SBB south of the Alps

**HEIDENHEIM/QUINTO.** Technology group Voith recently received an extensive order for the Ritom pumped storage power plant in Switzerland. The plant has been in operation since as far back as 1920 and will now be replaced by a new facility. Voith will be responsible for design, fabrication, installation and commissioning of the new high-performance generating units. The electricity produced by the Ritom pumped storage power plant is of crucial importance for the operation of the rail network by Swiss Rail (SBB) and for supplying power to the Ticino region. The total investment volume for the construction project is in the region of CHF 250 million. The new plant is scheduled to go into operation in mid-2023.

Client and plant operator is Ritom SA, a Joint Venture between SBB and the canton of Ticino. The company regards the energy project as the most important in the canton of Ticino in the last 50 years and one of the most substantial investments by SBB south of the Alps. As the Swiss Federal Office of Energy, the canton of Ticino and Ritom SA want to increase the proportion of hydropower in electricity generation in the next few years, the expansion of the power plant at this location is especially important.

## **Technically sophisticated project**

The four Pelton turbines with a total rated output of 44 MW that are used in the Ritom pumped storage power plant will be replaced by much more powerful generating units in the new facility. To this end, Voith will supply two Pelton 60 MW turbines and a 60 MW storage pump.

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The different designs and purposes of the generating units mean that Voith's engineers have exacting requirements to meet. For example, the first machine unit will supply power for the 16.7 Hz Swiss Rail network and the operation of its trains. The second will feed the electricity it generates into the 50 Hz public grid.

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The third unit, a 60 MW capacity storage pump with a delivery head of more than 700 m, will pump the water for reservoir management and to provide balancing power (operating reserve) from the Airolo basin to Lake Ritom. In combination with the turbine, the pump can provide the operating reserve for fast grid regulation and stabilization with maximum flexibility. This means that the new power plant will provide a feed-in reserve/intake balance of 60 MW for the 50Hz Swiss grid. "In addition, the storage pump can be speeded up with the help of the 50 Hz Pelton turbines using back-to-back starting and synchronized with the grid. In this situation the power of the turbine is used to start the pump in the water," explains Christian Matten, Project Manager at Voith Hydro Europe.

## **Comprehensive simulations demonstrate benefits**

Because of the special importance of this power plant, operator Ritom SA had very stringent design requirements for all components. "As well as conducting transient pressure (water hammer) calculations, we built a comprehensive simulation model for the entire electrical and mechanical scope of supply and carried out corresponding research beforehand," says Matten. "As a result, we can ensure, for example, that our machines meet the exacting requirements of the Swiss transmission grid."

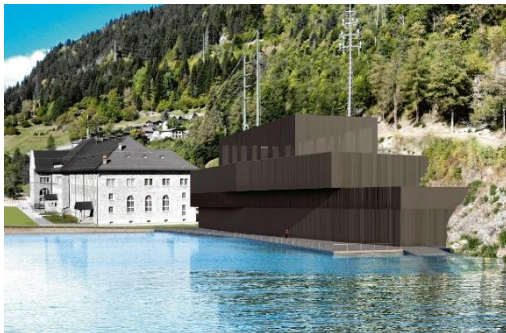
## **About the Voith Group**

The Voith Group is a global technology company. With its broad portfolio of systems, products, services and digital applications, Voith sets standards in the markets of energy, oil & gas, paper, raw materials and transport & automotive. Founded in 1867, the company today has more than 19,000 employees, sales of € 4.2 billion and locations in over 60 countries worldwide, and is thus one of the largest family-owned companies in Europe.

Voith Hydro Division is part of the Voith Group and a leading full-line supplier and reliable partner for hydropower plant equipment. Voith develops customized long-term solutions and services for large and small hydropower plants all over the world. Its range of products and services covers the entire life cycle and all the main components for large and small hydropower plants, from generators, turbines, pumps and automation systems to spare parts, maintenance and training services and digital solutions for intelligent hydropower.

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**Caption:** A rendering of the new Ritom pumped storage power plant in Switzerland. (Source: SBB)

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