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## **Pohjolan Voima investigates building a pumped hydroelectric energy storage (PHES) in Kemijärvi**

**Pohjolan Voima, one of Finland's largest energy companies, is investigating the possibility of building a pumped-storage power station in the area of Lake Kemijärvi.**

**Pumped-storage power stations are used in the mountain regions of Norway and Austria, for example, and focus on storing electrical energy. Finland will require significant amounts of regulating energy and storage capacity for electricity production to ensure the availability of electricity to Finnish households and a stable operating environment for Finnish industry.**

The purpose of the planned pumped-storage power station is to regulate and secure the supply and production of electricity. Pumped hydroelectric energy storage (PHES) is based on exploiting different heights and gravity. Water would be pumped from Lake Kemijärvi to a higher storage reservoir when surplus electricity is available. If electricity was in short supply, the water would be run through turbines from the storage reservoir back into lake Kemijärvi. This would add considerable extra capacity to the grid when it is needed the most.

### **The pumped-storage power station would help secure the availability of electricity in Finland**

“The pumped-storage power station would have a capacity of around 500 megawatts. It would be located about five kilometres from Pohjolan Voima’s Jumisko hydropower plant in the Askanaapa area, which is currently drained for forestry use. Our pumped-storage power station would help secure the availability of electricity in Finland. The power station would use tried and tested existing technology to improve the competitiveness of the Kemijärvi region, Lapland, and all of Finland: it would bring jobs throughout the different stages of the project and property taxes for the municipality,” says **Jani Pulli**, Managing Director of PVO-Vesivoima.

Pohjolan Voima uses an at-cost operating model, the Mankala model, meaning the company produces electricity at cost for its owners and does not pursue profits as a company. The pumped-storage power station would help secure the availability of electricity for the company’s owners and for the whole of Finland through them. Pohjolan Voima is owned by Finnish industrial operators and local energy companies who sell electricity to households.

### **Aiming for strong cooperation with locals**

“We are very familiar with the region and its local communities. We value close dialogue with landowners and local communities from the start. This allows us to find the best methods for

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realising our potential investment. We have approached the landowners and the city manager of the city of Kemijärvi. Next, we plan to hold meetings with landowners and municipal decision-makers, local residents, and other stakeholders in general,” says Jani Pulli, Managing Director of PVO-Vesivoima.

Finland’s national energy consumption is expected to double in the next 15 years. The main reason is the electrification of society. Pumped-storage power stations can support investments for the green transition, such as the hydrogen economy, wind and solar power, and industrial electrification.

“The need to store electricity will increase significantly. Water reservoirs make for excellent energy storage. Other storage solutions such as batteries and hydrogen production remain expensive and mostly suitable for short-term energy storage. The pumped-storage power station planned by PVO-Vesivoima would allow much longer storage periods than the alternatives, up to one week,” says Pulli.

Called PUHTI, the next stages of the project are further investigations and preparing for an environmental impact assessment. We will communicate the progress of the project actively and broadly to the stakeholders.

## **PROJECT FACTS**

**Area type:** Drained (trenched) forestry land.

**Potential reservoir location:** A relatively small natural bowl formation called Askanaapa, about five kilometres west of the main body of Lake Kemijärvi. Taking advantage of the local terrain, the reservoir would be built by damming the areas between the local hills. The planned reservoir would have a surface area of 300 hectares. In practice, this is about half the size of Lake Tuusulanjärvi, or just under half the size of Rovaniemi Airport.

**Potential lower reservoir location:** Lake Kemijärvi. With a large surface area of 230 square kilometres, Kemijärvi is a natural lower reservoir.

**Potential power station location:** The space needed for the pumped-storage power station would be excavated inside Mömmövaara hill. The water would be directed into Lake Kemijärvi through a tunnel.

### **Additional information:**

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