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"First electric light of northern Europe was installed in a weaving shed at Finlayson, Tampere, back in 1882."

# FINLAND

## LAND OF A 1000 LAKES

Finland is the most sparsely populated country in Europe with one of the highest per capita incomes of the world. It has a highly industrialized economy with the largest industries being electronics, machinery, vehicles, and engineered metal products. The country's vast forests make Finland one of the world's leading wood producers too.

Total net electricity production in Finland is about 65,000 GWh/year, of which some 14,637 GWh/year or 22.5% comes from hydropower. The overall technically feasible hydropower potential is 16,915 GWh/year, 77% of which has already been developed. Now, because of the Wild River Act designed to protect the natural environment, the building of new hydropower plants is prohibited. This results in a strong focus on rehabilitation and uprating of existing hydropower installations.

By 2016, Finland had already reached its 2020 target of a 38% share of renewable energy in final consumption. Nonetheless, a national energy and climate strategy to become carbon neutral and powered 100% by renewables has established a favorable market environment for hydropower development. Under these strategic plans, the target is to increase the hydropower production by several hundred GWh/year within the next decade.

### ANDRITZ HYDRO IN FINLAND

Finland's first ever operational hydro turbine was manufactured by Tampella (now ANDRITZ Hydro) in 1856. ANDRITZ Hydro has been involved in all the major hydropower plants in the country supplying or rehabilitating about 2,300 turbines to date. This represents a fleet share of about 87%.

ANDRITZ Hydro Finland is specialized in low head axial turbine refurbishment projects and axial turbine technology development. The main office, hydraulic laboratory and assembly facility for runners are all located in Tampere. Beyond the domestic market, axial turbines are delivered mainly to Scandinavian ANDRITZ locations in Sweden and Norway.

### UTANEN, OULUJOKI RIVER

The output of the Utanen hydropower plant is 58 MW, producing enough electricity for about 13,000 households and with a head of 15.7 m. With a target to increase efficiency and output of the plant, this project consists of refurbishment of two Kaplan turbines and two generators. It is the first large generator supply of ANDRITZ to the Finnish hydro market for some time. The first refurbished unit is expected to be commissioned in 2020.

### TAIVALKOSKI, KEMIJOKI RIVER

ANDRITZ received an order for the refurbishment of three Kaplan turbines, including the supply of new four-bladed oil-free runners and servicing existing components at Taivalkoski. Following the completion of the rehabilitation program in 2017, the hydropower plant now has an average annual energy production of 550 GWh/year.

TO KNOW

**GENERAL FACTS**

Population: **5,511 Mio.**
Access to electricity: **100%**
Installed hydro capacity: **3,241 MW**
Hydro capacity under contruction: **30 MW**
Share of generation from hydropower: **22.5%**
Hydro generation per year: **14,637 GWh**
Technically feasible hydro generation potential: **16,915 GWh**

**ANDRITZ HYDRO IN THE COUNTRY**

Installed and/or rehabilitated capacity: **3,641 MW**
Installed and/or rehabilitated units: **221**
Locations: **Tampere**

Source Facts:The World Bank, IHA, CIA Factbook, Hydropower & Dams World Atlas 2018