A RENEWA

Energy Gem in Newfoundland and Labrador

Muskrat Falls power plant in winter

Intake gates including trash racks

Muskrat Falls, Canada - Construction of the 824 MW Muskrat Falls mega-project on the lower reaches of Canada's Churchill River began in 2013 and was completed in November 2021. The plant, located about 30 km west of Happy Valley-Goose Bay, Labrador, consists of a spillway, three dams and a powerhouse. It is the second-largest hydroelectric facility in the province. The project includes a 1,000 km transmission line and a 32 km subsea cable, which links the hydroelectric dam with the island of Newfoundland, providing energy for more than 60,000 people locally.

"Muskrat Falls delivers a reduction in greenhouse gas emissions that is equivalent to taking about one million cars off the road for one year."

ANDRITZ' scope of supply comprised the design, supply, and installation of four new units with a capacity of 206 MW each, including four vertical 8.8 m diameter Kaplan turbines, synchronous generators, digital governor systems with servo motors and high-pressure oil supply systems, as well as static excitation,

TECHNICAL DETAILS

Total output: 824 MW
Scope output: 4 × 206 MW
Head: 35 m
Voltage: 15 kV
Speed: 90 rpm
Runner diameter: 8,820 mm

control, protection, and monitoring systems. ANDRITZ also supplied hydromechanical works, including spillway gates and stop logs, intake gates including trash racks and bulkhead and tailrace stop logs. Several ANDRITZ locations were involved in this 10-year project, with ANDRITZ Hydro Canada leading the project execution.

The project required execution excellence in many regards, especially with the remoteness of the site in northern Canada. The difficult weather conditions with lots of snow, ice and wind, required tremendous focus on safety, such as all the measures needed to withstand the low temperatures and snowstorms, and to secure access to the stored parts. The ANDRITZ team received the Power Safety Award for Excellence in Safety after over 5.2-million-person hours were recorded without a lost time injury. The pandemic brought another wave of challenges. However, the team rose to the occasion and adapted to work safely under the conditions. This situation also required new technologies to support remote work, such as the use of a drone for the runner and intake inspection, and an ROV to inspect the underwater intake gate and tailrace.

The project also required a lot of flexibility, adaptability, and tenacity from the team. For example, special efforts were required to clean and conserve parts that had been delivered to the powerhouse five years previously.

ANDRITZ Hydro Canada is proud to have contributed to the training and development of workers in Newfoundland and Labrador. Some of these people are even currently working outside the province. Of particular note, the addition of Native Nation workers to our team is part of this success story. In partnership with Newfoundland and Labrador Hydro, ANDRITZ directly hired some indigenous workers to execute tasks for the project.

It is estimated that the project will replace 3 to 4 million tons of carbon dioxide from thermal power plants annually. This will significantly reduce the carbon footprint of northeastern Canada and is equivalent to taking about one million cars off the road for one year. ANDRITZ is honored to have contributed to this clean, green, and sustainable development.

The four units of Muskrat Falls have been in commercial operation for more than a year and fully meet Newfoundland and Labrador Hydro's expectations. The generating units are and will be providing clean, renewable, and dispatchable energy for years to come. ANDRITZ is immensely proud of this achievement, which was made possible thanks to our employees, craft labor, partners, and the leadership demonstrated by Newfoundland and Labrador Hydro. We are looking forward to further cooperation with Newfoundland and Labrador Hydro and will continue to support the Muskrat Falls hydropower plant in the future.

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