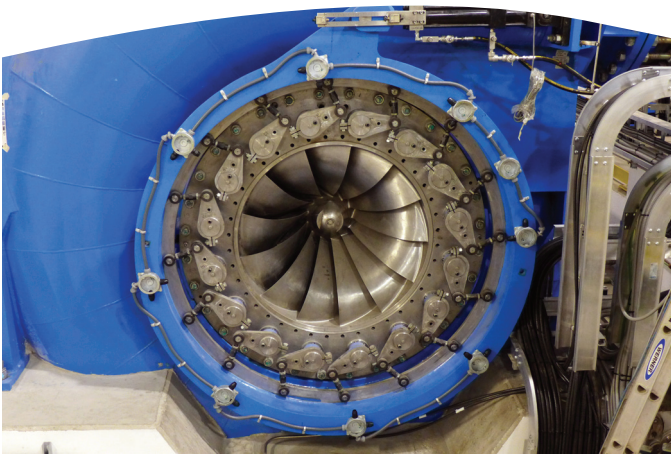




2016 AWARDS FOR ENGINEERING EXCELLENCE

Award of Merit Capilano Energy Recovery Facility



Consultant

Knight Piésold Ltd.

Owner/Client

Metro Vancouver

Category

Energy & Industry

For more information, please contact:

Michael Pullinger, P.Eng.
Knight Piésold Ltd.

☎ (604) 685-0543

mpullinger@knightpiesold.com

The Capilano Energy Recovery Facility is an integral component of Metro Vancouver's Greater Vancouver Water District Seymour-Capilano Filtration Project in North Vancouver, British Columbia. Knight Piésold designed and commissioned the facility to reduce the pressure of clean drinking water from the Seymour-Capilano Filtration Plant before it is delivered to residents of the North Shore, Vancouver, and Richmond. A hydroelectric turbine recovers energy at the same time as water pressure is reduced, partially offsetting energy consumption and operating costs. Two fully redundant 1.676 metre-diameter pressure reducing valves (energy dissipating valves) provide water supply continuity if the turbine shuts down. The turbine and the pressure reducing valves discharge into an underground tank to maintain a constant water level supply.

Biodegradable food standard lubricating oils and components safe for use with drinking water were used to eliminate contamination risk. An environmentally friendly dechlorination system was implemented to ensure water released during emergency overflow is safe for aquatic habitat in the Capilano Reservoir.

At a total installed electrical generation capacity of 1,687 kilowatts at a design flow rate of 7,500 litres per second, the Capilano Energy Recovery Facility has one of the largest hydroelectric turbines in a treated drinking water system in North America. The turbine is expected to generate approximately 9,600 megawatt-hours per year, which is enough to power up to 1,000 homes. Instead, the energy generated is sent to Metro Vancouver's Capilano Pump Station, where it is able to offset the energy consumption of one of the large 2,000 horsepower pumps.