

Peace River Generating Stations

Projects Update – December 2019



Peace Canyon Dam and Generating Station.

Located on the Peace River, near Hudson's Hope, are two of BC Hydro's largest generating facilities: Gordon M. Shrum (GMS) and Peace Canyon (PCN). The GMS Generating Station and nearby Peace Canyon Generating Station supply a large amount of power to all of British Columbia, playing an important role in our hydroelectric system.

To ensure continued reliable, affordable and clean power, a number of projects are underway, or will start soon, at the generating stations. These projects are part of our investment of approximately \$3 billion a year to upgrade our aging assets and build new infrastructure. The electricity we generate and deliver to customers throughout the province powers our economy and quality of life.

GMS G1-10 Control System Upgrade

We're replacing unit controls for generating units 1 to 10 and retro-fitting governors for generating units 6 to 10. These control the water flow through the turbine to regulate the shaft speed of the generator. Also due for replacements are the exciters for generating units 9 and 10 – these control the current through the generator field winding to regulate the output voltage of the generator.

Additionally, we'll update controls for intake systems; controls for plant auxiliary systems; GMS plant central control room; and remote operation controls for GMS and PCN generating stations. When completed in 2024, Site C Generating Station will also be controlled from GMS as part of this upgrade.

Upgrade work has been completed for generating units 1 to 6 and generating units 9 and 10. The unit controls upgrade and governor retrofit work for generating unit 7 is scheduled to be completed by April 2020.

All upgrade work for this project is expected to be completed by mid-2023.

GMS 500 kV Disconnect Switches Replacement Project

Thirty 500 kilovolt (kV) disconnect switches at GMS are aging, as many were manufactured in the 1960s and 1970s. These switches electrically isolate the individual generating units from the 500 kV switchyard, which is required for planned outages for maintenance and operations.

These switches are being replaced between mid-2019 and late 2020. The construction for the first set of disconnect switches commenced in July 2019 and were replaced in October 2019. The remaining switches are due to be replaced next year.



The 500 kV switchyard at Gordon M. Shrum Generating Station. Photo courtesy of Garry Russell at FMI.

GMS G1–5 Exciter Transformer Replacement – COMPLETED

Exciter transformers are necessary to power the exciters which control the magnetic field in the generator and the output voltage. The existing exciter transformers in generating units 1–5 needed to be replaced.

Unit 3 exciter transformer, which is the last unit replaced under this project, was completed in September 2019 and the new equipment is now in service.

GMS Draft Tube Maintenance Gates Refurbishment

GMS has 10 turbine-generator units with each turbine discharging water into a separate draft tube. Two draft tube maintenance gates (DTMG) are required to isolate the draft tube area for each unit. The objective of this project is to refurbish five sets of draft tube maintenance gates through reconditioning of the gate sections and associated components so that they can continue to be used safely for many more years.

The refurbishment is currently underway and expected to be completed in October 2020.

PCN Draft Tube Maintenance Gates Refurbishment

The purpose of this project is to refurbish all six draft tube maintenance gates (DTMG) through reconditioning of the gate sections and associated components. Unlike GMS, three DTMG are required to isolate one draft tube area for each unit at PCN. Furthermore, DTMGs at PCN are located outdoors which requires the on-site work to be done outside the winter months.

The refurbishment is currently underway and expected to be completed in June 2020.



Contractor disassembling draft tube maintenance gates into sections for transport to offsite refurbishment area.

What are draft tube maintenance gates?

These gates are required to isolate the turbine draft tubes from the tailrace and allow work in the draft tubes – either for maintenance on the turbine or the water passage itself.

What is a tailrace?

It is an outlet, downstream of a dam or generating station, which discharges water that has passed through the turbines to generate electricity.

Looking for Site C Project Information?

Please visit: sitecproject.com

Please contact BC Hydro Community Relations at 250 561 4858 or bob.gammer@bchydro.com, or BC Hydro Indigenous Relations at 604 528 3290 or anne.pigott@bchydro.com for more information on the above projects.