

Peace River System Generating Stations

BC Hydro Projects Update – June 2020



The tailrace – an outlet, downstream of the generating station, which discharges water that has passed through the turbines to generate electricity – at Gordon M. Shrum 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 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 HVAC System Upgrade

At GMS, we’ll be upgrading the 50-year old heating, ventilation and air conditioning (HVAC) system. The HVAC system provides conditioned air to building occupants and temperature regulation for generating equipment. We’re currently completing the detailed design for the project.

Targeted replacement of components of the current system is expected to improve reliability, maintainability and safety, and is planned to take place between 2022 and 2023.

PCN Protection Upgrade Project

To ensure increased reliability and system stability, the project is upgrading the protection and control equipment for PCN generating units 1 to 4. The existing electromechanical equipment, installed in the 1980s, is past its service life. The new equipment is modern and state-of-the-art. The work includes installation of new digital protection and control panels for the generator exciter and transformer systems.

There are two stages for construction, timed to fit with annual maintenance schedules. The construction for units 3 and 4 started in April 2019 and was completed in September 2019. The construction for units 1 and 2 was planned to start in March 2020. However, the work has been deferred until 2024, after Site C completion.

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 replacement 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 7 and 9 and 10. The outage for the unit controls upgrade and governor retrofit work for generating unit 8 has been delayed due to the COVID-19 situation. Upgrade work for the GMS intake and the balance of plant auxiliary systems have started, but are delayed due to the COVID-19 situation.

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

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 (DTMGs) 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 December 2020.

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.

PCN Draft Tube Maintenance Gates Refurbishment

The purpose of this project is to refurbish all six draft tube maintenance gates (DTMGs) through reconditioning of the gate sections and associated components. To date, three have been refurbished. Unlike GMS, there are not dedicated DTMGs for each unit. Three DTMGs are required to isolate one draft tube area for each unit at PCN. There are only enough gates to cover two units at a time at PCN.

The refurbishment is currently underway for the remaining three gates and is expected to be completed in August 2020.

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.

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New equipment ready to be installed for the GMS 500 kV Disconnect Switches Replacement Project.

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 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 2021. Construction for the first set of disconnect switches commenced in July 2019 and was completed in October 2019. The remaining switches are due to be replaced in the fall of 2020 and 2021.