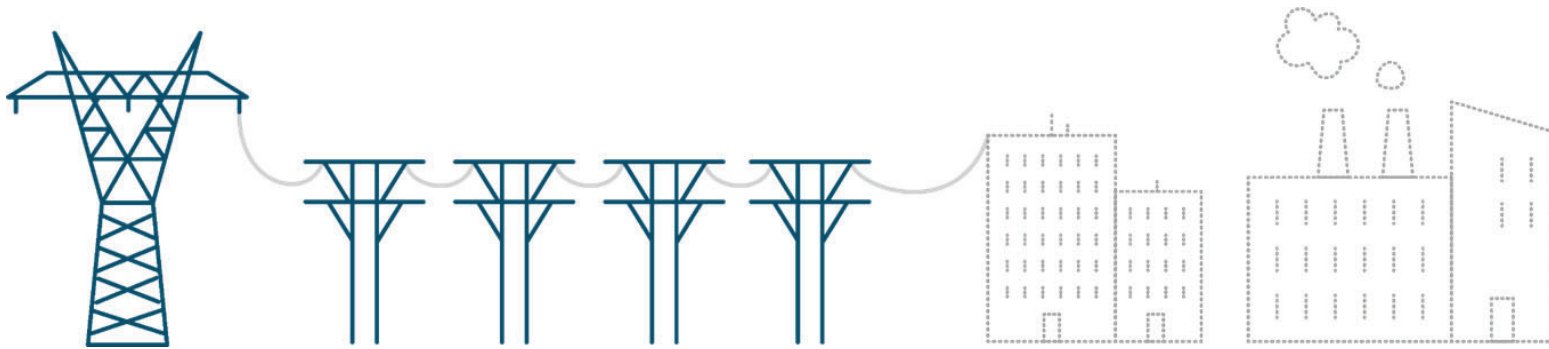


Our Electrified Future

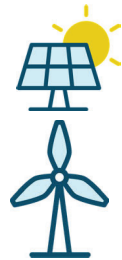


Ted Olynyk

A Robust Power System

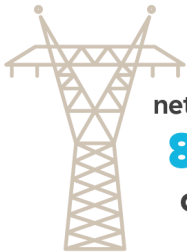


30
Hydro
Plants



125
IPP
Projects

5 million
customers



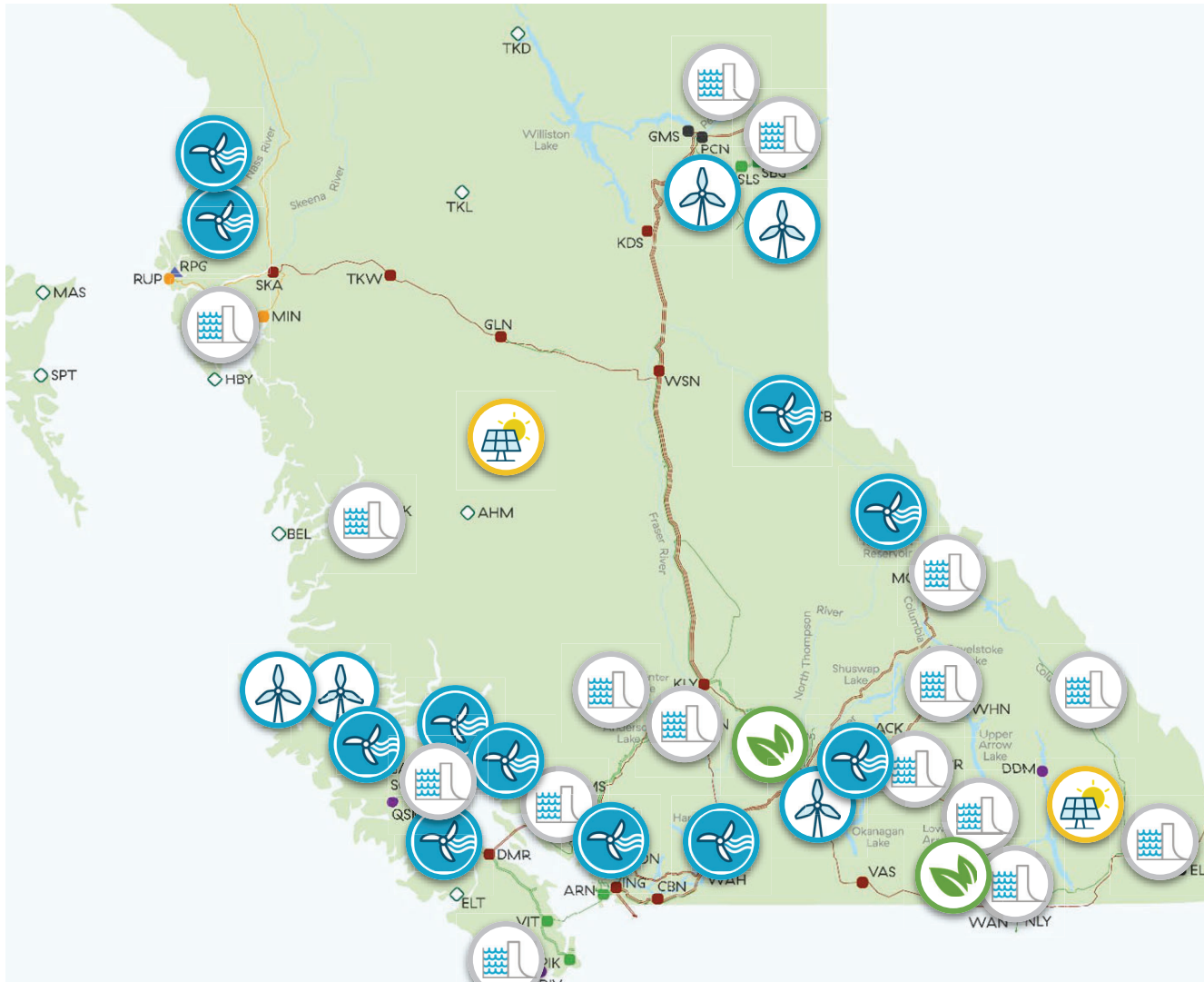
BC Hydro has a
network of approximately
80,000 kms
of transmission &
distribution lines

Over 300



substations





Where does our electricity originate?



69%
Large hydro



19%
IPP hydro



5%
Biomass



3%
Wind

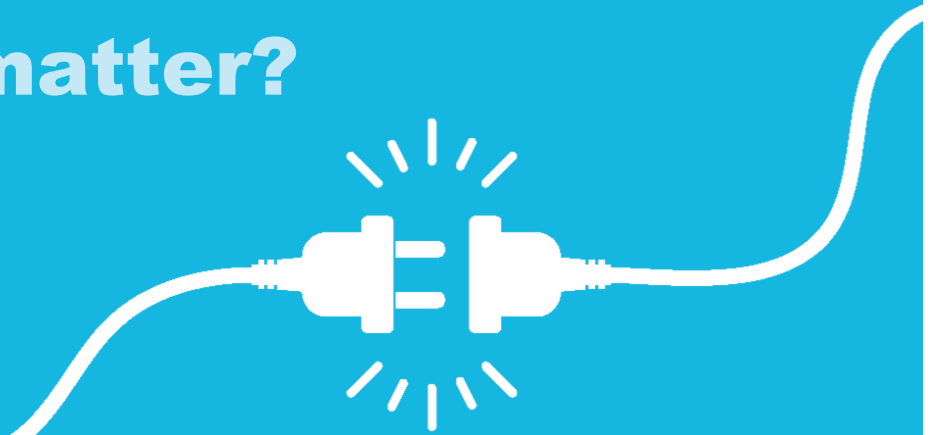


<1%
Solar

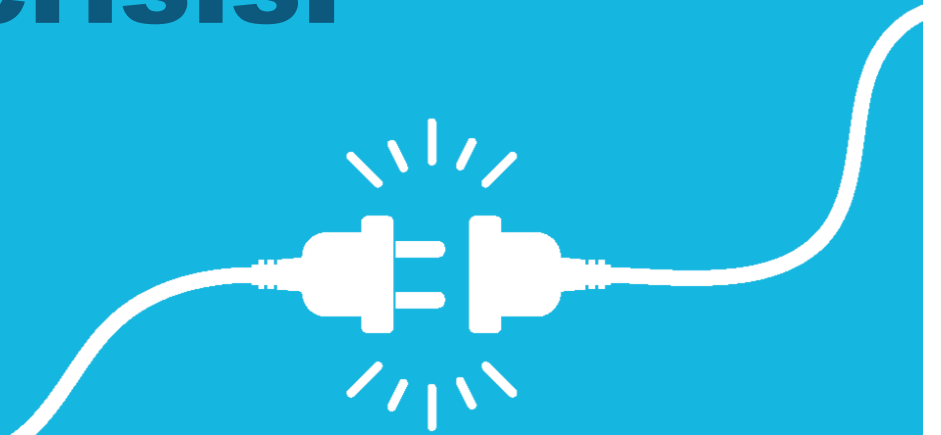
2023/24 - 2025/26 Service Plan (Feb 2023).
Gas is approximately 1.4%

What is electrification?

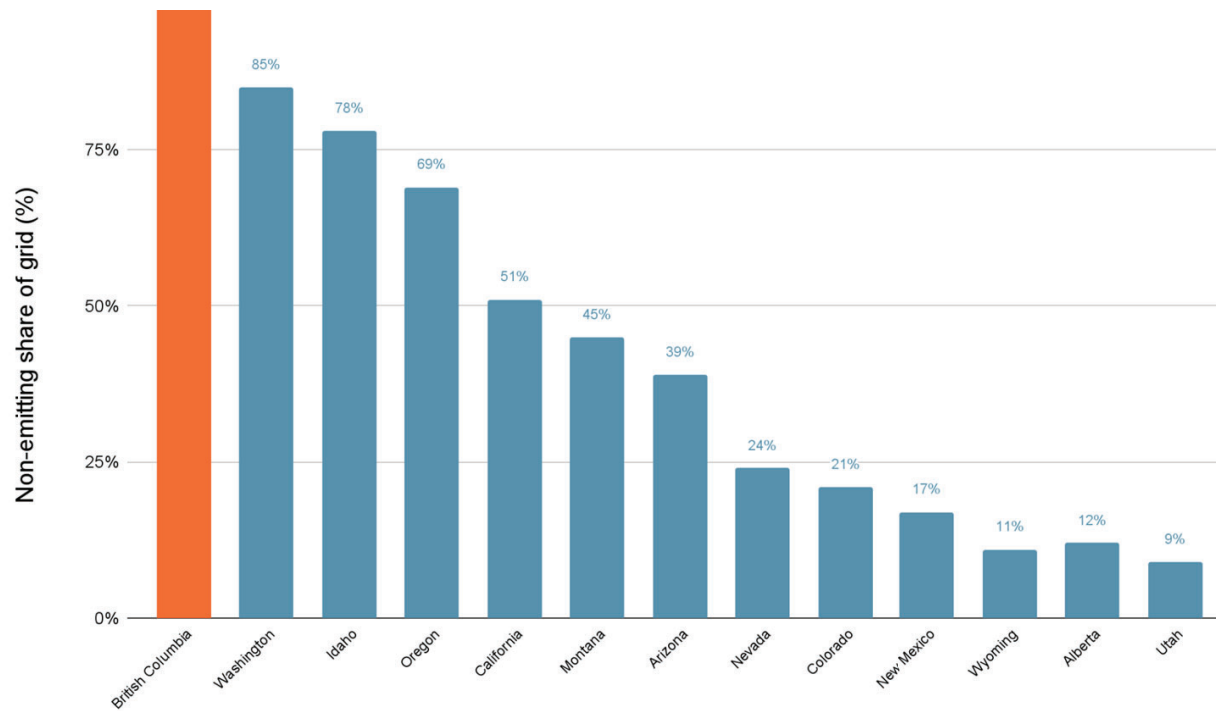
..and why does it matter?



**In BC, Electrification is
one of the responses to
the climate crisis.**



A Clean Power Leader



Electrification Plan

BC Hydro's Electrification Plan

A clean future powered by water

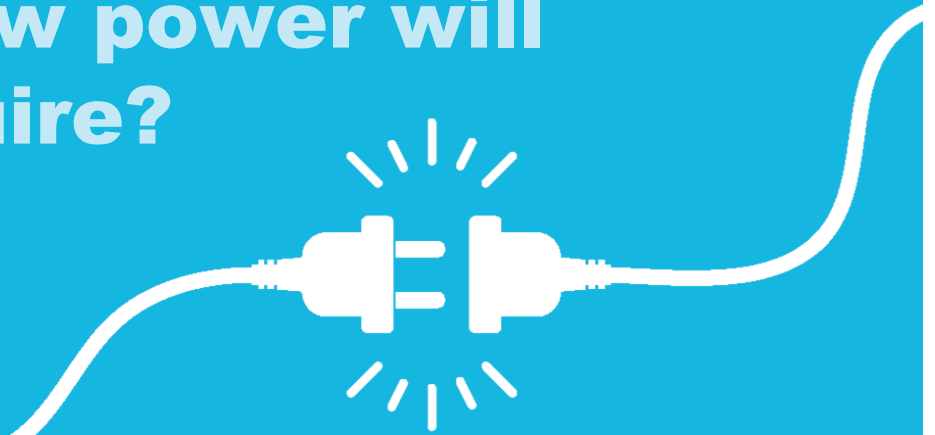
SEPTEMBER 2021

 **BC Hydro**
Power smart

 **cleanBC**
our nature our power our future

When will we need more electricity?

**..and how much new power will
electrification require?**

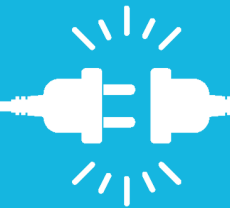




SITE C

Online in 2025

**Supply increase
by 8%**



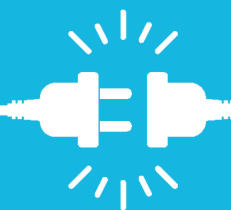
A photograph of a wind farm on a grassy hill at sunrise. The sun is low on the horizon, casting a warm orange and yellow glow across the sky and the landscape. The wind turbines are silhouetted against the bright sky. A layer of mist or low clouds is visible in the valleys between the hills. The overall scene is serene and emphasizes renewable energy.

**Upcoming Call for Power: A call
for new renewable electricity**



10% higher

**Energy efficiency
savings captured**



Investing in our wires: The Capital Plan

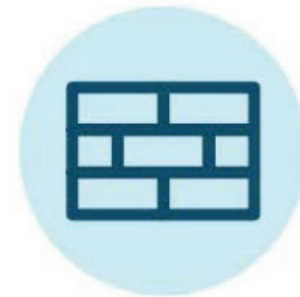
**\$36
BILLION**



Sustainment
\$21 BILLION



**Electrification and
GHG reduction**
\$10 BILLION



Reinforcement
\$5 BILLION

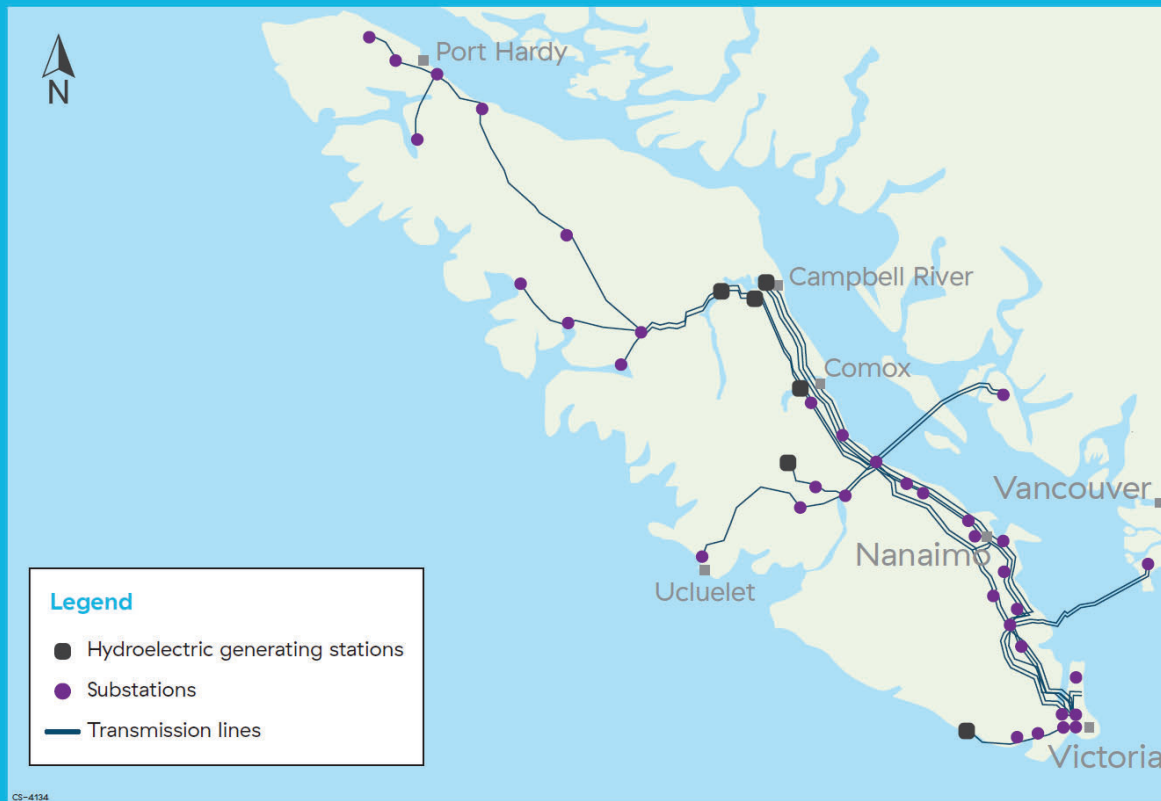


Vancouver Island Transmission and Power Supply, and Capital Projects

Stephen Watson



Vancouver Island Transmission System



Campbell River System



Campbell River Hydroelectric Facilities Discovery Centre



John Hart Generating Station Replacement

2007 - 2020

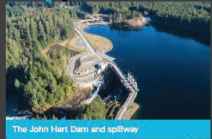
Project drivers met:

- Reliability
- Safety
- Fish Habitat


Some project achievements:

- Under budget
- No lost time accidents
- No significant environmental incidents
- Design: Increased power generation capacity


John Hart hydroelectric facilities: 2019 onward | There were three reasons for the John Hart Generating Station Replacement Project: seismic safety, power generation reliability, and protecting downstream fish habitat from unplanned river flow reductions




The John Hart Dam and spillway




The power tunnel looking downstream. It is shown during construction



The power tunnel manifold and the water inlets to the powerhouse



Elk Falls Canyon, and a fish snorkel survey



The three water bypass units

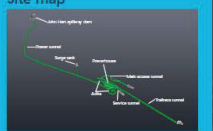
Dam

The dam has a new water intake placed near the concrete spillway, within and on rock. The intake goes under the dam with water passing into the power tunnel for power generation, or to the two low level outlet valves. The smaller valve can provide up to 10 cubic metres per second (m³/s) for fish habitat flow, including several migration flows. Elk Falls is a barrier to fish passage, though there is good habitat below the falls. The second valve is used for general water management needs and can provide up to 32 m³/s.

Tunnels


The total tunnel length is about 2.1 km from the John Hart Dam to the Campbell River. It includes a power tunnel shaft that drops the water vertically about 65 metres to where it flows to a near horizontal section of the power tunnel. The power tunnel, at over 8 metres in diameter, then slowly slopes downward over nearly 1.6 km to the powerhouse. The tunnel is about 100 metres below the ground surface. There is also a surge chamber and tailrace tunnel, on the downstream side of the powerhouse, that then goes about 500-600 metres to the Campbell River. The tailrace tunnel is about 10.5 metres high. The tunnel design is for 134 m³/s of water flow.

Site map




Underground generating station


The generating station cavern is as tall as a 10-story building and as long as a football field. It is 60-100 metres below the ground surface. It is seismically strong by being placed in bedrock. The generating station capacity increased by about 10% over the old facility, using the same amount of water, to a total of about 135 megawatts. That's enough power to serve about 80,000 homes. There are three turbines/generators and a water bypass facility within the powerhouse. Should one or all of the generators go offline, three water bypass units will automatically engage to protect downstream fish habitat with constant river flows. The generating station provides about 95% of the downstream Campbell River flow.



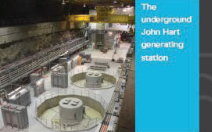
Water release valves that can provide year-round fish habitat flows down Elk Falls Canyon




The tailrace tunnel that leads from the surge chamber to the Campbell River



The surge tank connected to the power tunnel



The underground John Hart generating station

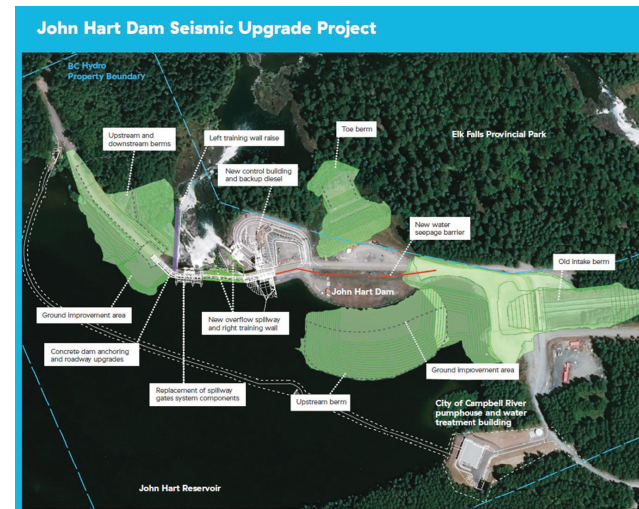


The gate gallery on the downstream side of the powerhouse. The surge chamber is below it

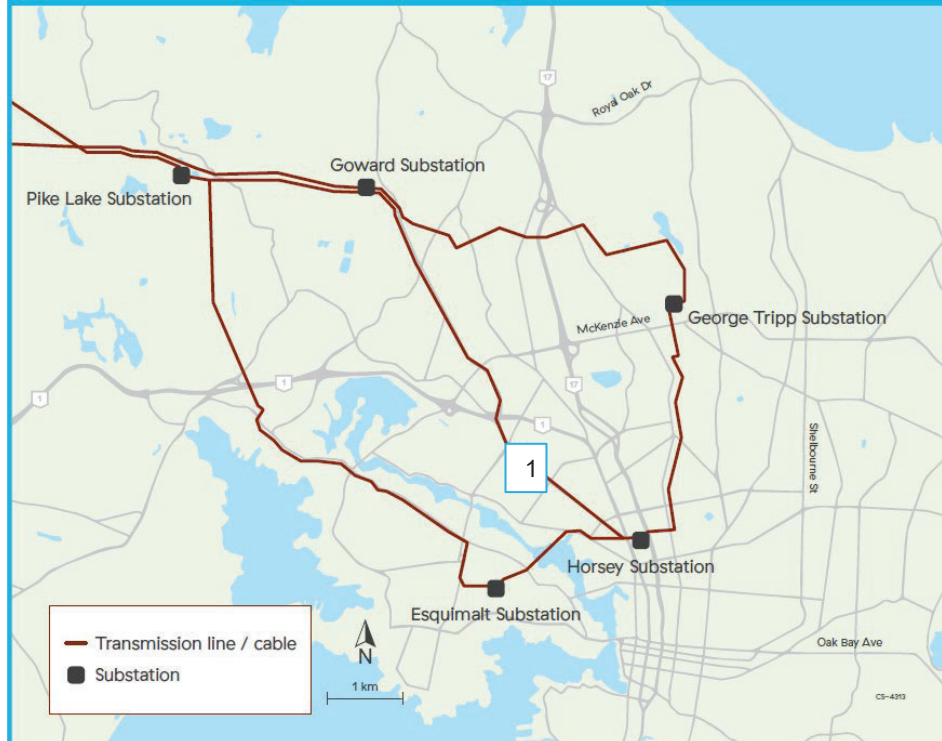
John Hart Dam Seismic Upgrade Project

Project drivers:

- Downstream public safety
- Reliability



Greater Victoria Transmission System



1: Victoria to Saanich Cable Replacement Project

Project Overview

- We are committed to delivering safe and reliable electricity to our customers across the province.
- The Victoria to Saanich Cable Replacement Project is planning to replace a 230 kilovolt, direct buried, oil-filled transmission cable.
- The cable is regularly monitored and maintained and is critical to the electricity supply for Greater Victoria.
- This circuit is nearing end of life and requires replacement.
 - It is at moderate risk of failure
- Continued electricity load growth requires additional cable capacity.

