

February 20, 2025

Eepsita Priye  
Chair, Studies Subcommittee  
[eeepsita.priye@pse.com](mailto:eeepsita.priye@pse.com)

Doug Tucker  
Senior Staff Engineer  
801-819-7606  
[dtucker@wecc.org](mailto:dtucker@wecc.org)  
155 North 400 West, Suite 200  
Salt Lake City, UT 84103-1114  
U.S.A.

### **2025 ANNUAL PROGRESS REPORT**

In accordance with reporting guidelines by the WECC Reliability Assessment Committee – Studies Subcommittee, please find attached British Columbia Hydro's 2025 Annual Progress Report on significant additions and changes to our system. Please contact me at [Kalpesh.Joshi2@bchydro.com](mailto:Kalpesh.Joshi2@bchydro.com) if you have any questions.

Sincerely,

British Columbia Hydro

By  
Kalpesh Joshi, PhD, M.Tech., P.Eng.  
Sr. Engineer, Planning Coordinator Office,  
Transmission Asset Planning, BC Hydro  
E-mail: [Kalpesh.Joshi2@bchydro.com](mailto:Kalpesh.Joshi2@bchydro.com)

CC: StS ([STS@wecc.org](mailto:STS@wecc.org))

# BC Hydro System – 2025 Annual Progress Report

**Major generation & transmission facilities planned by British Columbia Hydro (BCH) over the next 10-year period from 2025 to 2035 are outlined below.**

## **1. Major Generation Additions in Site C (STC) (>200 MW)**

Plants	Capacity (MW)	Planned In Service Date (ISD)
STC G4	205.7	Mar. 2025
STC G5	205.7	Jun. 2025
STC G6	205.7	Aug. 2025

## **2. Major Transmission Line Additions for Site C**

Transmission Lines	Voltage (kV)	Planned ISD
5L17 – STC × South Bank (SBK)	500	May 2025

## **3. Peace Canyon 5RX1 Replacement**

The shunt reactor 5RX1 at Peace Canyon Generating Station (PCN) for the transmission line 5L3 is more than 40 years old and in very poor condition. As part of the Peace to Kelly Lake Sustainment Project (PKSP), the reactor will be replaced. The new reactor has been ordered and will enable single pole reclosing (SPR) to improve system performance during planned or forced line outages.

- The planned in-service date for this project is Jul. 2028.

## **4. Downtown Vancouver Electric Supply – Recommended Alternative**

### **(a) Project 1:**

- New Substation: West End Substation (WTE), a new 230/25 kV underground substation at West End in downtown peninsula to offload existing Dal Grauer Substation (DGR).
- Extend 2L33 from Cathedral Square Substation (CSQ) to WTE with a new underground 230 kV section, approximately 2.5 km in length.
- Construct a new underground 230 kV circuit from CSQ to WTE, approximately 2.5 km in length, designated as 2L25 (CSQ–WTE).

- The planned in-service date for this project is Sep. 203.

**(b) Project 2:**

- New Substation: East Vancouver Substation (EVR), a new 230/25kV indoor substation at Downtown Eastside in Vancouver (adjacent to circuit 2L33 corridor) to offload the existing Murrin Substation (MUR). The station also includes a 230/60 kV switchyard.
- Loop in circuit 2L33 (HPN–WTE) to EVR resulting in two circuits: 2L33 (HPN–EVR) and 2L34 (EVR–WTE).
- The planned in-service date for this project is Mar. 2030.

**5. Vancouver Island Cable Replacement (2L143 and 2L146)**

- Replace 2L143 between Esquimalt Substation (ESQ) – Horsey Substation (HSY) with a new, higher rated, 230 kV XLPE cable circuit installed in a duct bank to address the reliability, environmental, seismic, and growth needs.
- The planned in-service date for this project is in Year 2027.
- Replace 2L146 between Goward Substation (GOW) – Horsey Substation (HSY) with a new, higher rated, 230 kV XLPE cable circuit installed in a duct bank to address the reliability, environmental, seismic, and growth needs.
- The planned in-service date for this project is 2028.

**6. Vancouver Island - Transmission Reinforcement Completion (VITRC)**

Upgrade 132 kV cables 1L18 from Vancouver Island Terminal Substation (VIT) to Arnott Substation (ARN) to 230 kV and redesignate to 2L124.

- The planned in-service date for this project is 2030.

**7. 2L32 Cable Replacement**

Replacement of cable 2L32 between Cathedral Square Substation (CSQ) to Horne Payne Substation (HPN) with a new, higher rated, 230 kV cable circuit.

- The planned in-service date for this project is 2032.

## **8. Williston Substation 5RX6 Replacement**

The shunt reactor 5RX6 at Williston Substation (WSN) for the transmission line 5L7 is more than 40 years old and in very poor condition. As part of the Peace to Kelly Lake Sustainment Project (PKSP), the reactor will be replaced. The new reactor has been ordered and will enable single pole reclosing (SPR) to improve system performance during planned or forced line outages.

- The planned in-service date for this project is Apr. 2027.

## **9. West Kelowna Transmission Project (WKTP)**

This project will provide a second transmission line (138 or 230 kV) to BC Hydro's Westbank Substation (WBK). This new line will provide redundant transmission supply to WBK.

- The planned in-service date for this project is Nov. 2032.

## **10. Customer's Mining Project**

The project involves construction of a new Treaty Creek Substation (TCT) by sectionalizing existing 2L102 (SKA–BQN) and looping in and out of TCT. After completion of TCT, the existing 2L102 (SKA–BQN) will become 2L102 (SKA–TCT) and 2L377 (TCT–BQN).

- The planned in-service date for this project is Nov. 2028.

## **11. Glenannan to Terrace Transmission (GTTT project)**

Advancement of 5L65 and 5L66 is required for 500 kV system reinforcement to support North Coast Load growth. The scope includes associated upgrades/expansions at Glenannan, Telkwa and Skeena substations and at the new Palling and Walcott capacitor stations being installed by the PGTC project.

- The planned in-service date for this project is Dec 2032.

## **12. Prince George Terrace Capacitors (PGTC)**

The PGTC project will build three new capacitor stations between Prince George and Terrace to increase capacity of the 500 kV North Coast transmission system by 500 MW to meet the needs of interconnection customers and support the provincial government's initiatives under CleanBC. The project scope also includes the addition of a 600 MVA transformer at the Skeena Substation (SKA) in Terrace.

- The planned ISD for the series capacitors on 5L61 and 5L62 is Dec. 2026.
- The planned ISD for the series capacitors on 5L63 is Oct. 2028.
- The planned ISD for the transformer at SKA is Dec. 2026.

### 13. Prince George to Glenannan Transmission. (PGGT)

The project will construct a new 500kV line (5L64) between Prince George and Glenannan Substations.

- The planned in-service date for this project is Oct. 2030.

### 14. Fraser Valley (CBN and MLN) - Capacitive Reinforcement

BC Hydro initiated the Fraser Valley Capacitive Reinforcement project to address voltage constraints in Fraser Valley transmission system. This project will install one 230 kV, 125 MVAR shunt capacitor bank at Clayburn Substation and install one 230 kV, 125 MVAR shunt capacitor bank at McLellan Substation.

- The planned in-service date for this project is Oct. 2026.

### 15. Transformers Addition/Replacement for System Reinforcement

Transformer	Capacity	Planned ISD	Reason
Skeena (SKA) T3 – 500/287/12.6 kV	672 MVA	Dec. 2026	Addition
Bear Mountain Terminal (BMT) T4 – 230/138/12.6 kV	300 MVA	Dec. 2026	Addition
Mainwaring Station (MAN) T1 & T3 225/12.6-25.2 kV/12.6-25.2 kV	150 MVA × 2	Dec. 2026	Replacement
Mount Pleasant substation (MPT) T3 230/12-25/12-25 kV	90/120/168 MVA	Oct. 2028	Addition
Barnard (BND)– Substation Add two 230/25kV Transformers	150 MVA × 2	Dec. 2029	Addition
Bridge River Terminal (BRT) T4A – 345/238/12.6 kV	90/120/150 MVA	Oct. 2024	Replacement
Steveston Substation Upgrade 230/25kV	75MVA	Oct. 2030	Addition

## 16. New Substation Construction

Substation	Voltages and Capacity	ISD
Campbell Heights – Substation	230/25kV, 200MVA	Oct. 2032
Surrey City Centre	230/25kV, 100MVA (current stage) / 400MVA (ultimate stage)	Mar. 2032
Willoughby Substation Construction	230/25kV, 200MVA	Mar. 2033
Goldstream Substation	230/25 kV, 200MVA	Mar. 2030
Boundary Road (BYR) Substation	230/25 kV, 200MVA	Jan. 2036

## 17. Coquitlam - 2L51 Partial Replacement

Circuit 2L51 is a 230 kV self-contained fluid-filled cable circuit that connects Como Lake Substation (COK) in Coquitlam to Barnard Substation (BND) and Horne Payne Substation (HPN) in Burnaby.

The scope of the project shall be to replace the section of cable that undergoes the large elevation change from SJ86C to COK with a new XLPE cable.

- The planned in-service date for this project is Jun. 2028.

## 18. Gulf Islands - Transmission Reinforcement

This project aims to reinforce the Gulf Islands to mitigate a failure in the submarine cables that feed the islands from the mainland. The cables are in poor condition and failure is expected in the 3-to-10-year period.

- The planned in-service date for this project is Mar. 2030.

## 19. Fort St. John - Transmission Reinforcement

This project is to build a new 138 kV line between South Bank (SBK) substation and Taylor (TAY) substation. The planned transmission project will increase firm supply capacity from South bank (SBK) to Taylor (TAY) after termination of agreement with MCM plant in Oct. 2029.

- The planned in-service date for this project is Oct. 2029.

### **Projects Completed in 2024/2025**

<b>Plants</b>	<b>Capacity (MW)</b>	<b>Planned ISD</b>
STC G1	205.7	Oct. 2024
STC G2	205.7	Dec. 2024
STC G3	205.7	Feb. 2025

<b>Transmission Lines</b>	<b>Voltage (kV)</b>	<b>Planned ISD</b>
5L15 – STC × South Bank (SBK)	500	Aug. 2024
5L16 – STC × South Bank (SBK)	500	Jan. 2025

### **Projects Cancelled or Postponed in 2024**

<b>Project Name</b>	<b>Location</b>	<b>Status</b>
Lower Mainland - Capacitive and Reactive Power Reinforcement (LMCRPR)	Burrard Synchronous Condenser (BSY) Substation	BCUC rejected the project
Metro South - Transmission Reinforcement	New Metrotown Substation	Postponed beyond 2035 based on new forecasts