

Power Pathway

Building B.C.'s energy future

JANUARY 2024

 **BC Hydro**
Power smart

Power pathway: Building B.C.'s energy future

We are in the midst of an energy transition here in B.C. and across the globe. The impacts of climate change underline the importance of investing in renewable sources of power and ensuring the system we use to deliver this power is safe, reliable and robust. And, while we are fortunate to have access to clean electricity in B.C., it accounts for 20 per cent of the energy currently used in our province.

From heating and cooling homes to powering personal and public transportation, the role of electricity will continue to grow. Businesses in B.C. are also looking to reduce their greenhouse gas emissions by making the switch to electricity to power office buildings, warehouses, work sites and industry. And, while this switch will not happen overnight, we must prepare now for what is next.

Our electricity grid is one of the cleanest in the world, and to meet the scale and pace of what is required next, we need to invest in our system and build for the future. To do this, BC Hydro has in place long-term agile planning processes to ensure we secure the energy we need for tomorrow, while sustaining and building out the infrastructure that provides reliable electricity to communities across the province.

Our clean energy advantage

While countries, states and provinces around the world are grappling with making massive investments in electricity, we are starting from a position of strength. About 98 per cent of the power we generate already comes from renewable resources, making us a leader in clean electricity generation in western North America, and we have in place a reliable and flexible grid to serve our customers.

We have 30 hydroelectric plants and in the coming years, we will add another—Site C—on the Peace River in northern B.C. When it is up and running, Site C will provide British Columbians with enough electricity to power nearly half a million homes or 1.7 million electric vehicles per year.

With the positive momentum around electrification building, we are taking significant steps towards sourcing the additional electricity needed to meet the future demand. Last year, we announced in partnership with the Province, that we will launch our first call for power this spring in over 15 years to add 3,000 gigawatt hours of clean and renewable electricity. This call for power will be the first in a series of calls we anticipate announcing in the coming years and will result in billions of dollars of investment in electricity across the province, creating new economic opportunities for First Nations and thousands of new jobs and economic growth in communities across the province.

Powered by nature: More wind and solar coming to B.C.

Through the call for power, we expect to see more wind and solar resources developed across B.C. as renewable energy complements our predominately hydroelectric system—meaning wind, water and sun resources working together.

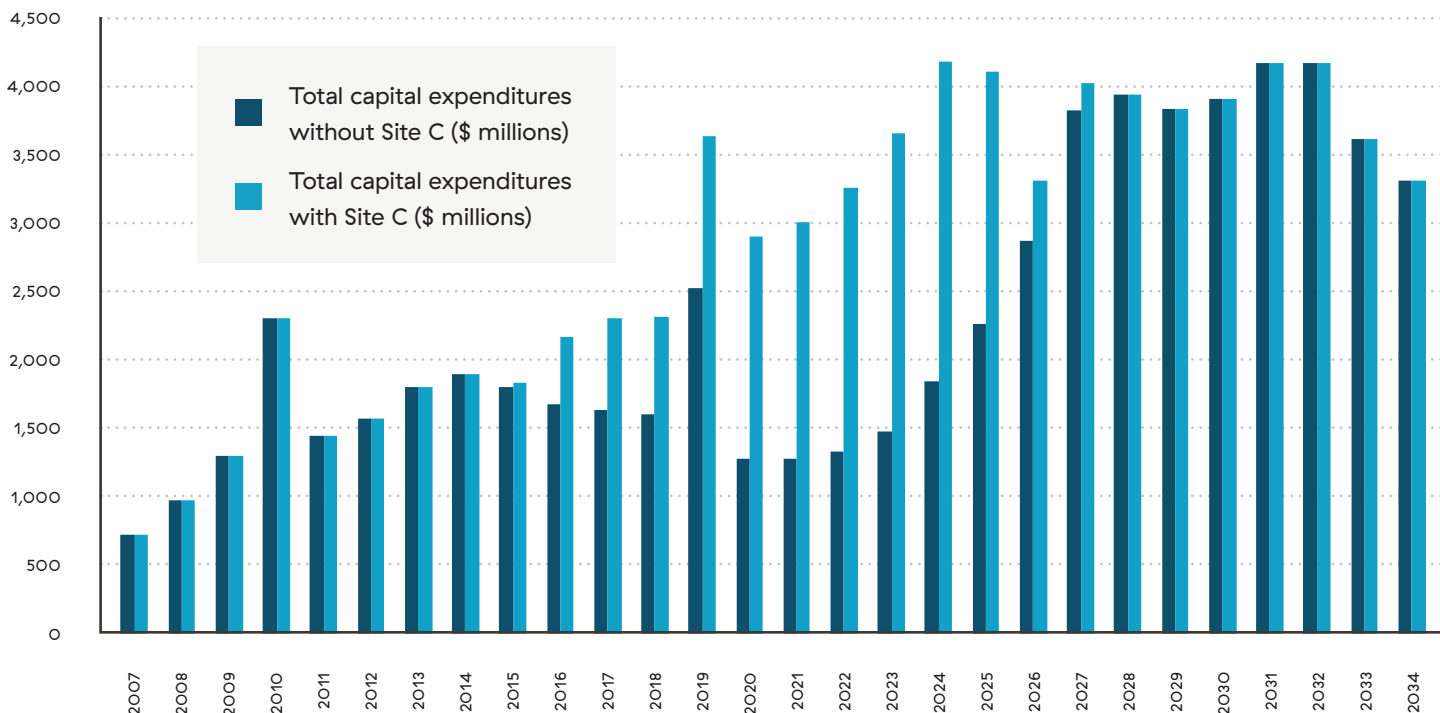


Connecting communities: BC Hydro's capital plan roadmap towards a sustainable future

On the heels of moving forward with the call for power in spring 2024, we are embarking on the next significant step forward—the release of our next annual 10-Year BC Hydro Capital Plan containing \$36 billion¹ in community and regional infrastructure investments across B.C. This new plan from Fiscal 2025 to 2034 represents an increase of about 50 per cent in investments over our previous capital plans, and reflects the province's growing demand for electricity over time from residential, commercial, transportation and industrial sectors.

¹ Net of contributions in aid of construction such as customer payments under tariff

Capital expenditures



Our 10-Year Capital Plan includes investing in our generation assets, large transmission infrastructure and community substations and local wires that deliver power to homes and businesses across the province with three main objectives:

- support the electrification of our province and meet CleanBC emissions reductions targets;
- reinforce our system to enable customer connections and meet load growth; and,
- sustain our system, ensuring we can safely and reliably meet the needs of our customers while keeping rates low.

Job creation

These capital investments will provide many thousands of high-quality jobs for skilled workers, and generate economic growth for First Nations and communities all over the province. We are estimating our 10-Year Capital Plan will support **10,500 to 12,500 jobs, on average, annually.**



We will meet these objectives through the following investments over the next decade:

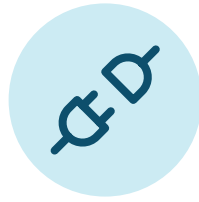
- \$21 billion of investments in existing assets across the system, ensuring it can handle the expansion and continue to serve future generations.
- Close to \$10 billion in new electrification and greenhouse gas reduction efforts—including removing the reliance on diesel generators in remote communities.
- More than \$5 billion to support new customer connections, particularly in high growth areas of the province. These investments will support residential housing growth, residential electrification, electrification of transit and industrial electrification.

The 10-Year Capital Plan is reviewed annually, and will be updated to reflect additional investments in the future to support communities and businesses across the province as they grow and as new projects are identified and initiated.

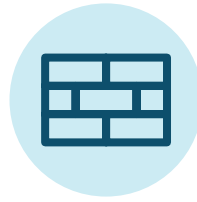
THREE PILLARS OF BC HYDRO 10-YEAR CAPITAL PLAN



Sustainment
\$21 BILLION



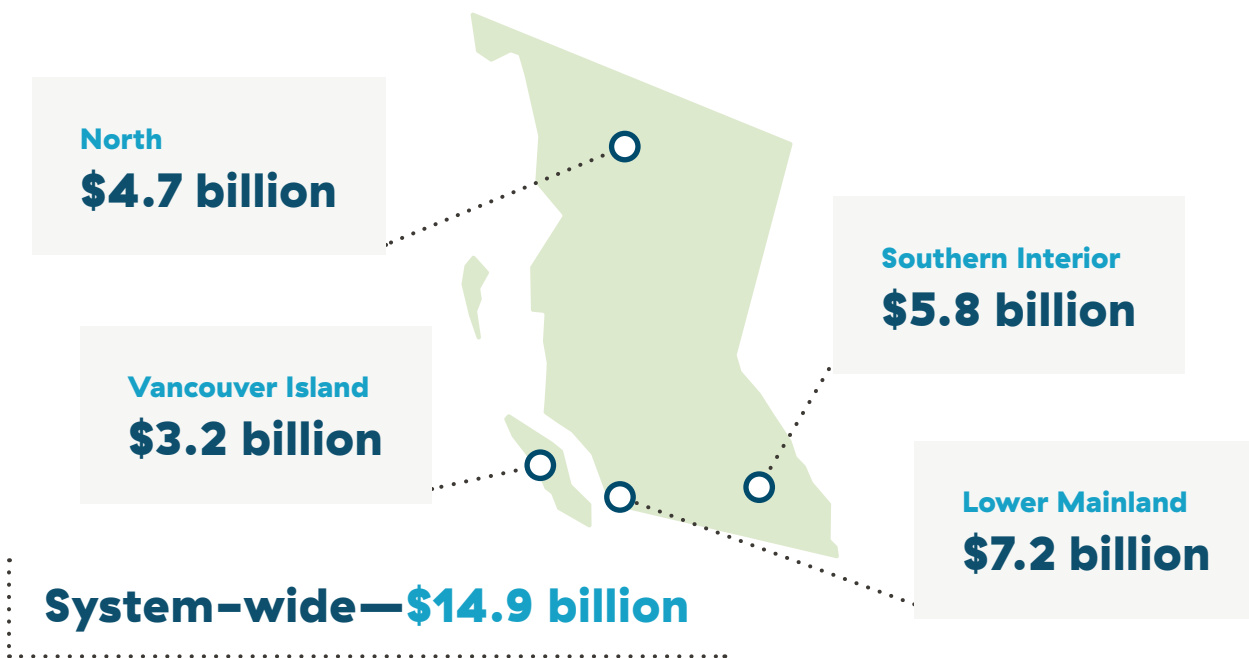
**Electrification and
GHG reduction**
\$10 BILLION



Reinforcement
\$5 BILLION

These investments will be made across our system which spans the entire province, resulting in significant investments in the regions and communities our customers live and work in.

REGIONAL SYSTEM SPEND BREAKDOWN



New electrification and greenhouse gas reduction efforts

As we look ahead, we are anticipating under a range of scenarios that our demand for power will increase by 15 per cent or more by 2030. To meet growing demand, we are making the investments set out in our 10-Year Capital Plan, in addition to adding new clean and renewable generation, to ensure the infrastructure is in place to get safe, reliable power to our customers.

HIGHLIGHTS INCLUDE:

- **Investments in high growth areas:** One important step we are taking to support the pace of electrification and population growth is investments in high growth areas. A total of 12 areas were identified across the Lower Mainland and Vancouver Island where additional capacity will be needed, and our investments in these areas will support residential housing growth, residential electrification, electrification of transit and industrial electrification.

Investments include seven new substations and five redevelopments/expansions, as well as three regional transmission capacity expansions. In identifying the need for these projects, we will be working closely with our communities, First Nations and stakeholders, all of which also hold an important role and interest in building out our system.

EXAMPLES OF SUBSTATION PROJECTS INCLUDE:

- **Mount Pleasant substation expansion:** The Mount Pleasant substation was built to accommodate future expansion within the existing footprint, adding additional transformer capacity and feeder sections without major modifications of substation building and structures. This project will add enough capacity to supply an additional 30,000 to 50,000 homes and is expected to be in-service in Fiscal 2029.
- **Scott Road substation rebuild:** North Surrey, including Surrey City Centre, South Westminster and Guildford, is one of the fast-growing areas in the Lower Mainland and is presently supplied by two substations—Scott Road and Whalley substations. To accommodate this load growth, a new substation will be built within existing property to serve the North Surrey area. BC Hydro expects it to be in-service in Fiscal 2030 and it will provide power to 20,000 to 35,000 homes.
- **New (Goldstream) substation in Colwood:** Colwood substation serves the City of Langford and the City of Colwood. The area has several large developments, including South Skirt Mountain, Bear Mountain, Westhills and Royal Bay developments. To accommodate the anticipated growth, BC Hydro is planning a new substation that will provide power to 40,000 to 70,000 homes and is expected to be in-service by Fiscal 2031.

High growth area substation investments

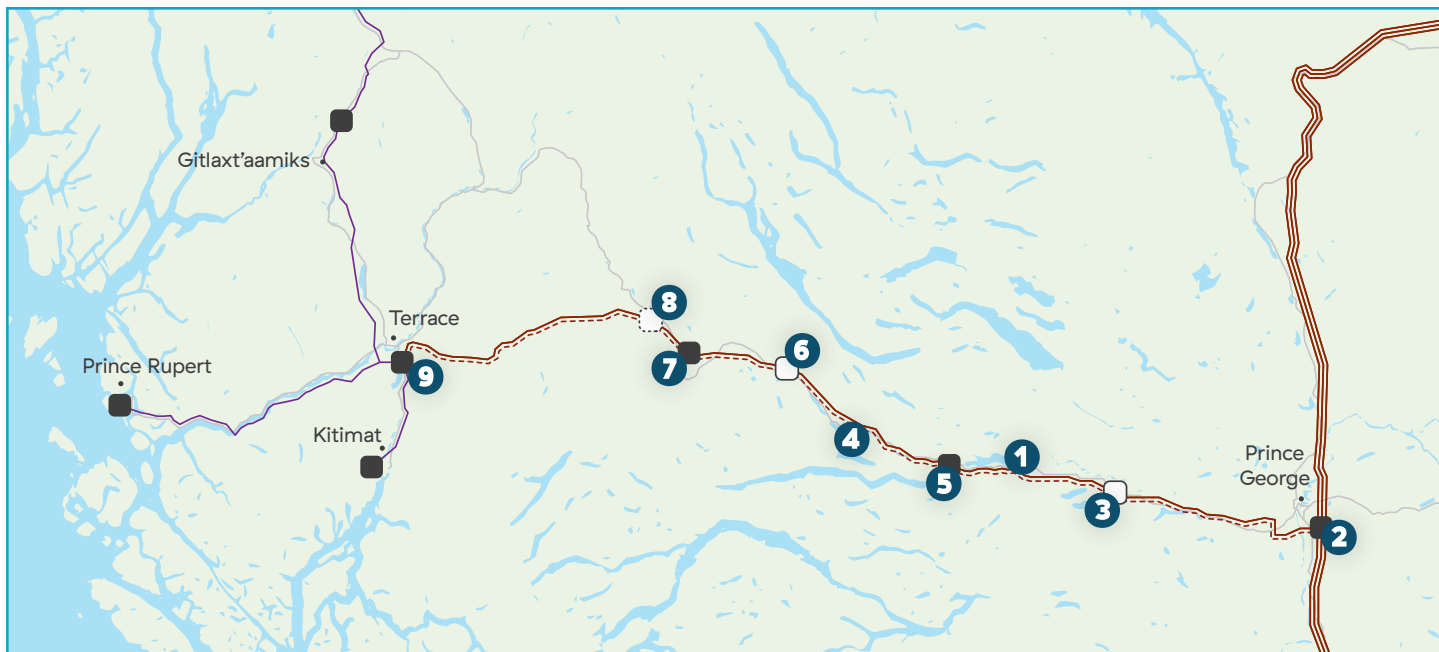
Substations are vital parts of the electricity system in communities that ‘step down’ high voltage electricity from the transmission system to lower voltage electricity so it can be easily supplied to homes and businesses in the area through lower voltage distribution lines. Replacing and upgrading substations is an important part of serving future loads to meet increased demand from growing neighbourhoods.

New	Redevelopment
Metrotown substation	Mount Pleasant substation upgrade,
East Vancouver substation	Maclellan substation (Surrey/Langley) upgrade
West End substation	Lougheed substation rebuild
Goldstream substation (Colwood)	Barnard substation upgrade
Surrey City Centre substation	Newell substation upgrade
Campbell Heights substation	Steveston substation upgrade
Willoughby substation	Scott Road substation rebuild
	North Coast Transmission line (see next page)

UNLEASHING OUR SHARED ECONOMIC POTENTIAL: PLANS FOR NORTH COAST DEVELOPMENT

The North Coast of B.C. is experiencing growth from sectors such as ports, mining, hydrogen and liquified natural gas. In response to BC Hydro’s 2023 Expression of Interest, the mining sector accounted for the largest number of individual submissions and the hydrogen sector accounted for the largest amount of proposed future demand. The diversity of industries, as well as the magnitude of the potential demand, are clear signals that new transmission infrastructure between Prince George and Terrace is needed. Providing access to clean, renewable electricity will encourage economic development while reducing and avoiding greenhouse gas emissions, which supports the CleanBC climate targets, the StrongerBC economic plan, as well as B.C. and Canada’s critical minerals strategies.

In partnership with customers and First Nations, there are three transmission upgrade projects currently under planned development: Prince George to Terrace Capacitors, Prince George to Glenannan Transmission, and Glenannan to Terrace Transmission. As transmission customers in the region finalize their investment plans, additional interconnection projects will also be initiated.



Prince George to Glenannan (PGTG):

- 1 New 500kv line
- 2 Expansion of Williston substation
- 3 Saranovich Capacitor Station

Glenannan to Terrace Transmission

- 4 Two new 500kv lines
- Station expansion:**
- 5 Glenannan substation
 - 6 Palling capacitor station
 - 7 Telkwa substation
 - 8 Walcott capacitor station
 - 9 Skeena substation

Investing in our existing assets and expanding our system

Spanning the vast terrain of beautiful British Columbia, our system crosses mountain tops, and waterways across a range of climates, connecting our urban centres with some of the most remote communities and islands in the province.

Built largely in the 1960s, 1970s and 1980s, many parts of our infrastructure are in need of refurbishment and expansion in order to meet the growing population expansion and energy needs. Upgrading and maintaining aging assets so that our customers continue to receive reliable electricity is vital. Sustaining the system involves \$21 billion in operations and maintenance expenditures including replacing aging power poles and lines, upgrading transformers and substations, as well as making critical investments to ensure the safety of dams and reservoirs.

EXAMPLES OF TRANSMISSION PROJECTS INCLUDE:

- **Metro South Transmission Reinforcement:** Burnaby and South Vancouver are growing, to serve the communities better BC Hydro is initiating a new 230 kilovolt transmission reinforcement project that will bring power from our 500 kilovolt Ingledow substation in Surrey.
- **Ingledow to Vancouver Island Terminal Reinforcement:** To meet the growing load on Vancouver Island, this project will replace the end-of-life 138 kilovolt submarine cables in the Strait of Georgia with new 230 kilovolt cables, along with upgrades at the Arnott substation in Delta and the Vancouver Island Terminal substation near Duncan to increase transmission capacity.
- **North Montney Region:** We're exploring the feasibility of extending our transmission infrastructure into the North Montney region. The proposed project would entail the construction of a 230 kilovolt transmission line from a BC Hydro substation in the vicinity of either the GM Shrum or the Site C Generating Stations.

HIGHLIGHTS INCLUDE:

- Upgrading our dams and generating facilities to make them safer, more reliable and more efficient.
- Advancing a wide array of sustainment programs on the transmission and distribution lines, including wood pole replacements, reconductoring, capacity upgrades, and replacing aging and end-of-life infrastructure.
 - Reinforcing or rebuilding hundreds of kilometres of transmission and distribution lines.
 - Replacing over 25,000 transformers.
 - Replacing over 100,000 power poles.

Supporting new customer connections

More electrification means more customers looking to connect to our system. The 10-Year Capital Plan outlines how we will support new customer interconnection requests and ensure the system reinforcement is in place when it is needed—on both the transmission and distribution systems. This will ensure we can support more customers, faster.

HIGHLIGHTS INCLUDE:

- We are forecasting over 180,000 new residential accounts over the next 10 years. And, we are building over 50 new distribution feeders in the next five years that can supply about 200,000 new homes.
- Over 250 kilometres of new major underground distribution infrastructure is also under construction.
- On the transmission side, we have nearly 50 projects in progress, and that number is expected to grow over the coming years as new projects enter the queue.

Balancing affordability

While investing and growing our system is important, ensuring rates remain affordable is equally as important. We currently have the second lowest residential electricity rates in North America, and the third lowest commercial and industrial rates, and we are committed to ensuring our rates remain affordable while investing in our energy future. As we move to build into our future by investing in current and new assets, BC Hydro is working to keep cumulative rate increases below inflation over time.

Working alongside government, we are taking action now to build and expand on a shared future powered with clean energy, including increasing our generation capacity, increasing capital investments in our electrical system, and making it easier for customers to reduce their carbon footprint and make the switch to electricity.

B.C. is well positioned to lead the way in the energy transition—we have a history of meeting big challenges, and this will be no different. Together, we can create a bright and inclusive energy future.

