Peace Region **Electricity Supply Project** open house





Welcome!

Please take a look at our materials to learn more about the project and what to expect during construction.

Project team members are here to answer your questions, so please have a chat with us.



Project Scope

We are building two parallel 230 kilovolt power lines between the Site C Substation that's under construction near Fort St John and the existing Groundbirch Substation, located about 30 kilometres east of Chetwynd. The lines will be approximately 58 kilometres long.

Upgrades will be required at both substations.

We will also need to build new access roads and upgrade existing

access roads in the area.





What is a power line?

Power lines move electricity long distances over a group of interconnected structures, lines and associated equipment. Electricity is moved from where it is generated to where it is used by consumers. High–voltage power lines are also known as "transmission lines".



What alternatives were considered?

We studied and consulted on a number of alternatives as shown in the map below.

We assessed alternatives against a number of criteria, including safety, environment, schedule, cost, socio–economics, and First Nations and stakeholder feedback, and chose one to develop.

Why did BC Hydro select this alternative?

Least amount of clearing and access
 Avoids old growth forests
 road construction
 Shortest construction schedule

O Least risk to caribou

- Least visual impact from communities and highways
- O Avoids important First Nations sites

Shortest length and easiest to build (less challenging topography, better access, lower safety risks)

O Lowest cost



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Why is the project needed?

Electricity demand in the South Peace region is increasing, mainly driven by the gas industry.

The Peace Region Electricity Supply (PRES) Project will help to ensure that we can reliably provide electricity to our industrial customers who want to power their facilities with clean energy. PRES will help reduce greenhouse gas emissions by enabling

customers to use clean electricity rather than fossil fuels to power their equipment and operations.



Power line route

This summer, we'll be starting construction on two parallel 230 kilovolt power lines between the Site C Substation that's under construction near Fort St John and the existing Groundbirch Substation, located about 30 kilometres east of Chetwynd.

We have designed the route to:

- O Move away from watercourses and riparian habitat
- O Avoid winter ungulate range
- Avoid old growth management areas
- Avoid area-based woodlot tenures
- O Run adjacent to existing access routes
- O Cross flatter, drier topography instead of steep hillsides and low, wetter regions



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Power line design

What will the structures look like?

We will be building two side-by-side power lines on wood pole "H-Frame" structures. An example of these types of structures is shown below.

We will use some steel H-frame structures at river crossings.



Why this type of structure?

Four different structure types were considered for the project.

We decided to build wood H-frame structures for the

following reasons:

- O Least visual impact
- O Simplest to maintain
- O Fastest to build
- O Lowest cost
- Provided more design options (could build one or two power lines depending on electricity demand)



Environmental work

Archaeology

We conducted an Archaeological Impact Assessment for the project in 2016 and 2017.

- O 10,844 subsurface tests were excavated
- 99 new archaeological sites were recorded within the study area—sites identified were lithics (stone objects that have been culturally modified)

Archeology work during the construction phase of the project includes monitoring and mitigation for sites impacted by the project.

Wildlife

A number of field surveys have been conducted to date, including:

- O Amphibian survey
- O Bird surveys
- O Wildlife cameras
- O Bat survey

- O Winter track counts
- O Pellet counts
- Aerial stick nest survey (helicopter survey)

We know that the decline of woodland caribou is a pressing wildlife concern in the Peace Region. Because of this, we selected a route that avoids proximity to woodland caribou habitat.

Wildlife work during the construction phase of the project includes pre-clearing surveys for nesting birds if vegetation removal is required within nesting season.





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Environmenta work

Fish and fish habitat

Field assessments were carried out on over 60 stream crossings. Only five were identified as fish-bearing:

Pine River

Favels Creek

Septimus Creek

- an unnamed tributary to Favels Creek \bigcirc

Stewart Creek

No instream works are planned in fish-bearing streams—the power lines span

Vegetation

In 2016, ecological communities field surveys were conducted to assess:

- Species or groups of species identified O Invasive plant species \bigcirc by Treaty 8 First Nations
- Plant species at risk \bigcirc
- Ecological communities at risk \bigcirc
- Riparian ecosystems
- Wetlands
- Grasslands

Vegetation work during the construction phase of the project includes developing sitespecific invasive plant and noxious weed control plans, and protecting rare plants.

Other assessments conducted to date

- Landscape ecology \bigcirc
- Traditional and non-traditional land use
- Visual resources
- Socioeconomics



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Environmental work

Environmental management and mitigation

We prepared a Construction Environmental Management Plan for the project. This plan includes requirements for protection of the environment, including environmental monitoring and environmental compliance auditing during construction and restoration. Activity–specific Environmental Protection Plans will

also be developed.

The project design aimed to avoid impacts where possible, as shown in the examples below.

New road networks were adjusted to avoid archaeological sites and wetlands.



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Environmental work

The power line route was adjusted to avoid sensitive fish-bearing riparian areas. The route was moved to drier upland positions adjacent to existing roads





Collaborating with First Nations

We place a high value on our relationships with First Nation communities. To successfully deliver our projects, we need to work closely with First Nations, particularly those most affected by our past, present and future infrastructure. First Nations in the

northeast have been, and continue to be, affected by development in the region.

As part of the PRES Project, we have been working with Treaty 8 First Nations. Through early information–sharing and development of close working relationships, we seek to incorporate First Nations' interests into our business, including operations and delivery of our projects.





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Collaborating with First Nations

During the design stage of the PRES Project, we've been working in collaboration with the Treaty 8 communities to incorporate their interests and concerns into project planning and mitigation of impacts.

Their input has informed the route selection, and power line route alignment. Community members have also been actively involved in the environmental and heritage fieldwork studies, as well as delivering Traditional Use Studies to inform the project.

We aim to provide lasting economic and social benefits for Indigenous communities, and we will continue to work with First Nations throughout construction.





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Construction schedule

Construction will begin this summer and we expect to put the project into service in late 2O21. Remediation and reclamation will continue for another one to two years after the in-service date.

	Timing	Activities
Geotechnical work	Mid June 2018 to late July 2018	 Investigating geotechnical conditions along the proposed route (note this will include some helicopter work)

Line clearing	July 2018 to summer 2019	
Groundbirch Substation construction	Late summer 2018 to late fall 2020	 Site preparation (access upgrades, clearing) Connecting PRES power lines into the substation Civil and electrical work Commissioning
<section-header><section-header></section-header></section-header>	Summer 2018 to spring 2021	 Construction of a new 230 kilovolt yard at the Site C Substation (which is currently under construction as part of the Site C project) Connecting PRES power lines into the substation Addition of two new transformers and other electrical equipment Civil and electrical work Commissioning
Power line construction	Summer 2019 to fall 2021	 Foundation installations Structure assembly and erection Stringing Commissioning

What to expect during construction

Safety is our top priority. We ask hunters, trappers and recreational users to use caution along our power line route. Please watch for signs that indicate active work areas and do not hunt, shoot or set traps in areas where construction could be planned or occurring.

There may be increased traffic on roads in and around the project area during construction; however, we do not anticipate adding a substantial amount of traffic when compared to current users in the area. There may also be increased use of accommodations in surrounding communities **BCHydro** by workers.

Technical materials and procurement opportunities



To build the Peace Region Electricity Supply Project, it will take a lot of highly technical equipment and qualified workers. Take a look at the lists below to get an idea of how much work goes into a project like this.

What materials does BC Hydro need to build the power lines?

- 550 wood pole "H–frame" structures O \bigcirc
- 80 wood pole anchor structures \bigcirc
- 12 steel pole H−frame structures

Also included: \bigcirc

- O Steel cross arms
- O Suspension insulators
- O Splice

- O Grounding
- \bigcirc Spacers
- O Vibration dampers
- 2 steel monopole anchor structures ○ 400 kilometres of conductor (the wire) you see strung on power lines)

O Guy wire O Marker balls

O Structure numbers



Technical materials and procurement opportunities

What equipment and materials does BC Hydro need to complete the substation upgrades?

- 9 high voltage circuit breakers 6 new transformers (single-phase 500/230 kilovolt power 22 high voltage disconnect switches transformers—200 MVA each)

Also included:

- O Gantry steel structure and structural steels
- O Bus/bus supports
- O Surge arresters
- O Series reactors

O Insulators

- O Power/control cables
- O Protection and control relays/panels

O CTs O VTs O CVTs

What type of contractors does BC Hydro need?

- Clearing contractors for 58 kilometre \bigcirc long right-of-way (the land under and around our power lines)
- Road construction contractors for 53 kilometres of new roads
- O Line contractor for construction of the power lines
- Specialized civil contractor for \bigcirc construction of pilings and foundations for the steel monopole structures
- O Civil and electrical contractors for substation developments

What kind of people will the contractors be looking for?

○ Tree fallers

Safety officers

- Power line technicians
- Red seal trades
- **Environmental monitors**

- First aid attendants
- And more...

Where can I find information about upcoming opportunities?

Local trades and suppliers are welcome to visit BC Bid (bcbid.gov.bc.ca) to get information on procurement opportunities available for this project.

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Next steps

We will continue to keep you updated as construction proceeds.

- If you have any questions, please contact us at:
- Email: projects@bchydro.com
- Phone: 1866 647 3334

